Are we missing something? What are medical students missing out on, and why, when they are excluded from doctor patient encounters in general practice?

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ABSTRACT BOOK

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CONGRESS CENTRE, BASEL, SWITZERLAND

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Sunday 26 August

1730-1915	Session 1		
	1	Plenary/Opening	Science fiction in medical education

Monday 27August

0830-0945	Session 2		
	2	Plenary	How to achieve the impossible
1015-1200	Session 3	**Simultaneous Sessions**	
	3A	Symposium	Not Your Mother's CPD! The Real World as we know it!
	3B	Symposium	The rise of virtual and augmented reality in medical education: are we breaking the final frontier in teaching?
	3C	Symposium	Equity in the global health sciences education community: levelling the playing fields?
	3D	Short Communications	Student Stress & Burnout
	3E	Research Papers	Approaches to Assessment
	3F	Research Papers	Teamwork
	3G	Patil Teaching Innovation Awards	Patil Teaching Innovation Awards 1
	3H	PechaKucha™	PechaKucha™ 1
	3I	Short Communications	Assessment: General/Written
	3J	Short Communications	Assessment: EPAs
	3K	Short Communications	Professional Identity
	3L	Short Communications	Curriculum: Development
	3M	Short Communications	Gender
	3N	Short Communications	Selection
	3O	Short Communications	Student Engagement
	3P	Short Communications	Faculty Development 1
	3Q	Short Communications	Postgraduate Education 1
	3R	Round Table	Assessment of Trainees
	3S	Workshop	The World Federation for Medical Education (WFME) Recognition Program for Accrediting Agencies: Purpose, processes, and criteria
	3T	Workshop	Cracking the Code: How to prove the return on investment from medical education interventions
	3U	Workshop	Planning and orchestrating change: From change management to change stewardship
	3V	Workshop	Preparing Faculty to Conduct GT-RR Reflection Rounds: A Space for Students to Explore the Meaning of their Interactions with Patients
	3W	Workshop	Golden standards for medical specialist training in Europe
	3X	Workshop	Simulation, Entrustable Professional Activities and the medical school clinical clerkship
	3Y	Workshop	Are you ready for smart patients? Are your digital capabilities up to speed in a digitised and democratised world?
	3Z	Workshop	Creating your personal learning network: 10 tips from a systems lens

	3AA	Workshop	Experiences with Entrustment Decision Making in EPA-based medical training. Practical insights from the Netherlands and Germany
	3BB	Workshop	Assessing Cultural Competence in OSCEs
	3CC	ePosters	Technology Enhanced Learning & Flipped Classrooms
	3DD	Posters	Surgical Education
	3EE	Posters	OSCE and Work Based Assessment
	3FF	Posters	Simulation 1, including Standardised Patients
	3GG	Posters	Postgraduate Specialist Training
	3HH	Posters	Interprofessional Education - Postgraduate
	3II	Posters	Transitions in Education / Professionalism
	3JJ	Posters	Clinical Teaching 1
	3KK	Posters	Communication
1400-1530	Session 4	Simultaneous Sessions	
	4A	Symposium	Acquisition, Maintenance, and Verification of Surgical Skills
	4B	Symposium	Intersections, Introspections and Divergences: Sustaining the Growth of Medical Education Research and Training
	4C	Symposium	Open Space Technology Applied to Wicked Issues in Medical Education and Health Care Practices
	4D	Symposium	The role of the Biomedical Sciences in Teaching and Learning Medicine in the 21st Century
	4E	Research Papers	Success & Failure
	4F	Research Papers	Teaching
	4G	Patil Teaching Innovation Awards	Patil Teaching Innovation Awards 2
	4H	PechaKucha™	PechaKucha™ 2
	4I	Short Communications	Curriculum: Community Based/Rural Teaching
	4J	Short Communications	Assessment: Progress Test
	4K	Short Communications	Curriculum: Empathy
	4L	Short Communications	Social Accountability
	4M	Short Communications	International 1
	4N	Short Communications	Clinical Reasoning 1
	4O	Short Communications	Clinical Teaching 1
	4P	Short Communications	Portfolios
	4Q	Short Communications	Postgraduate: Junior Doctor as Teacher
	4S	Workshop	Applying Threshold Concepts to Health Professional Education— Helping the Struggling Learner
	4T	Workshop	The (Forgotten) Art of Receiving Feedback
	4U	Workshop	Adopting Learning Analytics in Medical Education
	4V	Workshop	Causes and prevention of cognitive errors (diagnostic error). How will they inform our methods of teaching this to our learners? Is this possible?
	4W	Workshop	Developing Continuing Education and Professional Development Programs to Optimize Practice
	4X	Workshop	Learning from Failure? How should we prepare newly qualified clinicians and clinical environments to enhance patient safety?
	4Y	Workshop	Making workplace-based assessment work: leveraging tensions in assessment for learning

	4Z	Workshop	How to break barriers? International faculty development collaboration
	4AA	Workshop	Use the map: a practical workshop on curricular mapping for faculty development and CPD programming
	4BB	Workshop	Online assessment with the students' own devices: An evidence based and practical approach to eAssessment
	4CC	ePosters	Engaging with Learning - game-based, problem-based & practice-based
	4DD	Posters	Adaptive Curriculum
	4EE	Posters	Written Assessment and Final Exam
	4FF	Posters	Anatomy/Ultrasound
	4GG	Posters	Selection and Widening Access
	4HH	Posters	Interprofessional Education - Undergraduate
	4II	Posters	Flipped Classroom
	4JJ	Posters	The Teacher and Challenges/Research in Medical Education
	4KK	Posters	Student in Difficulty/Student Engagement
	4LL	Meet the Experts	Meet the Experts: Assessment Clinic
1600-1730	**Session 5**	**Simultaneous Sessions**	
	5A	Symposium	Educating health professionals for the e-patient
	5B	Symposium	How to implement IPE in medical curricula?
	5C	Symposium	Simulation Education In and Across the Health Professions: It's More than Just Doctors and Nurses!
	5D	AMEE Fringe	AMEE Fringe 1
	5E	Research Papers	Learning in Experimental and Clinical Contexts
	5F	Doctoral Reports	Doctoral Reports 1
	5G	Short Communications	Surgical Education
	5H	Short Communications	Teaching and Learning
	5I	Short Communications	Learning Experiences
	5J	Short Communications	BEME
	5K	Short Communications	Curriculum: Ethics
	5L	Short Communications	Curriculum: Education Environment
	5M	Short Communications	International 2
	5N	Short Communications	Clinical Reasoning 2
	5O	Short Communications	Clinical Teaching 2
	5P	Short Communications	Student Wellbeing
	5Q	Short Communications	Postgraduate: Wellbeing & the Doctor in Difficulty
	5R	Round Table	Professionalism
	5S	Workshop	Leveraging Technology to Optimize CME, Clinical Care & Patient Engagement
	5T	Workshop	Professionalism in Practice: The Resident Supervisor's Role in Training, Feedback, and Assessment
	5U	Workshop	Politeness + Hedging = errors in performance calibration: A workshop to promote clarity in performance assessment and feedback language for Health Professions Educators
	5V	Workshop	Young medical educators' workshop: Habits of Highly Successful Academicians
	5W	Workshop	Making student engagement more meaningful

	5X	Workshop	Show Us How: Assessment for Learning in Interprofessional Education and Collaboration
	5Y	Workshop	Virtual Reality and Augmented Reality in Simulation-Based Medical Education
	5Z	Workshop	How faculty developers can create a path to education scholarship
	5AA	Workshop	How to create a competence-based medical education (CBME) event to foster active learning in continuous medical education (CME)
	5BB	Workshop	International perspectives on incorporating concepts of social determinants of health into core curricula: challenges and opportunities
	5CC	ePosters	Assessment & Evaluation
	5DD	Posters	Faculty Development
	5EE	Posters	Formative Assessment and Feedback
	5FF	Posters	Curriculum Content including Palliative Care
	5GG	Posters	Professional Identity
	5HH	Posters	Trainee Wellbeing and the Doctor in Difficulty
	5II	Posters	Social Media/Games
	5JJ	Posters	Junior Doctor as Teacher/Teacher as Mentor and Role Model
	5KK	Posters	The Student/The Student as Teacher

Tuesday 28 August

0815-0945	Session 6		
	6	Plenary	Got Resilence? Promoting resilience wellbeing, and vitality in healthcare professions education and organizations: An integrative approach
1015-1200	Session 7	Simultaneous Sessions	
	7A	Symposium	Mind-body interventions in Health Professions Education: Challenges, Strategies for Implementations and Lessons Learned
	7B	Symposium	Faculty Development for Organizational Change
	7C	Symposium	Lessons Learned: progressing knowledge by intelligently considering failures
	7D	Symposium	Diagnostic error: from clinical reasoning to patient outcome
	7E	Research Papers	Workplace-Based Assessment & Diagnosis
	7F	Research Papers	Shame, Bravery, Confidence & Trust
	7G	Short Communications	Adaptive Curriculum 1
	7H	Point of View	Point of View 1
	7I	Short Communications	Curriculum: Evaluation
	7J	Short Communications	Assessment: Feedback
	7K	Short Communications	Curriculum: Competency Based Medical Education
	7L	Short Communications	Curriculum: Themes
	7M	Short Communications	Continuing Professional Development
	7N	Short Communications	Diversity
	7O	Short Communications	eLearning 1
	7P	Short Communications	Student Learning Styles & Characteristics

	7Q	Short Communications	The Teacher
	7R	Round Table	Multiple Mini Interview
	7S	Workshop	The Steps of Curriculum Integration - practical and playful understanding
	7T	Workshop	Interprofessional communication in clinical settings: from training professionals to changing culture
	7U	Workshop	The Role of the Educator in Improving the Quality of Postgraduate Medical Recruitment and Selection processes
	7V	Workshop	Medical Humanities today: how to teach it
	7W	Workshop	Where do I start? Planning a health education systematic review. A BEME workshop
	7X	Workshop	Continuing Health Profession Education: Innovative approaches to putting theory into practice for curriculum development
	7Y	Workshop	The Science of Teams: Developing and Transforming Effective Teams
	7Z	Workshop	I Teach, Therefore I Am: Examining Pedagogical Identity for Online and Face-to-Face Learning
	7AA	Workshop	How to shoot, edit and distribute educational videos through Social Media (SoMe)
	7BB	Workshop	Context matters: Exploring the role of place in health professions education
	7CC	ePosters	Multiple perspectives - diversity, well-being & communication
	7DD	Posters	Surgical Simulation
	7EE	Posters	Use of Technology and Specialist Training
	7FF	Posters	Empathy and Ethics
	7GG	Posters	Integration and Curriculum Planning
	7HH	Posters	Approaches to Curriculum Evaluation and Education Environment
	7II	Posters	Problem Based Learning/Team Based Learning
	7JJ	Posters	Clinical Teaching 2
	7KK	Posters	Leadership and Management
1400-1530	Session 8	Simultaneous Sessions	
	8A	Symposium	Playing Devil's Advocate: Research that challenges how we think about Clinical Supervision
	8B	Symposium	Developing consensus-based guidelines and education for Emergency Medical Teams for limb injuries in disasters and conflicts
	8C	Symposium	Stimulating medical education and medical education research: the dean's perspective
	8D	Symposium	What is the Value of Accreditation?
	8E	Research Papers	Career Trajectories & Mentorship
	8F	Doctoral Reports	Doctoral Reports 2
	8G	Short Communications	Surgical Simulation
	8H	Point of View	Point of View 2
	8I	Short Communications	Assessment: Clinical
	8J	Short Communications	Assessment: Programmatic
	8K	Short Communications	Curriculum: Anatomy
	8L	Short Communications	Career
	8M	Short Communications	Communication Skills 1
	8N	Short Communications	Interprofessional Education 1

	8O	Short Communications	Leadership
	8P	Short Communications	Teaching and Learning: Problem Based Learning/Team Based Learning
	8Q	Short Communications	Postgraduate: Specialist Training
	8R	Round Table	Self Directed Learning
	8S	Workshop	Developing and Integrating a Neuroanatomy Virtual Reality Tool for Medical Education
	8T	Workshop	Student Refugees in Europe: Barriers & Solutions to University Enrollment and Retention
	8U	Workshop	Transitioning to Competency Based Medical Education – Supporting direct observation in a non-procedural based specialty
	8V	Workshop	Faculty Development for Interprofessional Continuing Education: Employing an Innovative, Interactive Approach
	8W	Club	Simulation Journal Club
	8X	Workshop	How to use self-regulated (SRL) enhanced feedback in medical education
	8Y	Workshop	"Falling Through the Cracks": A Film and Curriculum for Teaching Teamwork Skills
	8Z	Workshop	'Diagnosing' and 'Treating' learners who struggle with clinical performance and reasoning
	8AA	Workshop	Knowledge Translation in Health Professions Education: The Start of a Conversation
	8BB	Workshop	The Standards of Best Practice by the Association for Standardized Patient Educators (ASPE SOBP)
	8CC	ePosters	Simulation
	8DD	Posters	Community Oriented Medical Education
	8EE	Posters	International
	8FF	Posters	Curriculum Content including Humanities and Prescribing
	8GG	Posters	Competency Based Education and Entrustable Professional Activities
	8HH	Posters	Continuing Professional Development 1
	8II	Posters	eLearning/Virtual Reality
	8JJ	Posters	Clinical Teaching 3
	8KK	Posters	Flipped Classroom/Games/Management
1600-1730	**Session 9**	**Simultaneous Sessions**	
	9A	Symposium	Managing the Tension -- From Innovation to Application
	9B	Symposium	Learners as Educators - Realizing Potential, Sharing Best Practices
	9C	Symposium	Are medical schools selecting students with the appropriate values for 21st century medicine?
	9D	AMEE Fringe	AMEE Fringe 2
	9E	Research Papers	Identity, Interactions & Embodiment
	9F	Short Communications	Patient as Educator
	9H	Short Communications	Accreditation
	9I	Short Communications	Assessment: National Licencing Exam
	9J	Short Communications	Work Based Assessment
	9K	Short Communications	Curriculum Mapping
	9L	Short Communications	Simulated Patients

	9M	Short Communications	Communication Skills 2
	9N	Short Communications	Interprofessional Education 2
	9O	Short Communications	Management
	9P	Short Communications	Flipped Classroom and The Lecture
	9Q	Short Communications	The Teacher as Mentor
	9R	Round Table	Student Engagement
	9S	Workshop	Assessing Assessment. ASPIRE assessment award winners discuss best practice approaches
	9T	Workshop	Theoretical and Practical Considerations for Serious Games Development & Implementation in Medical Education Part II
	9U	Workshop	What DON'T we find? Exploring absences in medical education research
	9V	Workshop	Longitudinal datasets in medical education: delivering evidence-based policy through tracking the educational continuum
	9Y	Workshop	Supporting a community of young educators through the AMEE Fellowship
	9Z	Workshop	Systematic capturing of professionalism lapses: the possible, the practical, and the preventable
	9AA	Workshop	Hot Topics in Medical Education: Cool Papers from 2018
	9BB	Workshop	Emotions Under the Microscope: Capturing Emotions in Health Professions Education
	9CC	ePosters	Transitions - new roles, workplace learning & professionalism
	9DD	Posters	Career
	9EE	Posters	Diversity
	9FF	Posters	Research and Evidence Based Medicine
	9GG	Posters	Patient Safety / Patients as Educators
	9HH	Posters	Continuing Professional Development 2
	9II	Posters	Teacher Evaluation
	9JJ	Posters	Student Stress and Burnout
	9KK	Posters	Curriculum Evaluation: Case Studies

Wednesday 29 August

0830-1015	Session 10	Simultaneous Sessions	
	10A	Symposium	Assessing Social and Behavioural Sciences in Medical Education: Square Peg in a Round Hole
	10B	Symposium	Undergraduate National Medical Licensing Exams from an international perspective: lessons learned and future directions
	10C	Symposium	Glocalisation of Medical Education and the Teacher's Role
	10D	Symposium	Social Realities Impacting Medical Education - XVI Iberoamerican Session
	10E	Research Papers	Discourse and Theory
	10F	Doctoral Reports	Doctoral Reports 3
	10G	Short Communications	Adaptive Curriculum 2
	10H	Short Communications	Continuing Professional Development: Revalidation and Assessment of Doctors in Practice
	10I	Short Communications	Professionalism
	10J	Short Communications	Assessment: OSCE
	10K	Short Communications	Transition

	10L	Short Communications	Simulation
	10M	Short Communications	The Clinical Teacher
	10N	Short Communications	Selection, including SJTs
	10O	Short Communications	eLearning 2
	10P	Short Communications	Faculty Development 2
	10Q	Short Communications	Postgraduate Education 2
	10R	Round Table	Student Stress and Burnout
	10S	Workshop	Use of Generalizability Theory in Designing and Analyzing OSCEs and Performance-based Tests
	10T	Workshop	Meeting the Challenges for Faculty in Global Surgical Education
	10U	Workshop	"Of Course I can Teach..." - Using Entrustable Professional Activities to develop and assess surgical educators
	10V	Workshop	Global Mobility and Preparedness of Medical Graduates and Students for Clinical Transitions: the case for an international medical curriculum
	10W	Workshop	Managing & Supporting the Educator in Trouble
	10X	Workshop	How to run a successful clinical school
	10Y	Workshop	Resources, Research, and Reality: Developing and applying Behavioural and Scenario based questions in your Interview process from MMI to Standardized interviews
	10Z	Workshop	Medical Student Mistreatment - A Multi-Specialty Perspective
	10AA	Workshop	Determining a "fit" between your education work and publication venues - A Society of Directors of Research in Medical Education (SDRME) Workshop
	10BB	Workshop	Striving for Excellence: How to stretch and challenge the more able Student/Trainee
	10CC	ePosters	Curriculum and Faculty Development - identifying & meeting educational needs
	10DD	Posters	Postgraduate Training: Early years
	10EE	Posters	Teaching and Learning Approaches
	10FF	Posters	Simulation 2
	10GG	Posters	Clinical Reasoning and Reflection
	10HH	Posters	Student Characteristics
	10II	Posters	Collaborative/Self Directed Learning/Porfolios
	10JJ	Posters	Threshold Concepts / Clinical Teaching / Simulation
	10LL	Workshop	Reviewing for AMEE MedEdPublish – enhancing scholarship
1045-1245	Session 11		
	11A	Plenary	Broadening the Curriculum Beyond Bioscience

SESSION 1: Plenary

Sunday 26th August

1730-1900 hrs

1: Plenary: Science Fiction in Medical Education

Location: Event Hall
Date: Sunday 26th August
Time: 1800-1850 hrs

Bertalan Meskó
Medical Futurist
Director, Medical Futurist Institute

Summary: Disruptive technologies are changing how medicine is practiced and healthcare is delivered. All stakeholders of healthcare from patients to physicians should prepare to get the most out of the Digital Health revolution in a way that the human component remains the key. Education has great potentials in this if we all prepare.

Biography: Dr. Bertalan Mesko, PhD is The Medical Futurist analyzing how science fiction technologies can become reality in medicine and healthcare. As a geek physician with a PhD in genomics, he is also an Amazon Top 100 author. With 500+ presentations including courses at Harvard, Stanford and Yale Universities, Singularity University's Futuremed course at NASA Ames campus and organizations including the 10 biggest pharmaceutical companies, he is one of the top voices globally on healthcare technology.
Dr. Mesko was featured by dozens of top publications, including CNN, the World Health Organization, National Geographic, Forbes, TIME magazine, BBC, and the New York Times. He publishes his analyses regularly on medicalfuturist.com.

SESSION 2: Plenary
Monday 27th August
0830-0945 hrs

2: Plenary: How to achieve the impossible
Location: Event Hall
Date: Monday 27th August
Time: 0830-0945 hrs

Bertrand Piccard
Explorer
Chairman of the Solar Impulse Foundation

Summary: In order to achieve great things a pioneer spirit is necessary, together with a firm belief that change is required. All this is illustrated through Bertand Piccard's own experience with the Solar Impulse project.

Biography: With his dual identity as a medical doctor and explorer, Bertrand Piccard has become an influential voice heard among the most distinguished institutions across the globe as a forward-thinking leader in progress and sustainability. He is independent, not affiliated to a particular party or lobbying group, and as such is a trusted adviser and influencer for the development of new societal solutions, and a very sought-after speaker for private and public audiences.

It is in Bertrand's DNA to go beyond the obvious and achieve the impossible, as he did with his two round-the-world flights, recently in a solar-powered airplane, and before that non-stop in a balloon. The ocean depths and the stratosphere attracted his father and grandfather; the challenges of our time fascinate him. Rather than new territories, he wants to discover new ways of doing and thinking, in particular in the field of clean technologies for a better quality of life. Bertrand is the initiator and visionary behind Solar Impulse, the very first airplane capable of flying perpetually without fuel. Taking turns at the controls with André Borschberg for the first flight around the world on solar power, his ambition is to leverage pioneering spirit for a useful contribution to the cause of renewable energies. This is why he spent the last 15 years bringing together the major partners providing technologies and funds for this adventure. Together with his wife Michèle, he conceived the Solar Impulse project as a now widely recognized platform to raise public awareness and encourage political actions in favour of clean technologies and energy efficiency, the next stage of which includes the establishment to this end of the World Alliance for Efficient Solutions under the aegis of the Solar Impulse Foundation. The inspiration he received from other explorers and pioneers during his childhood gave him the desire to inspire young generations in return.

SESSION 3: SIMULTANEOUS SESSIONS
Monday 27th August
1015-1200 hrs

3A: Symposium: Not Your Mother's CPD! The Real World as we know it!
Location: Event Hall
Date: Monday 27th August
Time: 1015-1200 hrs

Organised by the AMEE CPD Committee:
Lawrence Sherman, Academy for Global Interprofessional Learning and Education, Geneva, Switzerland

Summary of theme and why it is important: CPD represents the longest and arguably the hardest part of a clinician's education. Hardest because it is often unstructured, and left to the learners to define their own journeys. In some regions of the world, CPD is more formal and uniprofessionals, while in other areas it is largely incidental and unregulated. The continuously developing field of Interprofessional continuing education (IPCE) will be a topic of focus as well. A very interactive format will engage all participants in the session from start to finish. The AMEE CPD will be the organizers of this session. This symposium will challenge the status quo, explore best practices, and talk about why CPD may not even be what you think it is.
Who should participate in the symposium? Participants should include those who are responsible for designing, developing, delivering, assessing, funding, participating in, and those with an interest in the topic. Those with innovative ideas, opportunities for global collaboration, and those who are just curious are encouraged to attend.
What will you gain from participating? Participants will gain a board perspective of the global differences in CPD, an opportunity to share their own best practices with colleagues from around the world, and to participate in the AMEE CPD discussion!

3B: Symposium: The rise of virtual and augmented reality in medical education: are we breaking the final frontier in teaching?
Location: Montreal, 2nd Floor, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

Organised by the AMEE Technology Enhanced Learning Committee
Peter GM de Jong, Leiden University Medical Center, Netherlands (moderator)
Marlies EJ Reinders, Leiden University Medical Center, Netherlands (speaker)
Jennifer M McBride, Cleveland Clinic Lerner College of Medicine, USA (speaker)
Beerend P Hierck, Leiden University Medical Center, Netherlands (speaker)
Goh Poh-Sun, National University of Singapore (speaker)
James D Pickering, University of Leeds, UK (speaker)
Jos van der Hage, Leiden University Medical Center, Netherlands (opening discussant)

Summary of theme and why it is important: Virtual Reality (VR) and Augmented Reality (AR) are some of the most recent digital technologies being introduced in healthcare education with a potential to fundamentally change teaching. These technologies allow either an actual, simulated or augmented view of a real-world environment to be virtually projected, and provide opportunities for students to engage in unique learning experiences. Through the use of these computer-generated images, students can be exposed to virtual patients and to modern hospital settings in a safe environment that is able to be repeated numerous times. Currently, there is interest in the feasibility of applying these technologies in teaching medical students. Can they lead to curricula that require less training performed on patients or in stressful and chaotic high tech patient care environments? Do AR and VR help students better interact with concepts, functions or structures that are extremely difficult to visualize through traditional means, or prepare for surgical procedures that require knowledge of complex anatomical structures? This symposium will present state-of-the-art examples of the use of VR and AR in medical education, such as a 360 degree virtual operating theatre and a hospital setting of a ward round, and the use of holographic imagery in the anatomy curriculum. Theoretical perspectives regarding the pedagogy of VR and AR will be presented, alongside the importance of real-world training, with views on the extent to which these new technologies should either supplement or replace the current teaching models.
Who should participate in the symposium? This symposium will be beneficial to all involved in healthcare education who have an interest in virtual and augmented reality technologies, and who would like to learn more about utilising these technologies in their own teaching. It will also be of interest to those who are involved in longer-term policy-making for healthcare education programs.
What will they gain from participating? Participants in the symposium will gain a better insight into the current state-of-the-art of VR and AR techniques, their feasibility in today's teaching, the current obstacles for implementation, and the value and role of these technologies in the upcoming years.

3C: Symposium: Equity in the global health sciences education community: levelling the playing fields?

Location: Sydney, 2nd Floor, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

Presenters:
Manuel João Costa, School of Medicine, University of Minho, Portugal
Susan Van Schalkwyk, Stellenbosch University, Centre for Health Professions Education (CHPE), Stellenbosch, Western Cape, South Africa
Ming Jung-Ho, National Taiwan University, Graduate Institute of Medical Education & Bioethics, Taipei, Taiwan
Marco Antonio Carvalho-Filho, School of Medical Sciences, University of Campinas, Brazil
Lambert Schuwirth, Flinders Medical Centre, Flinders University, Australia

Summary: The global health professions education (HPE) community is growing exponentially. This growth ought to be mirrored in concomitant changes in the way in which HPE is practiced, in particular in the context of global health education, and in the way in which it is researched. In this symposium we explore the extent to which the expanding global community is experiencing participation in the sector, acknowledging that current literature suggests that most innovations and knowledge about health professions education originates from very few countries. Specifically we hope to provide an analysis of key bibliometrics related to HPE research with a view to providing insight into the current status quo. Thereafter we present work that has explored issues of 'powerful knowledge' and 'dominant discourses', and how these can influence the extent to which meaningful participation in a community of practice can be enabled or constrained leading to global players feeling either alienated or engaged. According to Wenger, 'belonging' is enabled in three ways: through engagement, imagination and alignment. Engagement in this context is seen as doing things with others within that community of practice. Imagination refers to a cognitive act of seeing oneself as a member of that community (a reconstruction of an existing identity or the construction of a new identity or identities). Alignment speaks to facilitating a synergy between the new ways of thinking and doing that a newcomer may introduce, and the more established practices within the community. Finally, we present perspectives from a newcomer researcher situated in a traditionally less participatory country and from a director of a research centre and experienced journal editor as to how they currently experience 'the playing field'.
The symposium is important because it will
Encourage reflection and debate on how the health sciences education community is moving forward;
Examine whether the worldwide education community is:
1. taking in contributions from everyone; 2. non-intentionally privileging particular cultures (the westernization hypothesis);

Provide insight into how colleagues across the world are seeing, finding and overcoming barriers to participation; Start a conversation about dominant discourses and practices, and how to reframe.
Who should participate in the symposium? Delegates who:
- Have ideas or concerns with participation/equity issues across the global health sciences education community;
- Would like to contribute to the conversation of examining and promoting international equity in the field;
- Participate as leaders of international programs, journals, meetings, etc…;
- Hold responsibilities in national communities related to the field and would like to participate in a discussion about national participation in the international playing field;
- Researchers and academics devoted to equity issues
What will they gain from participating?
- An understanding of asymmetries across the world
- An awareness of perspectives from across the community
- Insights and ideas to shift the status quo

3D: Short Communications: Student Stress & Burnout

Location: Singapore, 2nd Floor, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

3D1 (248)
The effect of effort-reward imbalance and overcommitment on academic engagement and burnout among medical students

Authors
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Na Jin Kim
Nani Kwon
Su Young Kim

Presenter: Jung Eun Hwang, College of Medicine, The Catholic University of Korea, Seoul, South Korea

Background: Academic engagement is a notable factor in higher education that predicts academic achievement and satisfaction. In contrast, 50-60% of medical students suffer from academic burnout. Recently, academic burnout and negative psychosocial consequences in adolescence have been explained by effort-reward imbalance model. Out of previous studies, influence of overcommitment varied depending on participants or outcome variables. Therefore, this study investigated effect of effort-reward imbalance on academic engagement and burnout of medical students.
Methods: Online questionnaires were sent to premedical, medical students in the Catholic University of Korea. Ninety-eight students responded to the survey. Effort, reward, effort/reward (E/R) ratio, overcommitment, academic engagement, academic burnout, and negative affect were assessed. We used hierarchical regression analysis to examine effects of demographic variables, negative affect (confounder), effort, reward, E/R ratio, overcommitment, E/R ratio X overcommitment (interaction) on academic engagement and burnout.
Results: For academic engagement, reward had a significant impact on academic engagement, after all variables had been added. The interaction term also influenced academic engagement at significance level of 0.1. That is, in the group with E/R ratio below 1, academic engagement was high regardless of level of overcommitment. However, in the group with E/R ratio more than 1, academic engagement decreased only when overcommitment was low. As for academic burnout, affiliation, age, negative affect, and reward significantly predicted academic burnout, after all variables had been entered.
Conclusion: This research explained medical students' academic engagement and burnout with an effort-reward imbalance model. The variable that commonly affected academic engagement and burnout was reward (respect from professors and fellow students, having a positive prospect for academic achievement). In addition, high overcommitment buffered negative impact of effort-reward ratio on academic engagement, as opposed to previous research that overcommitment aggravates negative impact of effort-reward imbalance. Among medical students with chronic academic stress, highly overcommitted students may continue to engage in learning, but less overcommitted may not. To reduce medical students' academic burnout and improve engagement, a learning environment to foster their esteem and positive prospect for academic achievement is needed.

3D2 (527)
The association between burnout and depression in medical students

Authors
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Alice McGarvey

Presenter: Orla Fitzpatrick, Royal College of Surgeons in Ireland, Dublin, Ireland

Background: Burnout and depression have emerged as priority mental health issues in universities and medical schools as evidence begins to accumulate showing the next wave of medical health professionals suffer from alarming rates of both. We aimed to quantify and understand burnout and depression in a medical student population, comparing the early and later years of medical education, as well as exploring the relationship between the extent of burnout and likelihood of depression.
Methods: A survey was conducted among 269 medical school students in both preclinical and clinical years at the RCSI. Students were asked to complete the Beck Depression Inventory (Fast Screen) and the Maslach Burnout Inventory (Student Survey). Burnout scores were calibrated to probability of depression caseness and classified as low risk (< 25%), intermediate (25-50%) and high risk (> 50%) of depression.
Results: The results showed a 39% (97/251) prevalence of depression based on a Beck Depression Inventory Fast Screen tool, and this did not vary significantly between clinical and preclinical years. The rate of burnout varied significantly between years (p=0.032) 35% in the high burnout category in clinical years compared with 26% in preclinical years. Those in the low, intermediate and high burnout categories had a 13%, 38% and 66% prevalence of depression, respectively.
Discussion: Burnout increases significantly as the learning environment changes between the early and later more clinical years. The severity of burnout correlates with the prevalence of depression. This highlights the importance of changing current types and delivery of welfare support in the RCSI, and indeed other medical colleges, to resolve the developing mental health difficulties in medical students as they progress through their medical education and into the workforce
Conclusion: There is a wealth of evidence indicating the need for changing strategies in tackling mental health issues in medical students, ones that should be begin early in students medical education in an effort to prevent the

worsening mental health associated with progression through medical school.

3D3 (1903)
Stress and Management among Medical Students in Chiang Rai Hospital, Thailand

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Presenter: Narisararat Triamvisit, Faculty Of Medicine , Chiang Mai University, Chiang Mai, Thailand

Background: The Medical Education Center of Chiang Rai Hospital (MECCR) is responsible for providing education and clinical clerkships (4th-6th years) for medical students. The new study environments which is different from the pre-clinical years at Faculty of Medicine, Chiang Mai University may create stress for these students.
Methods: To study the stress and depressive mood in our medical students, and how they deal with these issues, online anonymous questionnaires regarding stress patterns and management were created. Both stress and depressive mood were evaluated by standard questionnaires; Suan Prung Stress Test-20 (SPST-20) and a 9Q questionnaire, respectively. Data was analyzed using descriptive and logistic regression to identify factors associated with stress and depressive mood.
Results: In 2017, ninety-six of 104 medical students, primarily 4th-year (43.8%) responded. Overall, sixty-one students (63.5%) had a high-stress level and forty-eight students (50%) showed a depressive mood. The high-stress level that developed in 71.4% of the 4th-year students, was higher than in the 6th-year students (45.8%). Students with a high-stress level were 8.4 times more likely to develop a depressive mood compared with low-stress students (OR = 8.46, 95% CI = 3.19-22.38, p < 0.001). The factors associated with stress were major ward rotations (Internal medicine, Surgery), shortened time for final examinations and personal factors e.g., time management and health problems (p < 0.001). The top three solutions for relieving stress were resting (31.2%), watching media and/or listening to music (29.2%), and social media usage (15.6%).
Conclusion: Medical students under high-stress tended to have a depressive mood, especially in some specific ward rotations. Good support systems including mentors, institutional resources, and facilities might help them to deal with the stressful events. Appropriate extracurricular activities should be arranged to suit the medical students' preference such as meditation/mindfulness, music therapy, and sports.
Medical students have a high-stress level and depressed mood especially, when their learning environments change. Teachers should identify the high-risk students early and then take proper actions.

3D4 (300)
Mindfulness-Based Cognitive Therapy (MBCT) as a Well-Being Programme for Medical Students: Evaluation of a Pilot Programme

Authors
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Zhang DX

Presenter: Samuel Y.S. Wong, The Chinese University of Hong Kong, Hong Kong

Background: Psychological distress and burnout is common among medical professionals and medical students. Studies suggested that mindfulness-based interventions may improve well- being and reduce psychological distress among medical students.
Methods: Two mindfulness-based cognitive therapy (MBCT) classes were piloted; each class was conducted by an academic family doctor and a social worker/psychologist. A mass email was sent to all medical students of the Chinese University of Hong Kong in May, 2017 to invite them to join a 2-hour weekly MBCT for 8 weeks. The MBCT programme was run from July to August, 2017 and a questionnaire consisted of General Health Questionnaire (GHQ-12) and questions asking students' preferences for time and location of programme in addition to a question rating the importance of MBCT course was distributed to all students before and after each course.
Results: A total of 38 medical students from all years joined the 8 week program and 22 questionnaires were returned (58%). Only 16 students have completed both pre and post questionnaires and the results were analyzed using paired t test for comparisons. There were significant improvement of GHQ-12 score from 3.38 (3.03) to 0.81 (1.38) with p = 0.0055. The majority of respondents agreed the best time to run MBCT was during the summer before the start of semester (86%). They agreed that the teaching hospital was the most optimal location to run the course (82%). On a scale of 1 to 10 to rate the importance of MBCT to them, 82% rated the course as important to extremely important (a score of 6 or above).
Conclusion: It is feasible to run mindfulness-based course for medical students and may be useful for them to reduce psychological distress during their medical training.

3D5 (3585)
Educational justice and its relation to Academic Burnout in Medical Students

Authors
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Presenter: Zahra Abbasi Shaye, Clinical Research & Development Unit, Akbar Hospital, Mashhad University of Medical Sciences, Mashhad, Iran

Background: Academic burnout is the feeling of inadequacy and mental fatigue induced by chronic stress in students lacking the necessary resources to carry out their duties and tasks assigned to them. Some people believe that fair communication between teacher and student and encouraging students from the professor can lead to a reduction in students' academic burnout.
Methods: The present study was a descriptive-analytic cross-sectional study. The research population was medical students of Islamic Azad University of Mashhad in the year of 2017.The subjects were entered into the study by target- based sampling method.The instruments used in this study included two questionnaires of educational justice and academic burnout.
Results: 117 basic sciences medical students were entered in the study.The mean age of participants was 21.63 ± 2.78 and 69.2% (81) were female. In academic burnout the highest score was related to emotional exhaustion (38 ± 9.40) and the lowest score was related to academic unwillingness (8.73 ± 4.22). The score of educational justice was 56 ± 16.The total scores of academic burnout (r=-0.4 p-value: 0.0001), emotional exhaustion (r=-0.4 p-value: 0.001) and academic unwillingness (r=-4.8 p-value: 0.001) had statistically inverse significant relationship with educational justice score, and the only branch of educational inadequacy was not statistically significant with educational justice (r=-0.1 p-value: 0.26).
Regarding the results of this study and the relationship between educational justice and academic burnout in students, the creation of fair educational opportunities by professors, directors and heads of universities should be considered. Managers and heads of educational institutions can change the beliefs and views of the professors in the positive direction, by creating the same facilities for all students at the university level and creating workshops and appropriate training programs that help create educational justice through a similar and neutral approach to the students.
Conclusion: Educational justice can affect students' academic burnout and help their academic achievement so that attention to providing educational justice for students especially among medical students is necessary and appropriate solutions should be made to resolve it.

3D6 (3573)
A nationwide questionnaire examining the impact of a time limiting structural reform on the mental health of medical students in Denmark

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Eva Rudjord
Maria Vestager

Presenter: Andrea Maier, The Danish Association of Medical Students (FADL), Copenhagen, Denmark

Background: Politicians in Denmark have recently enacted strict time limits for students to complete their university degrees and for young doctors to begin their speciality training. The Danish Association of Medical Students (FADL) designed a questionnaire in order to better understand how the pressure from these new policies affects the behaviour and mental health of medical students.
Methods: A nationwide questionnaire examining medical students' satisfaction with their clinical training, the amount of career guidance, and their mental health was completed by 2883 medical students evenly distributed among all semesters of the four medical faculties in Denmark. Results were compared to the 2015 questionnaire to show changes over time since the introduction of the new policies.
Results: Key points from the questionnaire:
33% of Danish medical students have been engaged in a research project, and 62% are doing it to strengthen their curriculum vitae.
67% feel pressured by the strict time limits, and 85% believe that the postgraduate time limit for choosing speciality will give them less clinical experience.
55% are struggling with mental health problems including stress or anxiety, and 70% of these have sought professional help from a psychologist.
85% believe that the time limit policies contribute to the increasing stress among the students.
Discussion: The questionnaire shows that Danish medical students are shifting their extracurricular activities towards improving their curriculum vitae through research and clinical training that is not already in the curriculum. With less time to immerse themselves through education and student life, more and more are experiencing symptoms of stress and burnout before finishing medical school and more students seek professional help in order to cope. When implementing new policies it is important to consider the possible effects on students' opportunities for professional development and their mental health.
Conclusion: Structural changes in the education system, leading to a more rigid temporal structure of the medical education, encourages medical students to increasingly spend their spare time on CV-improving activities and creates a stressful environment among students.

3E: Research Papers: Approaches to Assessment

Location: Delhi, Ground Floor, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

3E1 (220)
Blink: Using rapid visual diagnosis to assess competence

Authors
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Matthew Sibbald, McMaster University, Hamilton, Canada
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Presenter: Sandra Monteiro, McMaster University, Hamilton, Canada

Abstract Text:
Introduction: A core component required of CBME is demonstration of competence prior to unsupervised practice. Therefore, there is a need to develop a new set of assessment instruments that determine competent practice in an authentic environment. While many skills must be evaluated in a context or specialty specific manner, visual diagnosis is a complex task nearly universal to medicine. X-rays and (often ECGs) are part of internal medicine, surgery emergency medicine, pediatrics, radiology and related subspecialties. The goal of the current study was to develop an assessment tool that establishes a benchmark of performance for diagnosing ECGs and lung radiographs.
Methods: Using a speeded protocol in which participants view diagnostic images for very brief time windows, we tested physicians' sensitivity to detecting abnormalities in ECGs and lung radiographs. This protocol has been shown to discriminate between novices and experts when diagnosing mammograms, however this is the first attempt to use this protocol as a competency assessment tool. We consulted experts from Radiology and Cardiology to develop materials for each specialty/format of imaging. Residents (12) and staff physicians (17) in Emergency Medicine were recruited as participants. Each participant completed two versions of the study. In both versions participants viewed diagnostic images and indicated whether the image was clinically normal or abnormal. Version 1 contained 100 ECGs and version 2 contained 100 lung radiographs. In each version, 50 images were normal and 50 were abnormal. Images were displayed at one of four time windows: 175ms, 250ms, 500ms and 1000ms. Images and timing windows were counterbalanced to ensure a balanced design. For each participant, we calculated a d' statistic as a threshold independent, normally distributed measure of accuracy, at each exposure time. The goal was to measure increasing d' from shorter to longer viewing times and also from less to more experience.
Results: Average d' was 0.83 for ECGs and 0.97 for radiographs. Critically, d' for junior residents was lower, (0.95) than senior staff (1.12) for radiographs. Similarly, d' for junior staff and residents was lower (0.79) than senior staff (0.87). As shown in previous studies, d' was smallest for the shortest viewing time, on average (0.72) at 175ms compared to (1.10) for 1000ms for both versions.
Discussion & Conclusion: The current study demonstrates the potential for using speeded tests as indicators of experience and competence. While in-depth data gathering and additional diagnostic testing may help confirm a working diagnosis, physicians rely only on their own experience to determine if there is any underlying pathology present in a diagnostic image. The study is a novel approach to isolating the effect of direct experience on clinical expertise.

3E2 (80)
Reaching consensus on unprofessional behaviour profiles of medical students: expert confirmation using Nominal Group Technique

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Presenter: Marianne Mak-van der Vossen, VUmc School of Medical Sciences, Amsterdam, Netherlands

Abstract Text:
Introduction: Evaluation of medical students' professional performance is difficult. Standardized narratives or 'profiles' offer a promising approach to evaluate performance and can facilitate identification of students who could benefit from remediation. In earlier research, three different profiles of medical students' unprofessional behaviours were identified: 1)Poor reliability; 2)Poor reliability and poor insight; 3)Poor reliability, poor insight and poor adaptability. The factor distinguishing between these three profiles appeared to be the capacity for self-reflection and adaptability.(1) Adding information that is generally agreed upon by experienced faculty could elaborate on these findings and underscore its use for the evaluation of professional performance. The aim of this study was to confirm and improve the profiles.
Methods: To confirm and improve the profiles we used Nominal Group Technique, a consensus method in which participants discuss and rank their perspectives on a certain concept.(2) We collected quantitative (rankings) and qualitative (interview) data through meetings with panels of faculty from different medical schools in the Netherlands, purposively sampled for their knowledge and experience in assessment and remediation of students

displaying unprofessional behaviour. Two experienced researchers facilitated the meetings (in pairs). After a presentation of the three profiles, participants individually generated supportive and additional ideas to strengthen and improve the profiles, and subsequently took part in a group debate about their ideas. Finally, they individually ranked the top 5 of all generated ideas, by giving 1-5 votes. The researchers adopted the five highest ranked ideas (receiving the most votes) as the group's consensus. The qualitative data analysis was done by two researchers who initially coded two transcripts of the group debate independently, and established a codebook after several cycles of reading, coding, and discussing. One researcher coded all transcripts using the codebook, discussing any difficulties with the second coder. By iteratively checking our findings, we ensured that conclusions were grounded in the data. The results were finalized through discussions in the full research team.

Results: We performed five nominal group meetings at five different medical schools in the Netherlands, with a total of 30 participants (5-8 participants per group). Participants were content with the three profiles, in which they recognized 'real' students. From 11 ideas to improve the profiles, the top 5 (combined receiving 85% of all votes) were: 1)Emphasize that the profiles represent a continuum, in which profile two and three can only be discovered after following the student over time (32%); 2)Add a profile describing students who are willing to change, but fail to show improvement because of limited skills (17%); 3)Specify that students can initially present themselves with all kinds of unprofessional behaviour, not reliability concerns exclusively (16%); 4)Allow for differences between the student profiles based on cultural aspects (12%); 5)Indicate that behaviours are not conclusive, but that the ability to reflect and adapt is crucial (8%).

Discussion: This study further developed an overview of stakeholders' opinions on the evaluation of professional behaviour in undergraduate medical education. Empirically found profiles were confirmed and elaborated on by experienced faculty. Additional information included that experienced faculty wish to follow students over time to discover students' reflexivity and capacity to adapt. Willingness to change and ability to improve are considered critical competencies for future doctors. These findings could add to remediation frameworks that are currently being developed within medical education, aiming to define expertise to conduct effective remediation.

References: *Mak-van der Vossen, M. C., Van Mook, W. N., Kors, J. M., Van Wieringen, W. N., Peerdeman, S. M., Croiset, G., & Kusurkar, R. A. (2016). Distinguishing three unprofessional behavior profiles of medical students using Latent Class Analysis. Academic Medicine, 91(9), 1276-1283. Humphrey-Murto, S., Varpio, L., Gonsalves, C., & Wood, T. J. (2017). Using consensus group methods such as Delphi and Nominal Group in medical education research. Medical Teacher, 39(1), 14-19.*

3E3 (180)
Examining practice effects with an Online Situational Judgement Test (CASPer)

Authors
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Presenter: Kelly Dore, McMaster University, Hamilton, Canada

Abstract Text:
Introduction: Most standardized tests offer applicants the opportunity to retake the test if they did not perform as well as they would have liked. However, retest or practice effects may compromise the validity of the test if it introduces construct irrelevant variables, such as increased familiarity with the test content from their initial attempt or using enhanced test-taking strategies during the retake. Many medical school applicants are unsuccessful on their first attempt and reapply in subsequent years, so practice effects are of a concern for any test used during the medical school admissions process. However, not all tests are equally susceptible to practice effects, with some tests even showing no improvement with subsequent performance. In this presentation, we examine practice effects for one test in particular that is being quickly adopted across medical programs around the world (CASPer) and outline a number of features of the test that make it resilient to practice effects.

Methods: We collected data from all CASPer test takers from 2015 to 2017 across several health science programs. First, we examined if students retaking CASPer in a subsequent application cycle improved their scores on their second try (n=2,110). Second, we examined if students improved their scores when retaking CASPer in another region (e.g., Canada to USA) during the same application cycle (n = 2,432). Lastly, we examined whether we may see improved performance within the test, where student performance may improve as they progress through the test and are exposed to more content (n=70,702).

Results: There was a mean increase in score of 0.5 points out of 9 possible points among students who retook the test in a subsequent application cycle. There was a mean increase of .32 points out of 9 among students who retook the test in the same application cycle in another geographic region. Looking within the test, there was no increase nor decrease in CASPer scores as students progressed through the test. Across these three datasets, we do not see any evidence of practice effects for CASPer.

Discussion and Conclusions: Test administrators often need to be wary of practice effects, as they may compromise the validity of the test. This is especially true in contexts such as medical school admissions where a significant proportion of applicants retake the test. However, the literature has found inconsistent effects of practice across various tests, with some tests showing little to no benefit with subsequent retakes. In a high-powered study across three independent analyses, we found very small evidence of practice effects for CASPer,

an online Situational Judgement Test. Its practice effects were substantially smaller than what is typically found with other types of tests (e.g., knowledge tests, personality tests). This suggests that students do gain little to no benefit from seeing content prior to taking the CASPer test.

References: *Van Iddekinge, Chad H. and Arnold, John D., Retaking Employment Tests: What We Know and What We Still Need to Know (March 2017). Annual Review of Organizational Psychology and Organizational Behavior, Vol. 4, Issue 1, pp. 445-471, 2017.*

3E4 (152)
A cost-description study of the OSCE in medical education

Authors
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Presenter: Jonathan Foo, Monash University, Melbourne, Australia

Abstract Text:
Introduction: The utility of an assessment method can be conceptualised as a function of its reliability, validity, educational impact, acceptability, and cost (van der Vleuten, 1996). The objective structured clinical examination (OSCE) has been evaluated for many of these properties, however the latter of these – cost – has been largely overlooked. In assessment, there are fixed costs which only occur once regardless of how many times it is used (e.g. the cost to write an OSCE scenario), and there are variable costs which increase with use (e.g. examiner time). Knowledge of how costs fall into these two categories assists with decision-making into cost-effective OSCE design, with implications across the number of OSCE stations, the use of sequential testing, and the cost of repeat assessments. Our research aims for this study were to: 1. Calculate OSCE fixed and variable costs, and 2. Calculate the additional cost of the OSCE when used as a repeat assessment.
Methods: A cost-description study was conducted based on the MBBS program at Monash University, Australia in 2017. The Monash MBBS has approximately 500 students per cohort, who complete 10 8-minute OSCE stations per semester. Costs included development of OSCE scenarios, training of assessors and simulated patients, assessor and simulated patient time, facilities, organisation, and administration. Costs were categorised into fixed (cost always occurring), station-variable (cost varying based on the number of OSCE stations), and student-variable (cost varying based on the number of students). All costs are in 2017 Australian Dollars.
Results: For the Monash MBBS, the total OSCE cost is $204,503 for 500 students with 10 OSCE stations. The largest component of this cost is examiner time at $155,720 (76%). There is a $2,441 fixed OSCE cost, which occurs regardless of the number of OSCE stations or number of students. Keeping the number of students constant, the cost to add (or savings by removing) one station, is $17,085. On the other hand, keeping the number

of stations constant, the cost to add (or savings by removing) one student, is $376. Assuming a failure rate of 5%, the cost of repeat assessments is $6,148 (25 students with 5 OSCE stations).
Discussion & Conclusion: This study investigated OSCE costs according to the number of stations and number of students. The average cost per student in this study ($409) is lower than that reported in a 2013 study of £483 (approximately $850), which utilised 15 8-minute OSCE stations (Brown, Ross, Cleland, & Walsh, 2015). When used for repeat assessment, certain fixed costs are not incurred, lowering the average cost per student to $246.
The relatively large station-variable cost highlights the need for cost-effective OSCE design to consider the number of stations used. Concepts such as sequential testing may enhance the cost-effectiveness of OSCEs. Another potential area of cost-savings is examiner time, being the largest cost component. Solutions may include using 'best-fit' approaches to matching examiner experience with station content, avoiding utilising over-qualified examiners, without compromising assessment properties.
Consideration of these factors is not new. However, the calculation of costs in this study provides a logical framework and objective criteria for educators to evaluate their OSCEs against, facilitating explicit cost-consideration in striving for 'good value' in assessment.
References: *Brown, C., Ross, S., Cleland, J., & Walsh, K. (2015). Money makes the (medical assessment) world go round: The cost of components of a summative final year Objective Structured Clinical Examination (OSCE). Medical Teacher, 37(7), 653-659. doi:10.3109/0142159X.2015.1033389 van der Vleuten, C. (1996). The assessment of professional competence: developments, research and practical implications. Advances in Health Sciences Education, 1(1), 41-67.*

3E5 (37)
Does Emotional Intelligence at Medical School Admission Predict Licensing Examination Performance

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Abstract Text:
Introduction: Many medical school admissions committees are seeking alternatives to cognitive measures when selecting students for entry to medical school. Given the importance of physician skills like communication, empathy and interpersonal abilities, assessing a non-cognitive skill at admissions like emotional intelligence (EI) is of interest. EI has been described as the ability to monitor and discriminate one's own and others' emotions and to use this information to guide reasoning and actions. Higher EI scores have been reported to contribute to improved doctor-patient relationship, increased empathy,

teamwork and communication skills. If EI is to be used as an admissions criterion, it is important to demonstrate the degree to which it can predict future performance.

The purpose of this study is to compare EI scores at admissions to medical licensure scores. It is expected that EI scores should be poorly correlated to aspects of a licensure examination that measure basic medical knowledge and clinical decision making, but should be correlated with scores that measure patient interaction skills. Presumably, the ability to recognize emotions in one's self and others would improve patient-physician interactions.

Methods: All medical school applicants offered an interview in 2006 and 2007 were invited to complete the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT v2.0), an abilities test of EI, at the time of their interview. Students were then tracked through medical school into licensure. EI scores were correlated to student scores on the Medical Council of Canada Qualifying Examination (MCCQE). The MCCQE Part I is written at the end of medical school and is designed to examine basic medical knowledge and clinical decision making. The MCCQE Part II is attempted after one year of clinical post-graduate training and is designed to measure clinical skills related to history taking, data acquisition and patient interaction skills. Pearson correlations were used to compare participants' MSCEIT scores with their overall MCCQE Part I and MCCQE Part II scores.

Results: Of the 206 participants who had both MSCEIT and MCCQE Part I scores (2006 = 105, 2007 = 101), the correlation between measures was $r(204) = .01$ 95% CI [-.13, .15]. Of the 201 participants who had both MSCEIT and MCCQE Part II scores (2006 = 102, 2007 = 99), the correlation between measures was $r(199) = .05$ 95%CI [-.09, .19].

Discussion and Conclusion: The low correlations between EI scores and licensure scores replicate other studies that have found weak correlations between EI scores and scores on other tests administered at admissions and during medical school. However, there are also studies that have found significant correlations between EI scores and other measures. Given that an important aspect of validity is that scores that measure similar constructs should be related, the non-significant correlations we found and the variation in findings compared to other studies might lead one to question the validity of using EI as a non-cognitive measure for admissions. On the other hand, it is possible that EI is measuring something completely different from other assessments tools and therefore the results are encouraging. Currently, it is not clear which of these interpretations is most accurate but caution should be used if one is planning to use EI as an admissions tool.

3F: Research Papers: Teamwork

Location: Helvetia 1, 1st Floor, Swissotel
Date: Monday 27th August
Time: 1015-1200 hrs

3F1 (204)
The interdependence of clinical performance: Advancing assessment in the age of entrustment

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Presenter: Sayra Cristancho and Stefanie Sebok-Syer, Centre for Education, Research, and Innovation, Western University, London ON, Canada

Abstract Text:
Introduction: The ability to assess independent trainee performance is a key element of competency-based medical education (CBME). In clinical workplace-based settings, however, trainee performance can be deeply entangled with others on a healthcare team. This presents a fundamental challenge. Given the need to assess trainees based on the evolution of their independent clinical performance, we set out to better understand what faculty and trainees characterize as independent performance in a variety of clinical specialty contexts.
Methods: Following constructivist grounded theory, and using both purposive and theoretical sampling, we conducted individual interviews with 11 clinical teaching faculty and 10 senior trainees (PGY4/5) across 12 postgraduate specialties. We sought a diverse sample because we anticipated that trainees' independent clinical performance would be portrayed differently in various specialty programs. Constant comparative inductive analysis was conducted. This is an iterative process by which regular data analysis meetings influenced subsequent data collection and consequent data analysis. Our approach also included strategies to return findings to the broader, interdisciplinary research team and physician stakeholders for refinement, elaboration, and transferability.
Results: According to participants, independent practice is an exception, not the norm in clinical workplace-based settings. While the ordering of medications, tests or imaging were most frequently cited as types of performance depicted as independent, many faculty participants explained that such performances, even when they appear independent, are often interdependent or 'coupled' with another team member. This usually tends to occur because trainees' clinical actions and decisions are regularly influenced by communication and consultation with other team members. Furthermore, the nature and degree of interdependence that exists depends on the clinical context and the type of supervision provided. In our data, we identified three configurations of coupling: 1) coupling between trainees and supervisors; 2) coupling between trainees at various levels of training; and 3) coupling between trainees and other healthcare team members such as nurses, social workers, and laboratory technicians.
Discussion: Trainees rarely, if ever, perform independently in the clinical workplace. Most often, their performance is interdependent, most notably with their supervisor. This has critical implications for workplace-based assessment in terms of the feasibility and accuracy of measuring trainees' competence. Many psychometric and assessment approaches have independence assumptions, which are not currently being met in the context of clinical workplace-based settings. Thus, we require models and approaches that can identify, and account for, interdependence and coupled performance. We propose that the conceptualization of coupling can be used as a starting point to allow us to better distinguish independent from interdependent trainee performances so that we begin to assess interdependent performances as interdependent.
Conclusion: These findings call into question the assumption of independent performance in clinical workplace-based settings, and offers an important step toward accurately measuring coupled performance. As the adoption of CBME continues to become widespread, we need methods and approaches to capture interdependent performance, which traditionally have been masked as independent markers of competence. Our understanding of coupling can help to better distinguish independent and interdependent performances, so that we are clear when we are measuring each in our implementation of CBME.

3F2 (142)
Do social ties between staff members affect patient-perceived satisfaction of undergoing emergency Caesarean sections?

Authors
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Presenter: Betina Ristorp Andersen, Northzeeland Hospital and Copenhagen Academy of Medical Education and Simulation, University of Copenhagen, Denmark

Abstract Text:
Introduction: In clinical emergencies, individual health care providers must perform as a team.
The importance of leadership, situational awareness, and closed-loop communication has been the focus of previous research on teamwork. However, these factors relate to individual performances and we currently see a shift in conceptualization of team competence expanding the individualistic discourse with an added collectivistic approach to competence.
The social construct of teamwork is not fully understood. Recent studies outside the domain of medicine suggest that social ties and especially affective factors among team members may influence team performance and patient satisfaction.
The role of social ties among emergency team members and their influence on patient satisfaction are not known. Hence, the research question was
What is the association between social ties within obstetric teams performing simulated emergency caesarean sections and simulated patient ratings?
Methods: During our annual team training, two hundred seventy two participants were allocated to 33 teams, who performed a simulated emergency caesarean section. A trained midwife portrayed the mother in labour. Training covered all aspects of clinical management.
Before training, we collected data on participants´ professional (n=21 features), personal (n= 21 features) and affective ties (n=42 features) to other team-members. In addition, we collected data on participants´ knowledge of role-distribution within the team and demographic data as gender, age, clinical experience and performed number of caesarean sections (n=25 features). Simulated patient satisfaction was measured on a global rating scale. To capture the complexity of the network structures, the large set of associations was analysed by machine learning approach, elastic net. Elastic net is a linear regression using LASSO and Ridge penalty. We used Cross-validation (leave-one-out) to increase power of model estimates. Analysis included Bonferroni correction. P-values < 0,01 were considered significant.
Results: In total, 109 associations were analysed including 84 related to social ties and 25 related to role distribution and demographics. Of 84 associations reflecting social ties 50% had significant association with patient satisfaction. Of the 25 associations reflecting role-distribution and demographics, only 4% had significant association with patient satisfaction.
Of 44 significant associations, 27 were related to a high patient satisfaction and 17 to a low patient satisfaction. High patient satisfaction was associated with the following ties: Affective (n=12, 44%), Professional (n=8, 30%) and Personal (n=7, 26%). In associations with low patient satisfaction the representation of ties was: Affective (n=10, 59%), Professional (n=2, 12%) and Personal (n=4, 24%). Many "Year since graduation for Obstetric consultant" was the only demographic feature that significantly associated with low simulated patient ratings (n=1, 6%).

Discussion: This study shows that Social ties represented the majority of associations related with simulated patient satisfaction. Our results indicate that affective ties are more important for patient satisfaction than professional and personal ties. In clinical practice professionals may assume that they are able to act as professionals and that, affective ties in the team have no influence on atmosphere and teamwork. Our findings question this assumption. Future studies are needed to investigate to what extend social ties impact on team performance and whether enhancing social relations between co-workers in practice or during training interventions may improve patient satisfaction and team performance.
Conclusion: Social ties between members of emergency teams may have significant impact on patient-perceived quality of care. Affective ties are more important than professional and personal ties.

3F3 (207)
'It's not just about getting along': Discourses of Collaboration and Team Learning

Authors
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Presenter: Maria Athina (Tina) Martimianakis, Department of Paediatrics and Wilson Centre, University of Toronto, Canada

Abstract Text:
Introduction: The construct of team learning refers to workplace learning that helps clinical teams develop competency in collaborative practice. By applying a governmentality theoretical framework and using a data collection approach that combines text analysis, observations and informal and semi-structured interviews, we studied how sub-specialty paediatric rheumatology trainees are socialized into a team orientation through exposure to day –to- day team interactions that were not previously conceptualized by their training program to be part of their formal curriculum.
Methods: We conducted 72 hours of observation at a complex care paediatric setting through 24 visits and 10 semi-structured interviews with participating Subspeciality Fellows health care professionals. We also compiled an archive consisting of hospital text, posters, strategic plans, and gray literature etc which related to team function and interprofessional collaboration (N=362). We used critical discourse analysis to describe how values of collaboration enabled team learning and theories of expertise to understand how expertise was enacted, negotiated and performed. Specifically, we were attentive to shifts in organizational rationales and priorities in relation to team practice and team learning at our chosen study site and tried to establish the organizational markers of success

trainees and faculty may be working to fulfill in their day to day interprofessional activities. We applied the theoretical framework of governmentality to capture institutional discourses related to team practice and individual professional rationales for participating in team care. The theoretical frameworks of adaptive expertise and situated cognition informed deductive analysis related to team learning and team decision-making.

Results: The notion of "team" took shape around the patient conceptually and formatively. All members of the division and the unit had a clear understanding of each other's role and function. The Fellows acted as an appendage of physician, a new form of apprenticeship, empowered by the nuances of the workplace and a culture of collaboration. They were treated as knowers and decision makers by other members of the team, while the culture of collaboration allowed them to slip into learner mode at any point in time to access input, support and expertise from other members of the team, avoid mistakes, ensure efficiency of care, and become better at their task. Clinical reasoning and expertise were very closely associated to being collaborative. Stereotypical functions of the Physician as having the final say were contested by daily exhibitions of humbleness and openness to new knowing and understanding. Cognition was perceived as distributed and mediated through relationships, while learning was perceived and experienced as ongoing and the responsibility of the entire team. This appreciation of learning as dynamic, was perceived to be a by product of collaboration which has validated and enabled a sharing of expertise that is multidirectional. Knowledge flow was organized around notions of continuity of care and problem solving. The acuity of patient care in this complex setting has set of tone of cooperation and humbleness that has been generative and productive.

Discussion and Conclusions: We have critically examined institutional mandates and processes related to team practice to understand the relationship between discourse, professional identity formation and team learning as a socio-cultural and cognitive process. We have begun to catalogue examples of team learning in the clinical context specific to rheumatology practice, and contribute to the literature on how work place learning can be operationalized in sub-specialty rheumatology curriculum development.

References: *Dean, M., Governmentality : power and rule in modern society. 2nd ed. 2010, Los Angeles: SAGE. viii, 294 p. Hutchins, E. (1991). The social organization of distributed cognition.*

3F4 (234)
Knowledge Construction in Interprofessional Trainee Teams

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Presenter: Leslie Carstensen Floren, University of California, San Francisco School of Pharmacy, San Francisco, USA

Abstract Text:
Introduction: As trainees share experiences during interprofessional (IP) clinical training, they may also develop shared understandings – or shared mental models – around critical aspects of clinical practice: patient care, professional roles and teamwork. However, little is known about how health professional trainees construct knowledge while working together. To address this gap, we use Gunawardena's knowledge construction (KC) framework[1] to explore KC in IP student teams as they work together to evaluate and make treatment recommendations for patients who have fallen in a skilled nursing facility. We explore patterns of participation among the students and describe facilitators and barriers to KC in IP student teams.

Methods: We developed a 2-week, IP clinical elective in which students from medicine (MD), pharmacy (PH) and physical therapy (PT) cared for multiple geriatric patients. One author (LCF) took extensive field notes as the students worked together during preparation, patient interviewing and care planning (~3 hrs./week/team). After developing initial coding categories based upon Gunawardena's[1] KC framework, we applied directed, qualitative content analytic techniques[2] to transcribed field notes from the observations of three teams (Team 1, 2 and 3; ~18 hrs. total). We applied our coding scheme, focused on five KC levels [Level I – share and compare; Level II- exploration of dissonance; Level III- knowledge co-construction; Level IV – knowledge application; Level V- summarization/agreement] as well as facilitators and barriers to KC, to observed behaviors, individual utterances and interactive dialogue.

Results: KC at the lowest level of interactivity [Level I] predominated in all teams. At this level, students did things such as explain aloud their clinical reasoning process, with no discussion. Students also frequently demonstrated Level III interactions as they planned how they would approach the patient exam or strategized chart note development. Students in Teams 1 and 2 rarely interacted at Levels II, IV and V, but interactions at these levels were more frequently observed in Team 3. KC facilitators included: peer teaching; perspective sharing; and inclusive team behaviors. KC barriers included: lack of learner engagement, working in parallel rather than collaboratively and, in Team 2, pervasive exclusion of one team member.

Discussion: In this study, we found that KC in IP students occurred primarily at the lowest level of interactivity [Level I], but with some evidence of co-construction [Level III]). Based on characterizations of KC facilitators and barriers, two general contextual factors affected KC level: 1) team

composition (e.g., learners' clinical experience; team dynamics) and 2) patient characteristics ((i.e., features of clinical presentation may interest some learners more than others (e.g., medication issues might be less relevant for PT)).

Conclusion: Higher levels of KC support higher levels of learning during team-based activities.1 Our findings suggest that students may not be maximizing the learning opportunities afforded by IP clinical team activities and highlight potential contextual factors educators may be able to adjust through more deliberate design of IP learning activities. Future work can build on findings from this small study to investigate how educators might support higher-level KC by designing IPE curricula to deliberately prompt knowledge co-construction, application and team consensus-building.

References: *Gunawardena C, Lowe C, Anderson T. Analysis of a global online debate and the development of an interaction analysis model for examining social construction of knowledge in computer conferencing. J. Educ. Comput. Res. 1997;17:397-431.*
Hsieh HF and Shannon SE. Three approaches to qualitative content analysis. Qual. Health Res. 2005;15:1277-88.

3F5 (56)
A new wave? A proposal for the future of education for collaboration

Authors

Elise Paradis, Leslie Dan Faculty of Pharmacy, University of Toronto, Toronto, Canada
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Presenter: Cynthia R Whitehead, The Wilson Centre, University of Toronto and University Health Network, Toronto, Canada

Abstract Text:

Introduction: Interprofessional education (IPE) is an increasingly popular educational intervention that aims to educate healthcare students to be better collaborators by enabling them to learn "with, from and about each other" (CAIPE 2002). This rising popularity is visible in the explosion of scholarship on IPE over the past decades, as well as in the multiplication of countries where this scholarship is produced (Paradis & Whitehead, 2015). This presentation briefly describes three historical "waves" of IPE, the limitations of the current wave, and argues for a new fourth wave of education for collaboration.

Methods: This paper provides a critical narrative review of the literature on IPE (defined here as undergraduate or pre-licensure large-scale interventions), with a specific focus on critiques of interprofessional education that arise from social scientific perspectives. It also builds upon the authors' previous historical and critical work.

Results: We identified three discursive waves in the IPE literature, which unfolded historically but did overlap: "managing the workforce through shared curriculum" (1954-79), "maximizing population health through regulation" (1978-2000), and "fixing individuals to fix healthcare" (1999-present). Insights from the social sciences show six reasons why the third, contemporary wave of IPE is likely to fall short of its aims: IPE (1) is logistically complex and costly, (2) is often developmentally inappropriate, (3) has not yet demonstrated impact on key outcomes, (4) insufficiently engages with social aned educational theory, (5) avoids power and conflict, and (6) puts undue burden on individuals working in an inertial system.

Discussion & Conclusions: Given the importance of teamwork in many accreditation standards and for high-quality healthcare delivery, we must teach our students how to collaborate. How we do this remains open to debate. We propose what we call a "fourth wave of education for collaboration," which we label "addressing workplace systems and structures." Our research suggests that the following approach is the most likely to be effective: to combine (1) uniprofessional education for collaboration that helps students learn the key skills of collaboration while also addressing issues of power, conflict, and structure with (2) practice-based team learning activities that address local issues and build local skills, and (3) work to address systems and structures that constrain collaborative care. By the end of this presentation, attendees will be able to identify the current limitations of IPE interventions, and will hopefully be inspired to transform the way they think about and enact education for collaboration.

References: *Centre For The Advancement Of Interprofessional Education. Interprofessional Education: The Definition. 2002; http://caipe.org.uk/resources/definingipe/. Accessed 06/15, 2016.*
Paradis E, Whitehead CR. Louder than Words: Power and Conflict in Interprofessional Education Articles, 1954-2013. Medical Education. 2015;49(4):399-407.

3G: Patil Teaching Innovation Awards 1

Location: Helvetia 2, 1st Floor, Swissotel
Date: Monday 27th August
Time: 1015-1200 hrs

3G1 (627)
The Global Health Classroom: Experiences and learning outcomes of collaborative global health learning between New Zealand and Samoan medical students in a virtual classroom

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Susan Jack, University of Otago, Dunedin, New Zealand
Jen Desrosiers, University of Otago, Christchurch, New Zealand
Malama Tafuna'i, National University of Samoa, Samoa
Philip Pattemore, University of Otago, Christchurch, New Zealand
Andrew Miller, University of Otago, Christchurch, New Zealand

Presenter: Roshit Bothara, University of Otago, Christchurch, New Zealand

Background: Global Health Classroom (GHCR) is a virtual case-based collaborative global health learning model being developed and delivered at the Otago Medical School, New Zealand (OMS) in partnership with Patan Academy of Health Sciences, Nepal (PAHS) and School of Medicine, National University of Samoa, Samoa (NUS).
Method: The project explored the learning and experiences of New Zealand and Samoan medical students in the GHCR, and ascertain the key elements contributing to their learning and experience. A mixed-method study approach using a post-GHCR questionnaire and semi-structured interviews. A triangulation approach informed the synthesis of the data.
Results: Of the participants, 85% (74/87) responded to the post-GHCR questionnaire. Nineteen semi-structured interviews were conducted: 13 OMS students and six NUS students. Students reported gaining knowledge about patient care, healthcare systems, and the culture and determinants of health, with regards to their partner country. There was evidence that attitudes such as cultural understanding and respect were promoted among students by their GHCR experiences. A majority (64%) of students reported increased interest in learning about global health after their GHCR experience. Reported outcomes in the GHCR align favourably with the recommended global health learning concepts in the literature.
Discussion: Key elements that promoted learning in the GHCR were: use of clinical cases and global health-themed guiding questions, teachers as facilitators not deliverers of content, promotion of students as self-directed learners, peer learning, social interactions, and video-conferencing. Students in the GHCR found that learning with their international peers in a virtual classroom made learning about global health "more real and tangible" and "much more accessible than learning on a purely theoretical basis."
Conclusion: The findings of this study suggest that GHCR presents a promising global health learning model with core values of partnership, collaboration and reciprocity between medical students and institutions. GHCR continues to be delivered at the OMS, with plans to extend partnership to other overseas medical schools. Medical schools in different countries can partner together to deliver global health learning for their students by integrating the GHCR into their curriculum.

3G2 (754)
The Purple List - a gay dementia venture. Diversity and Professionalism

Authors
Janine Henderson

Presenter: Janine Henderson, Hull York Medical School, York, UK

Background: Moving from largely university-based education to full immersion in clinical environments is a critical point for medical students and the development of constructive attitudes and professional behaviours. There are difficulties inherent in 'teaching' in this area, navigating the generation gap to facilitate learning of important, sensitive information. For some, professionalism also fails the student 'legitimacy test', lacking the objective scientific parameters that define much of the core curriculum. But 'Medical Education must aim to transform students into 'the sort of person' who does the kind of work that doctors do in the real world' (Langendyk et al 2017), a challenging area.
This abstract describes the delivery and evaluation of a short play delivered to third-year students at the Hull York Medical School.
Method: In developing students as humanistic, sensitive practitioners, we adopted a transformative approach to learning (Mezirow 1990) to challenge established views, whilst engaging and 'entertaining' without patronising. 2 of our talented Simulated Patients had written 'The Purple List'- a one-act drama, delivered as a monologue, in which Sam enacts his own, and husband Derek's, experiences as Derek's dementia progresses over 2 years, which we used as a basis for a powerful learning experience. We developed a workshop in consultation with the author/actor based on this intense, emotive drama which raises important issues around professionalism, diversity and humanistic care. The 40-minute play was followed by facilitator-led reflective workshops.
Results: The students` response to the play was overwhelmingly positive. They were engaged, moved, empathic and clearly immersed in the story. Their animated and insightful discussions demonstrated a level of engagement with the core issues which students acknowledged would not be likely with a more traditional educational approach. Structured reflective feedback was collected from all 140 students.
Conclusion: Students found the play challenging and emotive and their detailed feedback confirmed the

transformative impact of the experience. Feedback identified clear changes in perspective and professional attitudes and sensitive consideration of the core issues, with identified achievable aims for personal change in the future.

Take-home message: Carefully-constructed arts-based teaching can be powerful tool for teaching professionalism

3G3 (3010)
Battling the tedium: an engaging, value-driven orientation for undergraduate students at AKU

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Presenter: Ayesha Mian, AKU, Karachi, Pakistan

Background: The Aga Khan University (AKU) was established in the early 1980s as the first private university in Pakistan. While excelling in academics, student life and experience were not formally addressed. An Office of the Dean of Students was created in 2017 to adopt a more student-centered approach to teaching and learning. The Office identified core values of Innovation, Collaboration, Compassion, Advocacy, and Leadership as guiding principles for the AKU ethos and as the basis for developing an integrated longitudinal curriculum for all undergraduate students.

Method: A three-day orientation program was developed as an immersive introduction that would lead in to the above-mentioned longitudinal curriculum. The curriculum was standardized across the Medical College and School of Nursing and Midwifery and used experiential sessions built around teamwork and collaboration to emphasize the AKU core values. Pedagogy included case-based exercises, reflections, role-plays, peer feedback, appreciative inquiry, and brief inspirational presentations by experts. Learning Circles spanning the three days grouped students in a safe learning environment. Hackathon-like groups sustained student engagement throughout the program. Leadership was showcased through an interactive panel discussion featuring student-centered faculty leaders. The Implicit Association Test introduced students to the concept of unconscious bias. Students wrote a note to their future selves envisioning their own personal and professional development over the course of their program.

Results: Daily feedback and structured evaluation forms were used to measure program efficacy. Students completed an Emotional Intelligence scale and a Professional Identity Formation questionnaire. Students' responses were overwhelmingly positive in both written and oral feedback.

Discussion: According to our literature review this may be the first time an orientation program has been designed or implemented in Pakistan or South Asia that focused on student wellness and was informed by an institution's guiding principles.

Conclusion: Demonstrating the cultural ethos of an educational institution from day one may allow institutions to effectively foster their core values within students. Early emphasis on student wellness, critical thinking, and collaborative practice are likely to affect student sense of belonging, retention, and engagement.

3G4 (967)
An experiencing method for guiding students into the psychiatric patients' world - the application of social drama

Authors
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Presenter: Gin-Hong Lee, Fu Jen Catholic University, New Taipei City, Taiwan

Background: To empathize with other people is difficult, not to mention empathizing with peculiar psychiatric patients. We created an innovative world in the classroom via social drama, hoping that students can empathize with the patients' internal suffering and social stigma more deeply.

Method: The authors invited two drama experts to assist teaching in the psychopathology class in 2017. Eleven graduate students participated in three 3-hour sessions of social drama class. Before the three sessions, students read two first-person narrative novels on schizophrenia and manic depressive psychosis patient respectively. Through a series of warm-up, enactment and sharing, the experts led students to experience hallucination, moodiness, family quarrels and social stigma. The quantitative evaluation method was designed according to the concepts of engagement with the arts, constructing of new meanings and translation into practice (Haidet, et.al., 2016).The qualitative data of videos, observation records and students reflection notes was also collected and analyzed.

Results: All of the quantitative measurement reached the statistical significance difference (Mean>3, p<.05). The qualitative analysis indicated that through embodiment and group interaction, students vividly experienced (1) the patients' long-term suffering and helplessness, (2) the family conflicts and the reactions from outside world, (3) a gentle and well-intentioned attitude toward all the roles involved in the stories. The author will introduce the various guiding skills in the presentation.

Conclusion: In sum, the educational impact brought by social drama is excellent. This method created a breakthrough for empathy teaching. Under some circumstances, specific students had difficulty in role-playing or role-creating. Further skills need to be developed for individual needs.

Take-home message: The social drama is a remarkable method for students to get into the psychiatric patients' world of disease suffering and social refusal.

3G5 (1272)
Escape Game as a Theatre-Based Simulation for Teamwork Skills Training in Undergraduate Medical Education

Authors
Anthony Seto, University of Calgary, Calgary, Canada

Presenter: Anthony Seto, University of Calgary, Canada

Background: One use of theatre-based simulation in undergraduate medical education is teaching around clinical content. This education innovation uses an escape game as a non-clinical simulation to gamify teamwork skills training, with focus on the collaborator CanMEDS role. An escape game tests teamwork skills by having groups solve puzzles in order to escape a room within a time limit.
Method: A simulation theatre from the University of Calgary was transformed into an escape game. Second year medical students piloted the escape game, designed to surface teamwork competencies from the four University of Calgary Team Scheme domains (adapted from CIHC's National Interprofessional Competency Framework and TeamSTEPPS™): Leadership/Membership, Communication, Situation Monitoring, and Collaborative Decision-Making/Mutual Support. Post-game, students engaged in a debrief and written reflective exercise to critically analyze successes and challenges in demonstrating Team Scheme competencies and propose solutions to challenges. Students then documented up to 3 goals on how they would further apply teamwork competencies to their own practice and/or life.
Results: Through the escape game pilots, students were able to demonstrate teamwork competencies, under every Team Scheme domain, which they will need to apply when collaborating with teams in future simulations and clinical practice.
Discussion: Advantages of this innovation include its use as an acclimatizer to the simulation training environment and process, portability and low start-up cost, transferability to non-medical disciplines, and customizability of puzzles to target specific objectives. The escape game will launch in Intro to Clinical Practice, a second-year medical student course at the University of Calgary.
Conclusion: A teamwork simulation, in the form of an escape game, enables medical students to apply and demonstrate teamwork skills, identify strengths and challenges in their teamwork skills, and discuss areas of teamwork skills needing improvement.

3G6 (1965)
Examination Man: Using QR Codes to Connect Medical Students to Education Materials

Authors
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Izu Chukwulobelu
Phil Jevon
Steven Webb
Jonathan Pepper

Presenter: Gurdeep Seyan, Walsall Healthcare NHS Trust, Birmingham, UK

Background: Quick Response (QR) codes are used in all aspects of society and industry; bridging the gap between physical and digital worlds and allowing for quick easy access to interactive information through printed media. QR codes have previously been used in healthcare to connect patients with healthcare information, however, there is little published work exploring the use of QR codes to connect medical students to clinical learning resources. We aimed to establish a way to to connect medical students with educational materials at the point of need.
Method: Pre-interventional qualitative analysis was undertaken to establish the number of students with access to a smart-phone and barriers to acquiring practical skills through traditional paper-based methods. Following this, we developed a to-scale human body model with systems-based clinical examination videos accessible via static QR codes printed upon the model. The codes could be exploited using free mobile applications.
The large printed poster was displayed in communal student areas. Approximately 80 students had access to the poster. A qualitative post-interventional analysis gained student feedback. Online analytics services allowed number and duration of video views to be monitored for quantitative usage analysis. All medical students in our establishment have access to smart-phone technology.
Results: Feedback showed students found this to be an interactive and engaging learning tool by provision of instant access to high-quality educational resources. Students reported that the project had helped them to over-come self-identified difficulties that accompany development of practical and clinical skills from static, printed media.
Conclusion: QR codes allow dissemination of large amounts of information in an easily accessible, low-cost manner. Dynamic QR codes would allow for linked content to be updated regularly without having to reprint or repeatedly disseminate the new updates and is scope for further development of this project in future.
Take-home message: QR codes allow for interactive and engaging learning to take place instantaneously at the point of contact, are well received by medical students and their use to enhance learning should be further explored.

3G7 (3156)
TiMEtoTeach – Innovative Outreach and Support for Medical Educators

Authors
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Nancy Davies, University of Leeds. Leeds, UK

Presenter: Caitriona Dennis, University of Leeds, UK

Background: 75% of teaching on the Leeds MBChB occurs on placement, delivered by clinical and non-clinical professionals, many of whom have no formal educational training. Teaching is driven through faculty development and technological innovations from the medical school but challenges to consistency exist due to the dispersed and diverse nature of the faculty. TimetoTeach is an innovative communications approach to provide accessible and convenient faculty development in spite of time constraints and lack of resources within the healthcare environment.

Initiative: TiMEtoTeach is an educational outreach initiative. Ambassadors of the MBChB (staff, students and members of the Patient and Carer Community) visit placements providing bespoke training and 'pop-up' Continuing Professional Development sessions, supporting transition into teaching and enabling those who wish to develop. By supplying bespoke educational guidance, the importance of high quality teaching, assessment and feedback is promoted, engaging staff, patients and public in shaping Tomorrow's Doctors. This ensures sustainable growth of the medical education community and promotes an excellent educational experience for students.

Our visits directly answer the requests of educators, patients and public to know more about delivery of medical education. We ensure all placements hear about good practice, and place their teaching in context with the rest of the curricula, thereby increasing capacity and enhancing capability of faculty.

Without focussed visits to practice areas we miss a significant opportunity to ensure consistent teaching of the curriculum to secure an excellent student learning experience and increase competence and confidence through reward and recognition.

By tailoring visits to medical educators, support for teaching has become efficient, accessible and focussed. Outreach in placement areas has raised awareness of medical education, encouraged enthusiastic teachers and provided a consistent message from the medical school. Through building relationships, we can help support development of future medical educators.

Conclusion: Faculty Development opportunities can be flexible yet directed. Outreaching in the workplaces promotes working in partnership and encourages all to develop their educational skills within a community of practice.

3H: PechaKucha™ 1

Location: Kairo 1, Ground Floor, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

3H1 (162)
Walking the Footsteps and Feeling the Pain: Patientization

Authors
Jamie Lim
Tham Kum Ying

Presenter: Jamie Lim, Tan Tock Seng Hospital, Singapore

Background: In 2013, the first cohort of students from Lee Kong Chian School of Medicine (LKCMedicine) arrived in Tan Tock Seng Hospital for Hospital Week (HW) Orientation. The objective is to immerse students in the "real world" and through experiential learning, walk the patients' footsteps.
Method: Moving away from the traditional all-physician-orientation, each team of 6 students was assigned to one medical discipline, co-supervised by a physician and a non-physician. Within safety guidelines, supervisors planned a 5-day-program that allowed students to experience the typical patient's journey. Supervisors were reminded not to teach doctoring skills. The outcomes were (1) to present a 5-minute performance on the theme "My Patient's Journey" on Day 5 and (2) every student would complete a 500-word reflection.
Led by a Cardiologist and an Advanced Practice Nurse (APN), the students started at the Emergency Department triage area. On Day 1, one student was "patientized" i.e. immersed into patient's role: diagnosed with a heart attack, whizzed into resuscitation area, had a 12-lead ECG performed, spoken to by the cardiologist about treatment, and rushed to the Invasive Cardiac Lab for coronary angiogram. For the rest of the week, other students volunteered to be "patientized": wore patient's hospital attire, hooked to multiple cables in Coronary Care Unit, assisted for hygiene needs and had cardiac echocardiogram performed, restrained for being "uncooperative", ate special diet and received counselling from other healthcare professionals.
The supervisors debriefed the students at the end of each day and they wrote daily reflections and shared their "Ah-Ha" moments. Team performances on Day 5 reflected the students' understanding of their patient's experiences.
Results: Overall, HW received overwhelming positive feedback from students, supervisors and faculty and is now a signature program in LKCMedicine.
Conclusion: Active learning in almost-real situations shifted students from passive-observation to committed-participation and "patientization" has creatively transformed an orientation process.

3H2 (3215)
Change and process management for future doctors: Leading positive change with a teaming mindset

Authors
Sigrid Vest Arler, Central Region Denmark, Corporate HR, Aarhus, Denmark
Rasmus Thøger Christensen, Department of Clinical Medicine, Aarhus University, Denmark
Marie Højriis Storkholm, Medical Management Centre/LIME Karolinska Institutet, Stockholm, Sweden

Presenter: Sigrid Vest Arler, Central Region Denmark, Corporate HR, Aarhus, Denmark

Background: Change and process management for future doctors: Leading positive change with a teaming mindset Physician leadership can improve hospital performance in terms of care quality, costs, social responsibility, staff satisfaction, information technology adoption and reform approval. Yet, leadership skills or medical management has not traditionally been taught in Danish Medical Schools. In 2017, we introduced an optional course that combined personal leadership, "teaming" and development of innovative solutions to leadership challenges. The focus of the course was on teaching personal leadership and teaming leadership practices, while solving real managerial leadership challenges together with clinical leaders.
Method: A mixed method study was conducted to evaluate the extent that students obtain the intended learning outcomes and how students' general self-efficacy was affected. A questionnaire was distributed before and after the month-long course together with a summative course evaluation. Moreover, a focus group interview was conducted one month after students finished the course.
Results: The course differently affected student´s self-efficacy, dependent on their baseline score. Students with a high baseline score seem to develop more self-awareness and realize that teaming skills are highly necessary to lead positive change in health care, and as a result scored significantly lower after the course, while students that scored below average had a tendency to improve their score after the course.
Teaming leadership practices; especially creating psychological safety and learning form failure was highlighted by students. Furthermore, they describe a new awareness of the importance of teamwork in their future medical practice; a positive feeling of becoming less self-confident and able to admit "mistakes" and reflect with peers.
Conclusion: This presentation provides a visual tour of the students' journey through the course elements in a challenging learning environment.

3H3 (2147)
Virtual Reality Fully Immersive Interactive Videos as a new teaching tool

Authors
Thomas Judd, Musgrove Park Hospital, Taunton, UK
Nicola Cook, Musgrove Park Hospital, Taunton, UK
Ian Hunter, Musgrove Park Hospital, Taunton, UK
Alexander Young, Virti, Bristol, UK

Presenter: Thomas Judd, Musgrove Park Hospital, Taunton, UK

Background: With the birth of the smart phone there is now a rapid expansion in the use of this technology to improve and enhance medical education. A recent literature review by Valle et al. (2017) concluded "Smartphone use is clearly an effective and efficient method of enhancing patient care and medical education in the health care industry."
The "Virtual patient" is not new to medical education. Kononowicz et al. (2015) explored what was meant by virtual patients in educational literature stating, "The primary form of Virtual Patients in the educational literature are Interactive Patient Scenarios despite rapid technical advances that would nowadays support more complex applications."
Method: Recent technology advancements allow a smartphone to be converted into a virtual reality headset. We have developed a method of Virtual Reality Fully Immersive Interactive Technology Teaching (VR FIITT) where a student may be fully immersed in a virtual reality teaching scenario. We are at the stage of starting research projects to assess students' performance of resuscitation skills, if trained with the interactive videos or standard teaching methods. The students are able to receive live feedback on their performance which can then be sent to the students' educator to review trend in performance and areas for improvement.
Conclusion: This new technology has multiple applications across the whole of medical education, and can be applied to undergraduate as well as postgraduate training.
In this presentation we will discuss the applications for this technology, and touch on what is now meant by the term "Virtual patient".

3H4 NOT PRESENTED

3H5 (1441)
Future Doctors collaborating for change for vulnerable communities

Authors
Shilpa Suresh
Margot Turner
Isabelle Guest

Presenter: Shilpa Suresh, St George's University of London, UK

Background: Thirty years ago, the Edinburgh Declaration encouraged medical education to train future doctors to be more effective at meeting the needs of society. As students at St George's we are encouraged to understand the contribution of community health projects whilst also being encouraged to give back to the community we have trained in. We will visually introduce the audience to some of this work and the outline the development of a community conference which grew out of a need we identified on a short course on sexual violence. Statistics have shown there has been a 53% increase in "honour" based violence and some studies have shown that women present five times to a doctor before being killed. On our placements, we found out anecdotally that organisations were struggling to know where to refer people affected by familial violence. We will present the work we have undertaken and our project of setting up a collaborative conference on familial violence (including forced marriage, "honour" based violence, and witchcraft). St George's is located within a diverse community which includes the groups most often affected by famial violence. We invited a variety of community, voluntary and religious organisations as well as doctor, midwives, social workers and police to work with senior health care students to share practice and challenges and worked towards identifying strategies to improve outcomes for people affected by familial violence. We will present the evaluation from this day, a snap shot of the discussions and outcomes for future practice.
Conclusion: Developing a conference has been invaluable experience to us as future doctors and helped us understand how we may be able to affect change for some of the most vulnerable patients we will be working with in future.

3H6 (1087)
Build it, and they will come? A need to move beyond Knowles theory of andragogy for busy residents

Authors
Daniel Nicklas, University of Colorado School of Medicine, Aurora, USA
Lindsey Lane, University of Colorado School of Medicine, Aurora, USA
Janice Hanson, University of Colorado School of Medicine, Aurora, USA

Presenter: Daniel Nicklas, University of Colorado, Aurora, USA

Background: We thought that if we built Pediatric Primary Care Curriculum (to be amazing), the residents would come (and engage in the curriculum). We relied on Knowles theory of andragogy, a seminal education theory that emphasizes respect for learners' independence and posits little need for extrinsic motivation. We thought that residents' intrinsic motivation to meet children's primary care needs would motivate them to engage.

Method: We implemented an inverted classroom model, aiming for strong learner outcomes. Curricular content was delivered weekly with multi-modal opportunities to engage, including 10-minute peer-reviewed readings (Yale Primary Care Pediatric Curriculum), short resident-made quizzes, and resident-made one-page "Fast Facts," all delivered with links in a weekly email and organized by a learning management system (LMS) for mobile access anytime.

Results: An annual review revealed that 50% (53/105) of residents had never accessed the curriculum on the LMS, although they had asked for availability on this platform. Only 3% of residents visited half or more of topics; 7/49 topics were visited on average. Only 37% of residents completed quizzes; on average, even these completed just 8% of quizzes.

Discussion/Conclusion: Reflecting on our failure to engage the residents we wondered if the busy clinical environment, with little time arranged for independent learning, overwhelmed their intrinsic motivation to learn. We plan to shift our focus from topics to their motivation. We hope that self-determination theory with its emphasis on autonomy, competence, and relatedness will provide clues to intrinsic motivation.

We know now that building a curriculum is not enough. We suspect that using the curriculum as the basis for resident reflection-in-action and in-the-moment faculty coaching and assessment during patient care may build motivation by supporting residents' autonomy, increasing their awareness of their competence, and creating meaningful relationships for learning. If we partner with them in a different way, perhaps they will "come".

3H7 NOT PRESENTED

3H8 (992)
Learning medical practices: moving beyond a cognitive perspective

Authors
Anneke van der Niet, Maastricht University, Maastricht, the Netherlands

Presenter: Anneke van der Niet, Maastricht University, Maastricht, Netherlands

Background: Although there is increasing awareness that learning entails more than an isolated individual gaining knowledge, the dominant theory in medical education is still focused on this individual acquiring rational knowledge that can be carried over. Moreover, it is suggested that this learning process is taking place solely in the head of the individual, reducing the human body to a brain that is positioned on top of an otherwise uncontrolled body. These cognitive theories advocate that individuals will gain medical knowledge by building models (scripts, schemas or representations) in the brain. When the learner is presented with a clinical case, the features of this case will be compared with the model stored in long term memory. Over time, the models will be developed and extended. Context is now sometimes added to this model, atop of underlying core psychological processes. In this presentation, I will explain why these theories fall short to explain learning and performance in the complex and dynamic context of medical care. I will introduce an alternative theory in which the learner and the environment form the unit of analysis. The theory of affordance perception implies that learning is about finding differences in the world rather than building generalities in the brain. Knowledge is not seen as a context free, abstract set of ideas to be stored in memory, knowledge is a context dependent activity of individuals in their environments. When a task is performed, a coordinated system of organism and environment is formed based on the available affordances. By practicing this task, the relationship between body and world for that particular task is modified, including how materials and other persons act in this practice. This theory offers a way to understand learning in the sociocultural medical context and forms a basis to understand transfer of learning across situations.

3I: Short Communications: Assessment: General and Written

Location: Rio, 2ⁿᵈ Floor, CCB
Date: Monday 27ᵗʰ August
Time: 1015-1200 hrs

3I1 (514)
Contents and conceptions - evaluation for change

Authors
Katrine Wennevold, University of Tromso, Tromso, Norway
Sean McAleer, University of Dundee, Dundee, UK

Presenter: Katrine Wennevold, University of Tromso, Norway

Background: At the Medical School at the University of Tromso, Norway, assessment practice has more or less remained the same since the Medical School opened in 1973. All summative written exams have traditionally been in the format of short answer questions. Clinical skills are tested by long oral cases, which is a format generally perceived in current medical education literature to have low reliability and be too subjective. While evidence based medical education internationally over the last decades has increasingly used psychometrics in assessment evaluation, the Medical School at the University of Tromso has never evaluated its assessment system. This study seeks to investigate how an exam performs upon critical evaluation, given this lack of quality assurance procedures. Also, the teachers constitute the faculty responsible for assessment, and their conceptions are crucial in order to understand why this Medical School has not concerned itself with recommended best practice in assessment.
Methods: The year six written exam was chosen for analysis as this is the most important exam due to its high-stake, certifying nature. Exams from 2013-2016 were analysed looking for evidence of reliability and validity. In addition, questionnaires were used to explore teachers' conceptions of the year six written exam in particular and assessment in general.
Results: The results showed that there was little evidence of validity or reliability for the year six written exam. However, the teachers' conceptions of this exam is that it is valid and necessary to test cognitive knowledge.
The lack of evidence of validity and reliability of the year six written exam is mirrored in a national scepticism towards assessment that probably shapes opinions of the teachers and current assessment practice. Information on teachers' conceptions is important to understand current practice, and in order to invoke change.
Conclusion: Introduction of better quality assurance measures in assessment is very important, and should receive urgent priority by stakeholders. Using a combination of content analysis and investigation of conceptions are helpful tools in a needs analysis for the change of quality assurance policies.

3I2 (722)
A Scoping Review of the Use of Certainty Ratings in Educational Assessments

Authors
Anna Ryan
Marcia Chew
Terry Judd
Mike Tweed

Presenter: Anna Ryan, University of Melbourne, Australia

Background: For health professionals, the ability to self-regulate practice and learning is highly valued. The challenges of self-assessment are well recognized. Educators, including within the health professions, search for robust methods of assessment to highlight misconceptions. Certainty rating is one way to shed light on this and to differentiate misinformed and uninformed responses in knowledge assessments. With the increasing use of such scales in written and computer-based assessments, it is critically important to understand the types of scales and their application.
Methods: To address this aim we conducted a scoping review using Arksey & O'Malley's approach. We included all English language publications concerning empirical research into certainty scales in written assessments in secondary, tertiary or college settings. 14,075 references were found across Medline, CINAHL, PsycINFO, EMBASE, ERIC and Education Complete Research databases, and through reference checking. Title and abstract screening refined this 278, and full text screening revealed 167 articles for charting, collating and summarizing.
Results: We charted the year, country, study population, type and aims of the study, and field of research. Certainty ratings were used: at both a micro (item) and a macro (entire test/assessment) level; in a wide variation of assessment formats (written, computer based); and with different stakes (summative and formative). We found disparity in terminology used (eg. certainty, surety, confidence) and the type of scale used (eg. Likert, visual analogue). The conceptual frameworks and intent behind the use of certainty in different assessments influenced the outcomes explored and conclusions drawn.
Discussion/Conclusion: Certainty rating is one method of providing insight into metacognitive processes underpinning assessment responses. There is large variation in the types of scales and their utility in different contexts. We found two key approaches: the first being instructor driven and aimed at improving the assessment of learners (e.g. minimizing guessing); and the second learner driven and associated with self-regulation (what do I know/need to work on).
Health professional educators need to choose the scale that best suits their intended educational outcomes. This scoping review is an important resource for health professionals considering use of certainty ratings.

3I3 (820)
UCAN: 13 years of experience in cooperative medical assessment

Authors
Konstantin Brass

Presenter: Konstantin Brass, Insitute for Communication and Assessment Research, Heidelberg, Germany

Background: In order to face the current challenges in medical assessment, institutions have to cooperate more intensively. To this end, the Umbrella Consortium for Assessment Networks (UCAN) was formed 13 years ago as a platform for inter-institutional, academic and non-profit cooperation. Today, 66 schools, boards and councils from eight countries work closely together to combine and optimize their resources, to share their knowledge, to engage in collaborative research and to develop new methods and standards to establish quality-assured exams. In the presentation, the work results of UCAN will be discussed to showcase the potential of collaboration in medical assessment.
Methods: In 2005, UCAN developed a platform for authoring, sharing and reviewing items and exams. Since 2007, exams can be delivered on computers or on scanner-readable sheets, evaluated with automated test-statistics and graded with customizable algorithms. In 2010, a Simulated-Patients-Database was added to administer the simulated patients programs. Since 2012, OSCEs and MCQ exams can be delivered on tablets. Since 2013, a competency-based progress test is delivered online at (currently) 15 institutions.
So far, 8000 colleagues added more than 350,000 items to the common platform. Best practice examples for reliable exams, assessment contents and workflows are collected and implemented at the partner institutions. New formats for item and exam formats are continuously developed. So far, over 6 million students were successfully assessed in 20,000 exams.
Especially with the upcoming conceptual, logistic and developmental challenges associated with the shift from knowledge to competency-based assessment, tie-ups are highly recommendable.
13 years of cooperation in a collaborative network has proven to be an efficient way to face new challenges in medical assessment.
Assessment institutions should work together in order to tackle common challenges. 13 years of successful cooperation at UCAN proves this approach to be both innovative and feasible.

3I4 (1212)
Can we use multiple choice questions to assess public health, sociology, psychology and research methods? Data from the UK Medical Schools Council Assessment Alliance question bank

Authors
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Sean McAleer, University of Dundee, Dundee, UK
Susie Schofield, University of Dundee, Dundee, UK
Veena Rodrigues, University of East Anglia, Norwich, UK

Presenter: Ellie Hothersall, University of Dundee, UK

Background: UK medical schools increasingly use multiple choice questions (MCQs) in summative assessment. This will probably increase with the proposed introduction of a national licencing exam in 2022. The topics of public health, sociology, psychology and research methods (PHSPRM) are often included in MCQ assessments. However, there is currently no evidence that MCQs constitute a valid method of assessment for PHSPRM topics. The Medical Schools Council Assessment Alliance (MSCAA) has a national bank of MCQs covering the UK undergraduate medical curriculum.
Method: MSCAA MCQs were identified systematically. Questions were categorised by learning outcomes, cognitive skill, topic, content and task. Questions with performance data were described as "high" performing using a cut-off of discrimination or point biserial ≥0.2.
Conclusion: 113 were identified which were "live" (either validated (10) or unvalidated (103)). 26 questions were psychology (23.0%); public health 36 (31.9%); research methods 47 (41.6%) while sociology had 4 (3.5%). 89.4% of questions assessed comprehension and application, 8.0% knowledge, and 2.7% problem-solving. Mean facility overall was 0.55 (standard deviation 0.27), mean discrimination 0.15 (0.12), and mean point biserial 0.09 (0.12). There were significant differences between learning outcomes for facility, discrimination and point biserial. Discrimination and point biserial were significantly higher in the validated compared to unvalidated questions.
High performing questions generally tested public health or research methods, and were more likely to be knowledge-based questions. Low performing questions were more likely to assess psychology or sociology. >40% of questions in both high and low performing groups contained flaws.
Conclusion: Some specific areas of PHSPRM can be validly assessed using MCQs, particularly the topics of epidemiology, infectious diseases, occupational health, screening or statistics. However, this represents only a small fraction of the required knowledge. There is a risk of over-representation of aspects of these topics, simply because they can be easily included in existing assessment methods. There is an urgent need to develop other assessment tools for PHSPRM topics.
Take-home message: There is an urgent need to develop valid assessment of PHSPRM topics, and MCQs can contribute meaningfully to this assessment.

3I5 (1344)
In between the Lines: Language Use in Medical Education

Authors
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Konstantin Brass, Institute for Communication and Assessment Research, Heidelberg, Germany

Presenter: Alexandra Núñez, Institute for Communication and Assessment Research, Heidelberg, Germany

Background: Which role plays the language used in MCQ-assessment in medical education? How does it shape the conceptual knowledge, the future professional behavior of physicians?
Method: In our pilot-study, we investigate quantitatively and qualitatively how language is used in german multiple choice questions and give a short critical insight in the (ir)regularities of language pattern that function as the main conceptualization anchors in MCQ-questions.
The Item-Management-System provides a huge amount of MCQ-questions from different medical schools in Germany. We strictly obey to the regulation of data protection and therefore anonymized the data. Our corpus consists of 230.000 MCQ-questions which are classified into the german medical schools and into the medical disciplines such as "Anatomy" etc. Only lexical categories were extracted such as nouns, verbs and adjectives and we analyzed them with regard to the relational use of lexical words in questions of medical schools and in combination with a discipline. Thus, we can figure out whether a medical school and/or discipline prefers a specific amount of lexical words.
Results: Although the medical schools teach the same disciplines, the results indicate a semantic variety of lexical words used in different medical schools and disciplines and thus, suggest different linguistic, furthermore cognitive styles of thought and transfer of knowledge in medical education.
Albeit there is need for further analysis, we presume that the lexical pattern and conceptualization tendencies in MCQ-questions have an impact on a) the quality of the assessment, b) on the students performance and c) their future behavior as physicians.
Conclusion: If the language use differs between medical schools, can we conclude that different medical knowledge is shaped by the language use? What about the comparability of medical education in different medical schools and thus the quality standards, if each school tests different aspects of medical knowledge?
We will present the results and discuss the meta-methodological question whether a 'language standard' or peer-reviewed questions should be taken into consideration in medical MCQ-assessment.
Take-home message: Language matters!

3I6 (3569)
Effect of frequency of functioning distractor on internal reliability of a multiple choice question based test

Authors
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Amna Shoaib Siddiqui
Wael M. Alkattan

Presenter: Muhammad Ikram, Alfaisal University, Riyadh, Saudi Arabia

Background: Multiple choice questions (MCQs) with five or four options are routinely used in clinical and preclinical tests. At Alfaisal University, College of Medicine, a standard MCQ format with five options is in practice. These items are generated in house and reviewed through an extensive evaluation process before banking. However, despite of extensive review, questions still have a significant number of non-functioning distractors (NFD) (distractors attempted by < 5% of the student). The aim of this study was to investigate the correlation of the average NFD per item in different tests with test internal reliability index. In addition, the study will relate the average NFD per item with average time spent on it.
Method: A total of 15 preclinical tests were randomly selected. Data was evaluated using ExamSoft item analysis report. Mean NFD per item for each test was calculated. A Pearson correlation was run between mean NFD, internal reliability, mean test score and average time spent on a question.
Results: A strong correlation (0.89) was observed between NFD per item and mean scores of the test. A modrate negative correlation (R=-0.68) was observed between mean NFD per item and internal reliability of the test. No correlation was observed between mean NFD and mean time spend on each item (R=-0.16) and a weak correlation was seen between KR20 (internal reliability index) and mean time spend on each item (R=-0.22).
Conclusion: These data suggest that as the number of NFDs per item increases the test become less reliable and high scoring. However, increasing number of plausible options increases the tests' internal reliability. We also hypothesize that total time spent on each question also depends on length of the question. For more meaningful data to address this issue, correlation between total word count in a question and mean time spend need to be calculated.
Take-home message: Decreasing the number of NFDs will help is generating good quality and reliable tests.

3l7 (2018)

Assessing Competency of Subspecialty Residents in Critical Care Clinical Reasoning: Validity Evidence In Support of the Script Concordance Test

Authors

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Christie Lee, University of Toronto, Toronto, Canada
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Presenter: Dominique Piquette, Sunnybrook Health Sciences Centre, Toronto, Canada

Background: Completing 1-4 months of critical care (ICU) training is mandatory for residents enrolled in most Canadian specialty programs and represents a unique opportunity for residents to learn cognitive skills required to care competently for their sickest patients. Yet, the educational benefits of short ICU rotations are unclear. The script concordance test (SCT) is a written test designed to assess clinical reasoning in context of uncertainty. Validity inferences regarding scoring and generalization (Kane's framework) are better supported for SCTs studied in non-ICU contexts than inferences regarding extrapolation. We conducted a study to add evidence to the validity of the SCT for its use in the critical care setting for formative assessment or rotation evaluation.

Method: We developed a critical care SCT according to published guidelines. The test blueprint was based on an ICU educator survey and training objectives. Two ICU physicians wrote a bank of 70 items used to create two SCT versions, each including 35 items. Two separate ICU experts reviewed item quality. Scoring was based on comparison of residents' answers against frequency of answers of a reference panel composed of 10 ICU expert physicians. The SCT was administered to consenting specialty residents who rotated in three participating ICUs. Each resident completed the SCT on week 1 and week 4 of their ICU rotation. The test final version was obtained after item optimization.

Results: Between January and October 2017, 56 residents completed at least one SCT (mean score, 65.7 [SD 10.6]). Of those, 32 residents completed two assessments: SCT scores were significantly higher at week 4 compared to week 1 (mean difference, 4.6 [SD 10.6]; p=0.0002; effect size, 0.43). Week-1 SCT scores were significantly higher with increased previous ICU exposure (p=0.03), but not with higher level of training (p=0.09). Week-1 SCT scores also significantly differed according to baseline specialty (p=0.01).

Conclusion: This study added to the validity evidence (responsiveness and relationship to other variables) of a critical care SCT. The SCT could be used to inform educators and learners about pre-rotation learning gaps and ICU rotation effectiveness in fulfilling these gaps.

3J: Short Communications: Assessment: EPAs

Location: Shanghai 1, Ground Floor, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

3J1 (1782)
What's all the Hype? A scoping review of Entrustable Professional Activities in Undergraduate Medical Education

Authors
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Presenter: Eric Meyer, USUHS, Bethesda, USA

Background: Entrustable professional activities (EPAs) are a hot topic in undergraduate medical education (UME). Yet, the usefulness of EPAs as an assessment framework remains unclear. The authors sought to better understand the breadth and depth of the literature on EPAs in UME.
Methods: A scoping review on EPAs in UME was conducted using PubMed, Embase, ERIC, SCOPUS, MedEdPORTAL, and Web of Science, plus hand searching gray literature. Initial results were shared with the 1,100 AAMC EPA Listserv members to identify missed content. The authors extracted key characteristics, including those mapped to the 2010 Ottawa Conference Assessment Guidelines (Norcini, 2011), from articles chosen for inclusion using a collaboratively designed data-charting tool. Results were quantified and thematically analyzed for core themes.
Results: Fifty-seven articles published from 12 countries were included. 26 (45.6%) discussed the Association of American Medical Colleges' (AAMC) 13 Core EPAs. 8 (14%) were published or funded by the AAMC. 28 (49.1%) were opinion pieces and 18 (31.6%) prospective studies. Opinion pieces discussed all of the Ottawa Criteria except reproducibility; 98.1% had positive conclusions. The prospective studies addressed all the criteria; 28.6% reporting concerns about EPAs in UME.
While much of the literature on EPAs consisted of optimistic opinion pieces, the results of prospective trials were less promising. Analysis revealed that early papers recommended EPA implementation using established assessment methods (e.g.: 360° evaluations, programmatic assessment, etc). Consequently, it seemed that authors conflated the benefits of these methods of assessment attributing them to the EPA framework itself. Other articles alluded to EPAs to advocate for other educational goals, which confused the EPA dialogue. A final theme was the large influence of the AAMC's efforts. While promising, the Core EPA study updates did not appear to reference contemporary literature in designing, assessing, or measuring EPAs.
Conclusion: Much has been published to energize the research and programmatic efforts required to implement EPAs in UME. Now is the time to move beyond opinion to generate evidence from prospective studies that carefully assess each of the Ottawa Criteria.

3J2 (1740)
Transformative but complex: exploring the educational effects of entrustment on final year medical students through the experience-based learning model

Authors
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Presenter: Rui Coelho, FMUP - Faculty of Medicine - University of Porto, Portugal

Background: Entrustable Professional Activities (EPA) is a new paradigm in Medical Education bringing great promise to enact competence-based education in the workplace. However, is yet to be explored how entrustment enhances students' learning through participation in patient care and what conditions influence learning. Experience-based learning (ExBL) is a useful model to elucidate how medical students learn through experience in real-life settings.
Methods: A phenomenological approach was chosen to explore what and how final year medical students learn in the workplace through the entrustment of professional tasks. We conducted five focus groups with medical students using maximum-variation sampling until thematic saturation. Deductive thematic analysis using the ExBL model was conducted using an iterative data analysis and collection design.
Results: The entrustment of professional activities leads to outcomes predicted by ExBL: real patient, affective and practical learning. Students acquire experience with patients, gaining a new dimension to their clinical knowledge. A complex mix of positive and negative feelings emerges from entrustment and students learn how to practice Medicine in the context of a team. Gradual increase in autonomy drives the construction of own meaning for clinical reality, activates clinical and meta-cognitive reasoning and fosters self-regulation of learning. In contrast, low autonomy is destructive for learning. Learning from entrustment is promoted by feedback and psychological safety within medical teams.
Discussion/Conclusion: This study deepens our understanding about how entrustment enhances workplace-based learning through the theoretical scope of ExBL. Entrustment seems to drive learning through constructivist mechanisms and activates meta-cognitive reasoning. The impact of entrustment in learning is complex and involves a dynamic interplay of personal, interpersonal and environmental factors. Complexity needs to be embraced to develop meaningful teaching and assessment of EPA frameworks.
Experience-based learning sheds lights on the educational effect of entrusting professional activities to final year medical students. Entrustment is paramount to the transformative impact of workplace-based learning in the development of student clinical competence.

3J3 (1554)
Creating a Tool to Enable "Just in Time" Entrustment-Based Assessment and Feedback for Learning

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Background: As schools implement Entrustable Professional Activities (EPAs) in their program of assessment, it is important to develop tools that support critical constructs related to this framework. EPA-based assessment depends on direct observation of learner performance and on the ability to collect and document information in a user-friendly format. Data should be immediately available to learners so that they are able to work with teachers to analyze the information and develop a learning plan to address gaps and optimize strengths and emerging skills.
Methods: Educators and technology staff collaborated with an internal software development team to create the web-based Interactive Clinical Assessment Navigator (iCAN) application to collect and document data from direct observations of learner performance. The team also partnered to develop data visualizations available to students, faculty coaches, the entrustment committee and educational administrative leaders.
Results: Factors critical to success included: Key stakeholders actively participated in design with regular opportunities to review early versions; A phased implementation enabled analysis of how the tool was being used, to understand how students and assessors understood the assessments, and to make adjustments; Adoption by resident and faculty physicians was successful due to an intense change management effort. Physician champions increased awareness and willingness to participate among peers.
Since July, 2017, over 430 faculty and resident have participated in training sessions. 1028 assessments have been completed by Master Assessors (16%), faculty (52%) and residents (32%) during the internal medicine (63%), obstetrics/gynecology (7%) and pediatrics (30%) clerkships. 458/1028 observations have assessed students' abilities to perform a history and physical exam. 46% of assessors stated that students were ready to perform tasks with indirect supervision.
Using Lean and Agile methodologies, we developed a highly functioning application for EPA-based assessments. Importantly, data is immediately available, allowing stakeholders to understand students' emerging competence; promoting the development of trust and the use of assessments as a learning tool.
Conclusion: Partnership with educational technologists has facilitated a process of continuous improvement and refinement of a tool that meets educational objectives, supports workplace-based assessment and learning and is responsive to the needs of end-users.

3J4 (2375)
Practical Aspects of Making Summative Entrustment Decisions

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Background: In 2014, the Association of American Medical Colleges published a list of 13 Core Entrustable Professional Activities (EPAs) for Entering Residency, articulating tasks that medical school graduates should be able to perform upon transition to residency under indirect supervision. Ten US medical schools were convened to develop best practices for implementation, with an expectation to pilot the process of summative entrustment decisions in 2019. Additionally, many other medical schools are implementing or considering how to implement an EPA framework in their UME programs. An integral part of this framework involves making summative entrustment decisions. However, determining how to make these decisions can be a challenge. Many institutions are struggling with content, process, logistics and resources especially given the larger scale of UME programs relative to GME programs. The AAMC pilot schools have discussed challenges and best practices and are ready to disseminate actual findings beyond their initial recommendations. (1)
Methods: Two participating schools in the AAMC Core EPA pilot (Vanderbilt and Florida International University) have developed and implemented entrustment committees. This short communication is designed to share lessons learned including how to solve practical problems and overcome barriers facing individuals and institutions that are trying to make these summative entrustment decisions.
Key objectives to be covered include: 1) Differentiate ad hoc formative observations/decisions and summative entrustment decisions; 2) Describe mechanisms to collate formative data for summative entrustment decisions; 3) List potential members of an entrustment committee; 4) Consider inflection points at which an entrustment committee makes summative decisions; 5) Identify innovative methods to approach particular EPAs that may be more challenging to assess in the workplace; 6) Describe faculty development needs for entrustment committee members
Providing practical aspects of making summative entrustment decisions will be important to actualize the

core EPA framework as a competency-based approach for UME programs.

1) Finding a Path to Entrustment in Undergraduate Medical Education: A Progress Report From the AAMC Core Entrustable Professional Activities for Entering Residency Entrustment Concept Group. Brown D, Warren J, Hyderi A et al. Acad Med 2017:92: 774-779.

3J5 (1934)
Trainee´s learning and patient safety during final year clerkships - improvements by using EPAs

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Background: Final year clerkships in medicine strive to find a balance between the learning of trainees and maintaining safety of patients. Entrustable Professional Activities (EPAs) have recently been introduced as a new concept to operationalize workplace participation by defining professional task and a designated level of supervision for trainees. This qualitative study explores the perspectives of supervising physicians on i) the problems they see in the relation between participation of final year clerkship students and patient safety, and ii) whether and how EPAs may improve the situation.
Methods: Supervising physicians (n=11) took part in focus group discussions. First, they discussed problems experienced in supervising final year clerkship students related to patient safety. Then, they discussed the potential benefits of implementing EPAs as outcomes in the final year clerkships. The data were analyzed qualitatively according to Kuckartz (2014): Appearing problems were examined by using the framework of contributory factors influencing clinical practice (Woloshynowych et al., 2005). To analyze the potential benefits of EPAs, a new category system was developed inductively.
Results: The physicians discussed a number of different problems related to patient safety when final year students participate in patient care. As main problems, they mentioned the lack of obligatory learning goals and of a given structure for integrating trainees and their learning in the clinical workflow. By using EPAs, training tasks and level of supervision would become more clearly defined. Therefore, EPAs could improve students' learning and thereby increase patient safety.
The experiences shared by supervising consultants point to a number of problems with patient safety in the context of students' workplace participation in their final year clerkship. The consultants expected that the risk involved can be reduced by using EPAs, i.e. by providing a better structural framework and clearer operationalization of the leaning goals to be met. This can lead to better trained physicians and safer practice now and in the long-run.

Patients' safety emerges as another important dimension in the application of EPAs.

3J6 (1210)
When to trust our learners? Clinical teachers' perceptions of decision variables in the entrustment process

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Presenter: Chantal Duijn, Utrecht University, Utrecht, Netherlands

Background: Clinical training programs increasingly use entrustable professional activities (EPAs) as focus of assessment. Clinical teachers struggle to find ways to assess the preparedness of learners to independently perform patient care tasks. Questions remain about which information should ground decisions to trust learners. This qualitative study aimed to identify decision variables in the workplace that clinical teachers find relevant in the elaboration of the entrustment decision processes. The findings can substantiate entrustment decision-making in the clinical workplace.
Methods: Focus groups were conducted with clinical teachers, using the structured consensus method of the Nominal Group Technique to generate decision variables. A ranking was made based on a relevance score assigned by the clinical teachers to the different decision variables. Field notes, audio recordings and flip chart lists were analyzed and subsequently translated and, as a form of axial coding, merged into one list, combining the decision variables that were similar in their meaning.
Results: The focus groups yielded 21 unique decision variables considered relevant to inform readiness to perform a clinical task on a designated level of supervision. The decision variables consisted of skills, generic qualities, characteristics or other information. We grouped the decision variables into five categories: ability, humility, integrity, reliability and breadth of information to ground entrustment.
Discussion/Conclusion: To entrust a learner to perform a task at a specific level of supervision, a supervisor needs information to support such a judgement. This trust cannot be credited on a single case at a single moment of assessment, but requires different variables and multiple sources of information. This study provides an overview of decision variables giving evidence to justify the multifactorial process of making an entrustment decision. Extensive reflection by different observers on performed tasks is highly relevant: both reviewing of actions after shifts, reflective behaviour by the learner as well as multi-source feedback were mentioned as relevant decision variables to base entrustment decisions on. Faculty development will be necessary to explain these types of entrustment decisions as being situational versus focused on certification, when introducing workplace curricula based on EPAs.

3K: Short Communications: Professional Identity

Location: Shanghai 2, Ground Floor, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

3K1 (2092)
A Longitudinal Assessment of Professional Identity, Wellness, Imposter Phenomenon and Calling to Medicine among Medical Students

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Background: Interpersonal communication, self-care and resilience skills are drawing attention as medical educators gain appreciation for how an individual's relationship to self, profession and patients impacts quality of patient care and physician health. Professional identity formation must cultivate development of students' emotional and spiritual dimensions by promoting self-reflection, emotional awareness, resiliency and well-being.
Method: We assessed changes over time in professional identity, wellness, imposter phenomenon and calling to medicine in a cohort of medical students from the first through third years of medical school, using 4 validated measures: Perceived Wellness Survey (PWS), Brief Calling Scale (BCS), Physician In-group Identification Scale (PID) and Clance's Imposter Phenomenon Scale (CIP). The study was exempted by the university IRB.
Results: 110 class of 2018 students returned surveys at the beginning of year 1; 58 completed surveys at the beginning and/or end of year 3 and were included in analyses. From pre to post preclinical years (n=44), there was a significant decrease in the PID, and a small but not statistically significant increase in the CIP. There were no changes in the PWS or BCS. After the third-year clerkships (n=35), the PWS and PID decreased, the CIP increased, and the BCS did not change. For students who participated at all time periods (n=21), there were no differences in the PWS, BCS, and CIP. The PID decreased from pre to post preclinical years, and remained significantly lower at the end of the clerkship year.
Discussion: Student wellness dropped significantly over 3 years, likely due to increased time demands and less control over one's schedule. The BCS did not decrease over time, which is reassuring since it's linked to decreased burnout and increased resiliency. That students lose a sense of identity as part of the physician community is concerning; future curriculum initiatives should focus on integration of professional identity into students' individual identities.
Conclusion: As medical educators seek to understand the transition of undergraduate student to medical school graduate, curricula should include a focus on development of physician identity and an emphasis on individual wellness/self-care in the clinical years.

3K2 (1797)
Professional identity formation through the lens of the Social Identity Approach – self-categorization as a 'doctor' in the transition from student to medical graduate

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Background: The theory of Social Identity Approach (SIA) discusses how group memberships affect self-concepts. Self-categorization, a core concept in SIA, explains how and when people define themselves as members of a specific group rather than only as individuals. We aimed to explore through the lens of SIA which experiences during the transition from student to medical graduate affects self-categorization as a doctor.
Method: We interviewed 21 medical students in transition to medical graduate. Interviews were semi-structured and focused on factors influencing professional identity formation and career choice considerations. Transcripts were analyzed by two authors using template analysis to find cues of self-categorization and experiences of influence on it.
Results: Interviewees discussed identity formation in terms of group-membership and fit with the group based on personal characteristics and lifestyle. Experiencing physician tasks and responsibilities and the extent to which they felt competent were described as being of major influence. Next, how trainees felt treated by the professional group had a big impact. Important was the way group members showed an inviting attitude through positive commenting on fit in the team, and how the trainee felt treated as a colleague.
Conclusion: We found SIA to be a useful approach when exploring professional identity formation. Medical students seek for a fit with the professional group in terms of personal characteristics and lifestyle. In the transition to medical graduate, students experience tasks and responsibilities of a doctor not only to acquire knowledge and skills but to elaborate their identity and fit with a professional community. Feeling competent and feeling treated as a colleague by group members of the aspired group appear to be major influences on self-categorization as a doctor.
Take-home messages: Professional identity formation during transition from student to medical graduate may benefit from:

- having trainees consciously reflecting on their fit with the professional group
- having trainees experience the full tasks of a medical doctor
- stimulate the inclusion of medical trainees in teams

3K3 (1462)
Fostering and evaluating Medical Professionalism through an innovative Training Program for young doctors

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Background: The literature points out several assessment tools related to medical knowledge, how it is applied and how it is done. However, little is known about methodologies focused on the development of professional identity - being a doctor. Medical professionalism, is located at the top of Miller's pyramid of knowledge. SOBRAMFA – Medical Education and Humanism runs an innovative training program for young doctors. This 3 years-program is based in multivariate practicing scenarios (from Complicated Inpatients to Palliative Care and Nursing Homes), regular scientific meetings, reflective workshops, and an accurate global evaluation along with strictly mentoring of each learner. During the 12 years in which this Program is set, it's possible to identify in the learners not just the improvement in technical knowledge but mainly their professional maturation. The evaluation system (360 degree feedback) -including self-assessment, peer evaluation, preceptors' guide feedback - is the cornerstone of this successful outcome.
Professional maturation, what we might call medical professionalism, is what is located at the top of Miller's well-known pyramid of knowledge, defined as "IS" doctor. The main contribution of this study is to share an educational experience where all levels of the Miller pyramid are contemplated during the training.
The training Program developed by SOBRAMFA, an innovative educational model which provides assistance to patients in different settings and establish a routine of activities with technical and philosophical exercise, all them accompanied by an individualized evaluation process that stimulates self-reflection, can contribute to improve professionalism and excellence in doctoring.
Take-home messages:
- To set a training program in a multivariate practicing scenario, brings challenges and learning opportunities for the young doctors.
- A strictly routine of regular scientific meeting, reflective workshop and an accurate face-to-face evaluation is required for the learners incorporate attitudes to develop medical professionalism and build their identity.

3K4 (1457)
'Not a doctor': the professional identity formation of physician associate (PA) students

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Presenter: Clare Morris, Queen Mary University London, UK

Background: The profession of physician associate (PAs) began in the USA in 1965, emerging in the UK early this millennium. Whilst there is an agreed national curriculum and licencing exam for PAs, registration is currently voluntary.
The Department of Health (2012) defines the PA as 'a new healthcare professional who, while not a doctor works to the medical model' [our emphasis]. PAs are defined in relation to what they are not, rather than what they are. In our experience, this process of othering (positioning PAs identity in relation or opposition to doctors) is common and we believe this to be significant in relation to PA professional identity formation and their integration into healthcare teams.
Professional identity formation involves socialisation into professional communities (Cruess et al 2015). Our study explores how this newly emerging professional group self-categorise ('who I think I am') and negotiate their identity in relation to 'other' professions ('who I think you think I am') (Monrouxe 2010).
Method: This is a qualitative research enquiry, with a socio-cultural framing i.e. one where learning is understood as a social practice, involving active participation in communities (of practice) and the construction of identities in relation to that practice. Our study utilises audio-recorded interviews to trace shifts in the ways PA students talk about how learning is changing 'who they are' and shaping 'who they will be'. Data collection takes place at three points: at the start of the programme, after the first block of clinical placements and the end of the first year of their programme.
The final interview will be conducted in February 2018, with data analysis completed by the end of April. Our initial impressions support the premise that professional identity is constantly being negotiated as students seek to reconcile their self-categorisations with the ways they are positioned by other healthcare professionals. This is revealed in the ways they are introduced to patients and the types of learning opportunities they are afforded (or otherwise).
We will present findings with an emphasis on implications for curriculum design and faculty development.

3K5 (2671)
Problem based learning plays a key role in facilitating the process of professional identity development in medical students. Assumption or truth?

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Presenter: Nicolaj Johansson, Aalborg University, Aalborg, Denmark

Background: Professional identity development is acknowledged as a fundamental part of medical education and the topic has received much attention in the medical education literature in recent years. Despite the growing interest, only a few studies have examined the impact that problem-based learning (PBL) has on the development of professional identity.
Method: To understand how PBL influences the development of professional identity and be clear about what is known about the topic, a literature review concerning professional identity development was conducted. Using a full text search string comprising the terms identity, problem-based learning, and medical students, the following databases, were searched: Pubmed, Scopus, and Proquest.
Results: 438 articles were identified and 11 were considered relevant based on a review of their abstracts. While these articles investigated the influence of PBL on the development of such competencies as critical thinking, reflexivity, clinical problem solving, collaboration skills, and intrinsic motivation, all of which have been found to influence professional identity development, none of them were specifically concerned with how PBL impacts professional identity development.
Discussion: Rarely are the implications of the use of PBL discussed in relation to professional identity development. Even though PBL has become more common as the preferred pedagogical approach to medical education, its consequences for professional identity development are still vague. Despite, the growing interest for PBL as a pedagogy and the consensus among researchers that a strong sense of professional identity enhances the degree of preparedness to the transition from medical student to junior doctor, there is still a lack of scientific evidence supporting the idea that PBL contributes positively to the development of professional identity.
Conclusion: We believe that using PBL plays a key role in facilitating the process of professional identity development in medical students. Thus, we argue that the medical community should pay attention to the importance of using PBL as an effective way to facilitate the development of medical students' professional identity.

3K6 (3291)
The Relationship Between Role and Identity in Professional Identity Formation During Residency: A Qualitative Study

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Background: Professional identity formation (PIF) is central to medical education; current PIF conceptualization includes psychological and sociological theories. Social cognitive theory (SCT) describes the relationships between identity, behavior and context and provides a lens to examine PIF. Understanding the process may help faculty support PIF during residency, therefore we used SCT to explore PIF during residency.
Method: We used constructivist grounded theory to examine PIF during residency. Residents in the Mayo Clinic Internal Medicine Residency participated in hour-long semi-structured interviews from February-May 2017. Interviews were transcribed verbatim and de-identified prior to analysis. Data collection and analysis were conducted simultaneously. We applied open codes, wrote analytic memos and discussed themes. We identified main themes relating to PIF and explored relationships between themes. Using constant comparison, we refined our categorization of themes within a SCT framework to explain our findings. Theoretical saturation was determined by group consensus. This study was approved by the Mayo Clinic Institutional Review Board.
Results: We conducted 23 interviews; 15 (65%) participants were male. Five participants (22%) were postgraduate year (PGY) 1s, 9 (39%) were PGY-2s and 9 (39%) were PGY-3s. We identified themes describing the relationship between person, behaviors and context and their connection with PIF. Residents described a dynamic, reciprocal relationship between identity development and enacting the roles of a physician. They discussed their initial ideal of a "good doctor" at the start of residency (e.g. "knows everything about medicine"), which influenced the enactment of their doctor role. With experience, feedback, and role models, residents re-framed their idea of a "good doctor" ("use[s] the resources around you"). While residents felt the "impostor syndrome," performing the doctor role provided confidence and reinforced their identity as physicians.
Conclusion: Residents undergo PIF through interactions between person and behavior within the context of residency training, exemplifying reciprocal determinism between person, behavior and context within SCT. This framework may help educators understand the process of PIF during residency.
Take-home message: Understanding the relationship between person and behavior in the development of

professional identity may help guide the role of faculty in supporting PIF.

3K7 (541)
Professional Identity Formation: A Comparison of First-Year and Third-Year Pharmacy Students

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Background: Professional identity formation has been described as one of medical education's core goals (Rabow et al., 2010). It has been referred to as the gradual process by which students assume the identity of their profession over the course of their education (White et al., 2011). While professional identity has been found to decline between the first and third years of medical school (Houseknecht et al., 2015), it is not known whether this decline occurs across other health professions. This study compares professional identity in first-year and third-year pharmacy students.

Method/Results: 216 pharmacy students (first-year = 113, third year = 103; 94% response rate) at one USA medical center were administered the In-Group Identification Scale (Leach et al., 2008) when they matriculated in 2016. This 14-item survey was modified for appropriate use with pharmacy students and used a Likert-type response scale from 1 (very strongly disagree) to 6 (very strongly agree) with total scores ranging from 14-84.

Findings using an independent samples t-test suggest no differences in professional identity between first-year pharmacy students (M = 67.26, SD = 8.5) and third-year pharmacy students (M = 64.84, SD = 10.09; t (214) = 1.913, p =.05).

Discussion: Previous research supports that for medical students professional identity formation has been shown to decline between first and third years of medical school (Houseknecht et al., 2015). For pharmacy students, however, the current study shows that professional identity remained stable. This difference in health professions students lends us to wonder why professional identity changes or remains stable in certain health professions but not others. Future studies should investigate perhaps through qualitative inquiry as to why these differences exist. Some literature has identified the curriculum and learning environment as a culprit, so this begs the question of how do medicine and pharmacy education differ throughout the first three years that might contribute to erosion of professional identity versus stability.

Conclusion: Professional identity appears to remain stable in pharmacy students between the first and third year of their education.

3L: Short Communications: Curriculum Development

Location: Shanghai 3, Ground Floor, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

3L1 (3537)
A New School of Thought: Six Year Review of The Integrated Practice of Medicine course: Part of an Innovative Fully Clinically Integrated New Medical School Curriculum

Authors
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Background: In 2012, The University of South Carolina School of Medicine Greenville (USCSOMG) opened the doors to new four year medical school and a curriculum designed to educate physicians with a different perspective on addressing individual and public health care needs of an increasingly diverse society. This fully clinically integrated curriculum begins with enrolling all first year medical student in a standardized 6 week basic EMT course on the first day of medical school, facilitating their state certification as an EMT provider and continuing the student's participation in ongoing ambulance rides throughout their first two years of medical school. In addition to community and public health issue exposure the mandatory EMT certification experience offers, the next two years of medical school education continue to offer extensive clinical interaction with active physician educators through weekly small group structured case based learning, carefully integrated with the weekly biomedical science curriculum. This biomedical science faculty and curriculum carefully coordinated with physician and professionalization education with other related health care providers (pharmacy, nursing and EMT) has provided an excellent foundation for the USCSOMG student to gain an expanded awareness of the complex medical, social and behavioral aspects of both individual patient care and public health concerns at large that are facing an ever diversifying society which the new physicians are committed to serving. It is the belief of the USCSOMG founders that this novel fully clinically integrated educational approach will not only produce physician graduates with exceptional insight and skills in the social, behavioral and cultural needs of an increasingly diverse society, but will do so while enhancing the student's acquisition of the prerequisite medical knowledge which is crucial as the foundation for physicians' effectively understanding and treating medical health care needs of individuals and society at large. This report is the six year mark reflection on the successes, challenges and lessons learned as well as future plans from the USCSOMG "A New School of Thought" experience highlighting the longitudinal M-1 through M-4 Integrated Practice of Medicine course (IPM).

3L2 (2609)
Re-examining basic science knowledge to improve preparation for clerkships: Early experiences with CRUX tests

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Background: For many decades, the complaint has frequently been voiced that medical students have forgotten much of their basic science knowledge when they start their clerkships. Most probably, this is a consequence of students' studying the learning material only once. This situation could be improved by requiring students to revisit curriculum content before entering their clerkships. Thus, the UMC Utrecht Medical School introduced four mandatory broad re-examination (CRUX) tests in the pre-clerkship curriculum in 2016.
Methods: Each CRUX-test covers 3-5 of 14 pre-clinical courses and is administered at least six months after the course's examination. The tests consist of questions that can unequivocally be assigned to the major global learning objectives of the course; questions that lack this property are not included. Students have to pass all four CRUX tests before they can earn their Bachelor Degree; in case they fail a test, they have to redo it as often as they need. Our study analysed appreciation, test results, and consequences for individual students as well as the faculty.
Results: Faculty and students alike believe the idea behind the CRUX-tests to be sound. Initially, approximately two-third of the students passed each test at the first attempt. Recently, however, this proportion has decreased, a trend that propagates through subsequent attempts. In addition, fewer students sign up and show up at each subsequent test occasions. Though students' self-reported time investment (which ranges from 0-40 hrs) correlates positively with test scores, this time investment also appears to have decreased.
Though most students pass the tests without frequent failures, a persistent minority still did not pass a single CRUX test, partly due insufficient time investment, but probably also because of cognitive difficulties or maladaptive study behaviour.
Though the CRUX-tests largely seem to meet their aim, there is an important side effect in the form of a group of students who increasingly lag behind. This group may require focused remediation.
Conclusion: CRUX-tests stimulate most students to revisit their knowledge, but unintentionally also to block progress of others who may need remediation to prepare them for their clerkships.

3L3 (3329)
Toward critical reflection for competent social practice

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Background: In response to patients' needs, clinicians are called to work with/in health care systems, insurance companies, schools, homecare and community organizations. To rise to this call, clinicians must advocate, collaborate and communicate effectively and with attention to systems-based practice. Teaching toward these competencies in an authentic and effective manner proves challenging. To inform education efforts, we aimed to study practices in a context particularly in need of these types of knowledge, skill, and practice.
Methods: As part of an interpretive qualitative study, we interviewed 42 participants who work at the health-education interface in support of children with disabilities/chronic conditions: parents, health-, and school-based professionals. We asked them about their work in this complex practice area. After inductively noting that some practitioners exhibited critically reflective insight, we deductively coded all instances of critical reflection, and the source of these insights. Critical reflection refers to thoughtful consideration of everyday experiences and situations, with focused attention on issues of power, privilege, and social structure. Critical reflection informs change-oriented action.
Results: Clinicians' critically reflective insights corresponded with opportunistic ways of learning about 'other' systems. For example, a physician who worked adaptively with school systems cited her sister's teaching career as a source of knowledge. A physiotherapist who collaborated respectfully with families and schools acknowledged her teenager daughter's volunteer experience in special education. With critically reflective perspectives, clinicians appreciated larger social systems at play and resisted biomedical and social norms (e.g. narrow definitions of 'disability') to best respond to the nuanced intersections of patient and practice contexts and needs.
Conclusion: Our research shows the potential for critically reflective practice to enable more compassionate, person-centered, innovative care; but points to a haphazard way of learning it. These findings build on research that found clinicians gained critical reflexivity when hospitalized, and that this reflexivity supported compassionate care (Rowland and Kuper). But we must not rely on these current ways of learning, and share possible teaching practices from critical pedagogy.

3L4 (3532)
Master theses at the University of Zurich: academic achievement of five year's cohorts as expressed by publication metrics

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Background: A master thesis is mandatory within all undergraduate medical study programmes in Switzerland. The first student cohort at the University of Zurich submitted their theses in 2013. To gain first data on the potential benefits for students and institutions at a research-oriented university we analyzed the theses completed by the years' cohorts 2013-2017. As a first approach we used simple publication metrics as one measurable surrogate of academic achievement.
Methods: The databases "PubMed/Medline" and "Google Scholar" were searched for the students as authors, their supervisors as authors, and the titles of the theses. For articles listed in PubMed/Medline we identified the students' positions in the sequence of authors and the journal metrics expressed as Impact Factor (IF), 5-year IF, and the rank quartile (Q1 (highest) to Q4 (lowest)) within the subject domain in "Web of Science, InCites Journal Citation Reports" [1]. The search was performed between Jan 3rd and 26th, 2018.
Results: All 1151 theses which were handed in by the years' cohorts 2013-2017 could be analysed. At the time of the search 328 theses (28.5%) were contributions to articles listed in PubMed/Medline, the median IF of these was 2.201, 5-year-IF 2.005, the median rank quartile was Q2, and the student's position of authorship was first in 116 cases (35.4%), second in 95 cases (29.0%), and third or higher in 117 cases (35.7%). No student was listed as last author. Median IF was higher if the student's position was further back in the sequence of authors (median IF of first authorship: 1.688 vs. third or higher: 2.806, p< .0001, MWU test).
Discussion: When completing a mandatory master thesis in medicine at a research-oriented university, academic achievement as expressed by publication metrics was significant. However, the implications of these findings for the development of scholarly competencies and scientific careers remain to be investigated since publication metrics provide only a limited view on academic achievement.
Conclusion: A substantial number of master theses at a research-oriented university contribute to high-ranked peer-reviewed publications.
[1] https://jcr.incites.thomsonreuters.com/

3L5 (2868)
How to succeed in curriculum reform? – Influence of stakeholder interests and strategies in context of Bourdieu's framework

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Background: Medical curriculum reform involves many different faculty stakeholders and it is shaped by distinct interests. The identification of interests and strategies of different stakeholders is crucial to understand the process of curriculum reform. Purpose of this qualitative study is to analyse the process of curriculum reform by the framework of Bourdieu (Gomes & Rego 2013), i.e. the competition over resources in social fields.
Methods: Semi-structured interviews were performed with key stakeholders in a recent major curriculum reform at Charité -Universitätsmedizin Berlin, Germany. Viewpoints of four faculty members, four students and five curriculum developers were recorded and compared between groups. Transcriptions of audio-records were qualitatively analysed by three evaluators according to Mayring (2015).
Results: The groups competed over "capital", as Bourdieu describes resources (Varpio 2013): Faculty members competed over teaching hours connected to staff positions, while students and curriculum developers competed for progressive pedagogical concepts. Strategies used by the groups highly depended on their interests. Among these, we found alliance building, holding back information, hiding interests, preparing concepts shortly before meetings and compromise proposals.
Discussion: This study shows how hidden interests influence the negotiation strategies in the process of curriculum reform. Using Bourdieu's framework, it reveals the competition over resources and positions within the field of a medical faculty. Faculty members compete over positions through teaching time, while students' interests appeal highly learning content orientated. Medical universities should take into account the consequences resulting from a curriculum reform process for all faculty stakeholders.
Conclusion: The results of a curriculum reform are not limited to pedagogical concepts. There is also a significant impact by social positions within the field of a medical faculty. Managing successfully a curriculum reform requires to involve all stakeholders and their specific interests as well as to create a breeding ground for constructive discussions during the entire process.

3L6 (791)
Reinventing Japanese medical education, a year later

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Presenter: Haruko Akatsu, IUHW, Narita, Japan

Background: International University of Health and Welfare (IUHW) School of Medicine opened in April 2017, 38 years after the Japanese government ban on the establishment of new medical schools in Japan. This school is vastly different from any other Japanese medical school. It strives to train internationally-minded, bilingual and highly professional physicians who could go on to serve around the globe.
Discussion: We have succeeded in creating a participatory, team-based, bilingual learning environment, where one in every seven students is international. We implemented a novel educational system, including elements such as: one-hour student entrance examination interviews conducted by six faculty and staff members; 20-minute English mock-lectures by faculty recruitment candidates; a week-long freshman orientation; intensive language courses; weekly student- and faculty-support meetings; weekly faculty development seminars; class evaluations completed after every period; and a team-based teaching (TBT) model. IUHW School of Medicine created a completely different educational framework. In addition to the efforts listed above, this success was also due to strong leadership that emphasized education first. A well-defined vision, careful selection process for students and faculty, frequent faculty development, a team-based teaching model, along with timely, thorough feedback and support systems for students and faculty, enabled us to innovate even in this conservative, traditional Japanese society.
Some challenges we have encountered in this process include encouraging the few students who do not participate in active learning, and faculty members who are not interested in considering their constructive feedback. Success of creating something unprecedented in medical education requires a well-defined vision supported by the leadership, a carefully planned process, team-based teaching, and timely and thorough feedback and support systems both for the students and faculty.
By continuing to share the establishment of our school, we hope not only to receive feedback from our international peers, but also to inspire others toward innovation in medical education.

3L7 (2623)
Implementation of spiral curriculum in Medical Education: Four Loops

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Presenter: David Kereselidze, New Vision University, Tbilisi, Georgia

Background: NVU Medical School has launched MD program in 2014 and after reaching the midpoint of its implementation, the school conducted an Assessment of Learning Outcomes Achievement (LOA) in 2017. As a result of a rethinking of MD curriculum, it is now described in four loops referring to knowledge, skills and values, where every consecutive loop builds on previous one and sets more complex learning objectives.

Methods: Activities were conducted in the format of group, committee and extended curriculum committee meetings. Throughout the process, the existing experience of the program implementation, approaches of other universities as well as the student surveys were analyzed. The draft amendments were discussed with the University administration and broader audience of diverse professional experiences, including potential employers/stakeholders.

Results/Discussion: As a result, knowledge and understanding, applying knowledge, communication, making judgments and learning skills as well as values were considered as linking elements in the spiral curriculum or in other words, the four loop spiral of medical competencies was outlined, in which each subsequent loop builds on the previous one, further enhancing and developing competencies.

The interconnections between the components of the program demonstrate the advantages of perceiving the curriculum in spiral model, since the goals and learning outcomes of the individual components, as well as the link between these components, are best illustrated within such an approach. Bridging components facilitate the transition from one loop of spiral curriculum to another. Special attention is paid to shape the trans-disciplinary components in the final loop of the curriculum.

Rethinking of MD curriculum core elements such as applicable knowledge, clinical and generic skills, research, values and ethical attitudes for composing elements of the spiral curriculum, enable the gradual enhancement of student competencies, where every consecutive loop elements require retrieving of already gained knowledge and competencies and are designed to set more complex learning objectives.

Take-home message: Emphasis on the importance of the acquisition of knowledge matching with the practical application of gained competencies and of thereof achievement through implementation of spiral curriculum composed of four loops referring to knowledge, skills and values.

3M: Short Communications: Gender

Location: Boston 1, Ground Floor, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

3M1 (143)
Integration of Gender Medicine in Medical Education at Austrian Universities – the Status Quo

Authors
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Presenter: Ulrike Nachtschatt, Innsbruck Medical University, Innsbruck, Austria

Background: The implementation of Gender Medicine at Austrian universities started in 2004. As universities are independent entities and frame conditions differ, development of the new medical discipline proceeded differently depending on the university venue. The survey at hand examines the current status of the implementation of Gender Medicine in medical education at all Austrian universities. To date no systematic studies have been conducted on this subject.
Methods: The methodology was to first conduct a document analysis, followed by a questionnaire survey. The study covers public as well as private medical universities.
Results/Discussion: Analysis of the documents showed that Gender Medicine is often combined with affirmative action for women, equal treatment and/or gender studies. These subjects are frequently combined in order to meet legal requirements, which often results in unclear and vague statements of goals. The results show that, at least formally, Gender Medicine has been integrated at all the Austrian universities by being anchored in their curricula. Actual implementation in everyday university studies has been achieved very differently at the various universities and ranges from a well-established and broad offer of Gender Medicine lectures to a university with no lectures at all.
Conclusion: Legal framework conditions are necessary prerequisites. However, legal requirements in their general and vague nature are not sufficient and permit much creative leeway. Additional factors are important in order to establish Gender Medicine in medical education and research. The development of uniform standards and criteria would be a next important step for the Austrian universities.
Take-home message: Legal standards, financial resources as well as specific persons, who bring the right interest and dedication and have the necessary power to act, are necessary to implement a new medical discipline.

3M2 (491)
The relevance of the 'irrelevant': sexual and gender diversity topics in a medical curriculum

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Presenter: Maaike Muntinga, VUmc School of Medical Sciences, Amsterdam, Netherlands

Background: Future doctors should be adequately trained to address the specific health care needs of sexual and gender minority patients. So far, little insight exists in to the extent to which medical schools integrate sexual and gender diversity content in their curricula. We therefore screened an undergraduate course 'Sex, sexuality and relationships' in the VUmc School of Medical Sciences (VUmc SMS) curriculum for Lesbian, Gay, Bisexual, Transgender and Intersex (LGBTI) content, with the aim to identify good practices and opportunities for improvement.
Methods: We conducted a two-phase, intersectionality-based course evaluation. Intersectionality theory assumes individual (health) experiences are influenced by intersections of identities associated with either advantage (privilege) or disadvantage (oppression). In phase one, we evaluated the formal curriculum by screening the course for content (lecture slides, assignments, course literature) and identifying gaps using Obedin-Maliver's framework for LGBTI learning objectives (Obedin-Maliver et al, 2011). In phase two, we critically analysed how LGBTI content was addressed within the course.
Results/Discussion: We identified several good practices related to content, such as a lecture on transgender surgery and an assignment on mental health and sexual orientation. However, essential LGBTI topics such as intimate partner violence, LGBTI youth & coming out, barriers to care for LGBTI patients, and social aspects of trans identity and transitioning remained unaddressed. Lesbian and bisexual health issues were not addressed. Patients and physicians in paper cases were heterosexual unless otherwise indicated (heteronormativity) 'homosexuality' was listed as a topic alongside medical syndromes and diagnoses (pathologization), and gender and sexuality were generally presented as fixed and binary constructs.
In paper cases and study material, the standard sexually diverse patient is a white male, which (inadvertently) renders other intersections of identity (e.g. ethnicity) with sexual of gender minority status invisible. This invisibility of LGBTI minority identities and institutional heteronormativity leads to white and heterosexual bias in clinical reasoning, which might cause physicians to overlook needs of both non-straight ánd straight-identified patients.
Conclusion: Addressing LGBTI-related content in a responsive way is essential to emphasize the clinical relevance of knowledge about patients' gender and sexual identities.

3M3 (1536)
Women leaders in Global Health - the importance of gender equality in global health and the integration of global health issues into medical education

Authors
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Background: Women represent on average 70% of the global health workforce, but only 25% are in leadership positions. In order to showcase women's leadership, improve gender equality in global health and contribute to the integration of global health in medical curricula, a list of 300 Women Leaders in Global Health was compiled and the organization Women in Global Health founded. As Germany is taking on a new leadership role in global health, the aim was to create the first national pilot chapter of the international organization for Germany as a best practice example for other national networks.
Methods: A group of women working in the field of global health in Germany from academia, the private sector, ministries and non-governmental organizations as well as medical students was established. Criteria for the nominations, work priorities and objectives were defined. Women in the network need to work in global health in Germany, being German and working in global health internationally and having a minimum of two years' work experience in this field.
Results: The first national pilot chapter of the organization Women in Global health was founded. There are 102 women from 55 different organizations and institutions women on the list and in the network. The list is ordered alphabetically by surname and is not ranked. 55% of the women on the list are in leadership positions, 83% work in Germany, 92% are German, and 8% have a different national background.
Discussion/Conclusion: The list and network will increase the visibility of the women, advocate for the integration of global health issues into the medical curriculum and contribute to more gender equality in global health. Not all women working in this field are included yet and financial resources are needed to work on the goals. The German chapter will be a best practice example for the creation of further local chapters.
Take-home message: It is important to have a core group of women from different institutions to start with a national network, to clearly define the objectives of the national chapter and keep the network flexible.

3M4 (1460)
Medical students' ability to care for LGBT population in the Middle East

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Presenter: Roland Tomb, Saint-Joseph University Medical School (USJ), Beirut, Lebanon

Background: Doctors are committed to care for all patients regardless of their ethnicity, race, religion and all disparities including their sexual orientation and practices. Nevertheless, during the past decade some evidence has grown about healthcare disparities towards LGBT (Lesbian, Gay, Bisexual and transgendered) population. Our aim was to assess the residents' attitude and knowledge towards LGBT Lebanese population.
Methods: We performed a cross-sectional; internet-based survey among the residents of the Saint Joseph University medical school in Lebanon, designed for completion within a 15-minute time period. A confidential online survey using Limesurvey was sent to all the 230 residents. The email included an informed consent. The residents were free to answer or not. The test was anonymous without log-in information requested. The school's ethics committee approved the study.
Results: The first part of the questionnaire assessed attitudes towards LGBT patients. The residents indicated their level of agreement with each item (13 items) according to a 5-point Likert scale. This part was adapted from a validated survey of resident and physicians' attitudes toward patients with AIDS. The second part aimed to assess knowledge and consisted of 14 knowledge-based questions pertaining to LGBT healthcare. This part was based on the health objectives presented in the Healthy People 2010. A total of 118 of the 230 students (51%) completed the online survey.
Student Attitudes: An attitude score was calculated, based on a 5-point Likert scale per item, where a score of 5 indicated the most positive attitude and a score of 1 the most negative attitude. Students had an overall attitude score of 2.93 (SD=0.40).
Knowledge score: The knowledge score was low (7.2/20) and didn't correlate to the attitude score. This score ranged from 0 to 14/20. The median is 7/20, and the maximum 14.2/20. Only 10% of residents scored more than 10/20.
Conclusion: In conclusion, this study shows that our residents have a slightly positive attitude but a lack of accurate medical knowledge relevant to the special needs of the LGBT population.
Take-home message: Based on our results, an educational intervention needs to take place.

3M5 (744)
Implementation Strategies of Gender Medicine in European Medical Universities

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Presenter: Sarah Hiltner, Radboud University Medical Center, Nijmegen, Netherlands

Background: Sex and gender sensitive medicine (SGSM) is a young discipline that is claiming its position in medical academia since the early 2000s. The European SGSM scene has increased its visibility through institutionalization and some very active national members. Nevertheless, a lack of formal structures, transnational guidelines and diverse academic environments led to significant diversity in national strategies and depth of implementation in medical curricula.

Methods: This study investigates the current state of the field of SGSM in Europe and analyzes the impact of organizational aspects on its implementation into medical curricula. The explorative set-up consists of semi-structured interviews with 20 persons from 7 countries and 12 universities. The questionnaire focused on three aspects in particular: 1. the status quo of SGSM at the particular university, 2. how did it obtain its status? 3. what was the context within the university and the state it is situated in? More than 700 minutes of interview data were collected and analyzed via directed content analysis. Results were arranged into facilitators and hurdles based on the depth of implementation of SGSM into the curriculum.

Results: The results were sorted into two groups, based on SGSM being a mandatory (6 universities) or voluntary (6 universities) part of the medical curriculum. Mandatory implementation was facilitated by the presence of a professorship filled with a pioneer of SGSM. Supportive elements were the presence of a lecture series about SGSM, possibly with the involvement of department heads from other medical disciplines.

Discussion/Conclusion: The universities that implemented SGSM as mandatory part of their medical education display institutionalized SGSM structures. Through formal structures like a chair, a lecture series or a department they have made SGSM visible, which in turn fostered the mandatory inclusion into the curriculum.

The most promising approach to raise awareness for SGSM is a lecture series, however, funding for institutionalizing SGSM structures is indispensable to force sustained inclusion of SGSM into the curriculum.

Take-home message: SGSM should become a mandatory part of medical training – the most successful start is a lecture series engaging established experts from all medical disciplines.

3M6 (1556)
"Can I have your number?" – exploring undergraduate medical student boundary setting

Authors
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Presenter: Benjamin Taylor-Davies, King's College London, UK

Background: Awareness of professional boundaries is prerequisite to delivering good medical care. In undergraduate medical curricula students are not necessarily taught how to develop these boundaries and their extent may be influenced by students' social demographics or held beliefs. We undertook to examine these influences and subsequently consider how undergraduate medical curricula may be designed to ensure development of appropriate boundaries in future doctors.

Methods: Third-year undergraduate medical students participate in a primary care simulation programme. In one layered actor-based scenario, a patient with dyspepsia romantically propositions the doctor. An ethnographic observational study was conducted by CCTV exploring the gender and ethnicity of doctor/patient/group and the resultant issues around sexuality, culture, power and boundary setting. This was then triangulated using two focus groups to reflect observational results.

Results: Strong demographic themes emerged, with both gender and ethnicity appearing to strongly influence the extent of boundary setting and tolerance of unprofessional interpersonal behaviours. Female students demonstrated a lower threshold for unprofessional behaviour and more explicit boundary setting behaviour. BME students seemed more uncomfortable with explicit acknowledgments of inappropriate patient behaviour. Same-sex doctor-patient scenarios produced varying levels of challenge to students again related to sex and ethnicity of the student.

Discussion/Conclusion: Female students reported greater familiarity with unwanted sexual advances, lived experiences therefore influence the student's professional behaviour. Differing genders and/or ethnicities of patient and student may influence the dynamic of power within the consultation and thus both the student's tolerance of unprofessional behaviour and their rapidity and ease of boundary setting.

Doctors need to develop insight into their own held beliefs and then be able to operate within varied sexual, cultural and ethnic landscapes. Medical curricula must reinforce the importance of professional boundary setting and provide future doctors with the consultation skills to function optimally. We will suggest a usable toolkit for this development within undergraduate curricula.

3M7 (3162)

Mainstreaming gender and diversity in a medical curriculum. Reflections from VUmc School of Medical Sciences in Amsterdam

Authors

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Background: Medical schools need to address the health care needs of diverse populations. We have been implementing a longitudinal cultural competence pathway, based in a social justice paradigm. Learning objectives were as follows: (1) knowledge on health differences across sex/genders, cultures, and class; (2) skill development, and; (3) reflexivity. In addition, an extracurricular, diversity-oriented student committee (D.O.C.S.) supported by a performance artist was founded.
Methods: We developed and implemented several modules including 2 hr practicals, lectures, study assignments, an elective, oral examination and a teacher training module were developed and implemented, some in collaboration with D.O.C.S. and the artist. Overall, assessment of the pathway included piloting and evaluating modules in different designs, conducting interview studies about students' experiences, and a curriculum quality assessment by the national visitation committee.
Results: Evaluation results show that most learning objectives were implemented as intended, including final objectives for the bachelor and masterprogram, and the visitation committee evaluated the implementation of diversity issues as a best practice. Despite these successes, much remains to be done. For instance, although our experiences with collaborating with the artist and students were positive, we adjusted some modules from arts-based to more traditional content and form because of poor student adoption. While acceptability of diversity issues among students, a large share of medical teachers have not been reached.
Discussion: Despite a positive climate to diversity in our school, students and staff also call for traditional, comfortable approaches to teaching, both content- and form-wise. Teacher discomfort with topics such as racism, oppression and critical reflexivity cause this content to readily disappear from the curriculum. We reached important milestones, but we also need a pause and reflect on what we have reached, and how to move forward, especially when it comes to transformation in our school and social justice issues.
Conclusion: A structured approach to implementing diversity issues in medical education is effective at the formal curriculum level. A social justice approach tells us to not be easily satisfied.

3N: Short Communications: Selection

Location: Boston 2, Ground Floor, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

3N1 (2644)
Comparing apples, oranges and dragon fruit: Integrating the BioMedical Admissions Test (BMAT) into selection at Leeds Medical School

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Presenter: Patrick Harkin, School of Medicine, University of Leeds, UK

Background: During selection, medical schools must compare applicants with different academic qualifications and diverse experiences. In 2014 Leeds Medical School introduced BMAT to facilitate comparisons of academic potential within our diverse pool of applicants, including school leavers, international and mature applicants, and those from WP backgrounds. Adoption of BMAT was carried out over a number of years, replacing use of another assessment. BMAT comprises three sections: Sections 1 and 2 measure analytical problem solving skills, and application of scientific knowledge, respectively. Section 3 is a writing task focusing on the ability to develop, organise and communicate ideas.
Methods: The context of selection at Leeds is described, including the way in which the Medical School aggregates BMAT section scores and uses them alongside other selection measures. Scores from the first cohort to take BMAT for entry were correlated with Year 1 examination marks. Analyses of relationships for different subgroups were also conducted.
Results: BMAT scores, as used in our selection process, correlate with Year 1 examination marks. The format and content of Year 1 exams at Leeds Medical School is considered in view of these correlations. Differences in performance, both in BMAT and on the course, between key subgroups were identified; however the relationship between BMAT scores and outcomes within these subgroups appear similar.
Aggregated BMAT scores, as used by Leeds Medical School, predict performance on Year 1 summative examinations. BMAT Section 2 was the strongest predictor, most likely as it is more closely related to the abilities being assessed in Leeds' first year exams. Selection processes evolve and more emphasis may be given to BMAT scores in future, with further consideration of subgroup differences in applicants.
Conclusion: Medical schools face challenges in comparing applicants with different backgrounds and experience and an admission test taken by all candidates may add value to the selection process. BMAT predicts year 1 exam performance at Leeds Medical School, which has a diverse applicant cohort. BMAT Section 2 may be useful for evaluating science ability in applicants without GSCE grades, such as international or mature applicants.

3N2 (2725)
Is selection paying off? A cost-benefit analysis of a multi-tool selection procedure into medical school contrasted with a lottery procedure

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Presenter: Sanne Schreurs, Department of Educational Development and Research, Maastricht University, Maastricht, Netherlands

Background: Higher education institutes are often confronted with the challenge of decreasing funding and increasing accountability demands. These factors have also led to more scrutiny of medical school finances. However, economic analyses, such as cost-value analyses, to date, are lacking in medical education, although there have been recent calls in the literature to focus more on this topic. Joining this conversation, the current study aimed to examine and compare the cost and value of two different approaches to selection into medical school: a bespoke, multi-method selection process versus a lottery procedure. Our goal was to assess the relative effectiveness of each approach, and then compare these in terms of outcomes and costs.
Methods: The study was conducted at Maastricht University Medical School (MUMS). The costs and benefits of the bespoke selection process were contrasted with those of a national weighted lottery procedure. Both selection approaches ran in parallel. The study encompassed three cohorts of students admitted through selection and through lottery (2011-2013). Outcomes included retention, remediation and examination performance over the course of the three-year bachelor of medicine.
Results: The bespoke process costed about €133,000 for a full cohort of medical students (n=316). The lottery procedure came with negligible costs for the medical school. In return, the average benefits of bespoke selection compared to lottery added up to a little over €200,000. These benefits consisted of an increased income by preventing drop-out and decreasing extra costs by preventing redoing blocks and OSCEs. Overall, the bespoke selection process was cost-beneficial.
Conclusion: This study shows that conducting a cost-benefit study is not only feasible in the context of selection for medical school but that an 'expensive' selection process is cost-beneficial over a cost-neutral alternative. Different schools have different approaches to

selection and this was one study in one setting, so we urge others to look at similar questions in their own contexts. The results in this study provide important information for the current debate about whether or not selection procedures are worth the investment in staff time and resource.

3N3 (2736)
Selecting the attributes that matter: Personal attributes at MMI interview predict clinical competence in specified domains of senior medical student OSCEs

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Presenter: Lyndal Parker-Newlyn, University of Wollongong, Australia

Background: Previous academic performance predicts future academic performance in medicine, and is a widely used selection attribute, despite weaker correlation with clinical aptitude. Interviews are more controversial, reports of their predictive validity vary. In previous research we investigated the correlation of MMI and predict clinical skills in medical students and demonstrated that MMI interviews were useful at predicting clinical performance, especially in final year. It was unclear if both MMIs and OSCEs identify generic communication skills or if correlations exist between specific skills and clinical attributes. In this study we investigated if specific MMI selection attributes could predict clinical performance in OSCE domains in final year medicine.

Methods: MMI stations in our MD admissions process are blueprinted to selection attributes. Similarly, OSCE stations are classified according to clinical competencies identified by ACCLAIM. Attribute matched MMI stations from two cohorts of medical students (2016-2017 graduates) were correlated with their final year OSCE scores (assigned competency descriptors from the ACCLAIM collaboration) using linear regression.

Results: MMI interviews predicted final year OSCE performance with stronger correlation than previously reported ($r2=21.2\%;P<0.0001$). MMI selection attributes also showed a significant positive correlation with overall OSCE performance – specifically, stations assessing insight into medicine showed positive correlation with overall performance ($r2=12\%;P<0.0001$) and ethics/law domains ($r2=16.2\%;P<0.0001$). MMI stations assessing problem solving demonstrated positive correlation with investigation planning ($r2=11.2\%;P<0.05$) and patient centred care ($r2=12.1\%;P<0.001$). Students' performance on leadership stations correlated with overall OSCE score ($r2=12\%;P<0.008$), and Professional Discourse ($r2=15.3\%; P<0.003$).

Discussion: Predicting clinical performance is a clear goal in medical school admissions. This analysis confirms the predictive correlation of MMI interview with final year OSCE performance. Selection attributes specifically correlate with clinical performance domains, implying that MMI does not simply assess communication, but also the underpinning attributes that form foundations for clinical skill development.

Conclusion: MMI interviews can aid student selection by predicting those who will perform well in future clinical assessments. Identifying desirable personal attributes when designing admissions processes is important to select for the foundation skills that underpin future clinical competence.

3N4 (3401)
Associations between MMI scores and scores on the BioMedical Admissions Test (BMAT): Implication for selection practices

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Background: Admissions tests and multiple-mini interviews (MMIs) are often used in medical school selection, yet little is known about how these assessments may inter-relate in the constructs they assess. While the assessment constructs of MMIs can be difficult to define clearly, those measured in standardized admissions tests tend to be well established and defined. BMAT has three sections that target constructs relevant to studying medicine. Sections 1 and 2 respectively measure analytical problem solving skills and application of scientific knowledge. Section 3 tests the ability to organize and communicate ideas effectively in writing. This study investigates the relationships between BMAT scores and MMI performance at a UK medical school.

Methods: MMI data for three years of applications were obtained; for each year, eight individual station scores and overall MMI scores were correlated against BMAT section scores. Regression analyses were conducted using BMAT section scores to predict overall MMI performances.

Results: Correlation and regression analysis showed that BMAT Section 3 is significantly associated with MMI overall scores across all years for which data was analyzed. Furthermore, Section 3 correlated with specific MMI stations consistently, suggesting that the relationships between MMI station constructs and BMAT Section 3 were stable year on year. MMIs were not consistently associated with cognitive skills in critical thinking, problem solving or scientific reasoning, as measured by BMAT Section 1 and 2.

Discussion: Communicating ideas effectively, as measured in the BMAT writing task is associated with MMI overall performance, This suggests related constructs, such as different aspects of communication, are being assessed. MMIs showed little evidence of assessing scientific reasoning however, perhaps reflecting the design of the stations and the purpose of this selection stage.

Conclusion: Shortlisting candidates using BMAT may help select applicants more likely to perform well on MMIs, although the amount of shared variance is small. There appears to be minimal redundancy in the constructs assessed through MMIs and BMAT suggesting these assessments are complementary when used together for selection.

3N5 (3482)

Investigating the predictive validity of a selection instrument over time – A case study of the BioMedical Admissions Test (BMAT) at a UK university

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Presenter: Sarah McElwee, Cambridge Assessment Admissions Testing, University of Cambridge, UK

Background: Establishing the predictive validity of a selection assessment over time is difficult. Selection contexts and processes may change, affecting the ways in which scores are used and the impact they have on the admissions decision. BMAT is an admissions test for entry to medicine and related biomedical courses in the UK and internationally. Early analysis of pilot years of BMAT showed it predicted course performance. This analysis examines more recent data when scores were used for decision-making.

Methods: Course performance data for multiple cohorts from pre-clinical phases of medical training were linked with BMAT scores for a UK university. Correlations and regressions were used to identify theorised positive relationships between BMAT Section scores and overall grades from the first and second years of medical school. Module level data was used to examine predictive relationships at a more granular level.

Results/Discussion: BMAT scores predict overall performance in first year of the medical course, and certain sections predict performance in the second year. The relationships were weaker than those observed in pilot years of BMAT use but similar to those reported in other predictive validity studies. Issues such as greater range-restriction as a test's use in selection develops may underpin attenuation in the observed correlations. Inclusion of the module data in the analysis highlights the importance of taking a construct-driven approach to predictive validity.

Differences in score use over time are inevitable as stakeholders constantly appraise their selection procedures. If BMAT scores are used more readily to support selection decisions, predictive relationships may be present but more difficult to observe. Other issues are also important to consider, such as the impact of the students' progression through the course and the intended construct of the course assessments.

Conclusion: BMAT continues to demonstrate predictive validity using on-course performance as a criterion variable. It is important to consider alignment of constructs between the admissions tests and course examinations. Monitoring the predictive validity of an assessment is challenging due to changing selection contexts.

3N6 (2229)

Does changing medical admissions practices impact on who is admitted?

Authors

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Presenter: Sandra Nicholson, QMUL, London, UK

Background: Undergraduate medical admissions must balance two potentially-conflicting missions: to select those who will be both successful medical students and competent clinicians, and increase the diversity of the medical school population and workforce. Many countries address this dilemma by reducing the heavy reliance on prior educational attainment, complementing this with the use of other selection tools. However, to what extent has this shift in practice actually widened access to medicine? Available evidence is conflicting. Our aim therefore was to examine if changes in medical school selection criteria or processes significantly impact on the composition of the student population.

Methods: An observational study of medical students from 18 UK 5-year medical programmes who took the UK Clinical Aptitude Test (UKCAT) from 2007-2014. We included candidate demographics, UKCAT (total scores) and data on admissions practices. We used an interrupted time-series framework with segmented regression to identify the impact of changes in selection practices at five case study medical schools on the demographics of four target groups (male, non-white, lower socio-economic classes, non-selective school attendance).

Results: There were no obvious changes in the proportion of admissions from each of the target groups over the eight year period, averaging at 43.8% male, 3.3% lower socio-economic group, 51.5% non-selective school and 30.5% non-white. All five example schools changed their admissions practices over the time period of the study. Yet this within-school variation made little difference locally, or overall: changes in admission practices did not lead to any discernible change in the demography of those accepted into medical school.

Discussion/Conclusion: Although our case schools changed their selection procedures, these changes did not lead to any observable differences in their student populations. Significant resource has been directed within the UK to addressing the under-representation of students from lower socio-economic groups without, on the whole, any standardised long-term evaluation. Our results

indicate that these efforts whilst well intentioned have largely failed.

Take-home message: We suggest that increasing the diversity of medical students, and hence the medical profession, may require adopting different, perhaps more radical, approaches to selection.

3O: Short Communications: Student Engagement

Location: Boston 3, Ground Floor, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

3O1 (1989)
One day to change 3 years of learning: the gamble of few students

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Presenter: Camille Bac, Lyon Est Faculty of Medicine, Lyon, France

Background: French medical studies are sanctioned by a national ranked exam (ECNi), which determine students' specialty and town of residency. The training for this contest, from the 4th year to the end of the 6th, requires for students to acquire an effective working method. But it is easier said than done… That's why some students decided in 2016 to take charge by creating themselves a time to learn how to work well. After a first successful edition in 2016, the student organizers decided to go further this year!
Methods: On September 2017, few students organizers created a special half-day at the beginning of the 4th year to give confidence to students for the ECNi training. Concretely, 308 4th year students were divided into 12 small working groups animated by a trinomina composed of one 5th year student, one junior doctor and one teacher to discuss about pedagogical methods. Then, an initiation to self-hypnosis was proposed, along with a debate with human sciences teachers about students' difficulties at hospital.
Results: In our survey of satisfaction (184 answers), 93% answered that this day met their expectations, 97% want a new session next year, and the average grade of the quality of this half-day was 8.2/10. The students particularly appreciated the presence of the trinomina to answer all their questions from different point of views.
Conclusion: This successful organisation was possible thanks to the skills of everyone implicated in this half-day: students' motivation, residents' willingness to help, teachers' expertise and support.
Faced with such an effective collaboration, the university was very favourable to this initiative as it created a positive and encouraging atmosphere for students before the start of the academic year.
Take-home message: Alone, we go faster… Together, we go further! And this is exactly what this project illustrates: students, residents and teachers, working hand by hand to allow students to start the ECNi training on a strong foundation…

The experience of the eldest, the proximity of the youngest, and the perspective of the middle… maybe we have here the ingredients of the pedagogy of tomorrow!

3O2 (3629)
Student self-assessment driven by the AMEE ASPIRE programme at the Faculty of Medicine of the University of Lisbon

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Presenter: Madalena Patricio, Department of Medical Education (DEM), Faculty of Medicine, University of Lisbon (FMUL), Lisboa, Portugal

Background: The ASPIRE-to-Excellence international initiative was created by AMEE to recognise and reward 'Excellence in teaching' at the medical schools. Criteria are now defined in five areas with 'Student Engagement in the School and in the Curriculum' being one of them. In 2018 it was decided to benchmark the school against best practices in this area putting forward an application for the ASPIRE award.
Methods: Benchmarking revealed 'self-assessment' as one of the current weakest sub-criteria. This study reports a pilot 'self-assessment' made by 334 first year students in the context of Module III-I 'The Doctor, the Person and the Patient', with students indicating the grade they expected in the written exam and portfolio. For this purpose, a question was introduced at the end of the exam namely 'What grade do you expect to get on the exam you just completed as well as in the portfolio you delivered last week? Students were also asked to rate the level of their knowledge (high/medium/low) regarding Module III-I. This pilot study was already extended to other curricular areas (e.g., Neurology and Paediatrics) and to practical exams.
Results: Considering the global sample the results indicate that students are capable of self-assessment. The average difference between 'grade' vs 'expected grade' is only .13 for portfolio and .15 for the exam. However when considering the three groups (high/medium/low knowledge) students assessing their knowledge as 'high' were more optimistic in terms of expected grade (average difference equal to .38 for portfolio and .75 for written exam).
Discussion/Conclusion: Comparing self-assessment grades of portfolios versus written exams the authors expected students to have had more difficulties when estimating their portfolio grades, because assessment criteria, although clearly defined and transparent, were probably less objective.

Although this pilot experience showed that students are capable of self-assessment in terms of theoretical knowledge and critical reflection it is important to extend this pilot experience to all curricular areas to keep them continuously aware of the need to permanently monitorise their performance. Self-assessment is a key competence to prepare future doctors to engage in Lifelong Learning.

3O3 (384)
Working in partnership with health professional students to understand their perceptions of digital identity management and to embed digital skills into the curriculum

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Presenter: Aileen Linn, University of Glasgow, UK

Background: Within the University of Glasgow's College of Medicine, Veterinary Medicine and Life Sciences (MVLS) there are several degree programmes which have associated Professional bodies that publish guidelines for social media use and misuse. But how do our students actually feel about the advice and guidance that is provided to them? Can they apply these guidelines to their own experiences in University? What are the motivators for our students to pursue their identity management and what are the challenges that they currently perceive with behaving professionally in a digital environment?
Methods: All of the undergraduate students on degree programmes within the College of MVLW were invited to participate in a needs analysis survey. This presentation will communicate the results of this study, which identified digital identity management, professionalism in an online environment, digital wellbeing, productivity skills including management of digital distractions, and communication and collaboration online as key topics that students wanted more guidance on.
Forty student partners from across the schools worked in collaboration with staff focusing on potential challenges, solutions, and opportunities for curriculum developments in these areas. Face-to-face and online teaching resources that will encourage student reflection on both their personal and professional development as they transition through their degree programme were created based on their insights.
The presentation will focus on the development of digital citizenship skills that our students have identified as key graduate attributes that will help them strive throughout their University Career and within their future work place and how to embed the development of these skills into the curriculum. The presentation will also focus on the benefits of working in partnership with students to enhance curriculum development.

3O4 (1872)
Developing Effective Student-Staff Interactions to Improve the Learning Environment

Authors
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Presenter: Katrina West, School of Clinical Medicine, University of Cambridge, UK

Background: There is little literature describing the effect of student-staff interactions on the learning environment. Undergraduate medical education programmes are organisationally complex, requiring interaction between a range of faculty and administration staff and communication with a large number of students to deliver desired educational outcomes. Students may struggle to identify their place within the course's design and delivery, leading to disaffection and a sense that they are merely recipients of the curriculum. We have observed that, paradoxically, faced with increased and varied communication relating to the curriculum, some students have become more disengaged (Baron & Corbin, 2012).
Methods: We conducted focus groups with 28 students, a questionnaire (197 students) and interviewed 36 staff (administrators and clinicians). The data were thematically analysed to explore the quality, quantity and effectiveness of our interactions with students. The data reached thematic saturation.
Results/Discussion: Emerging themes included students' communications expectations ('there's a disparity between the emails we're getting and what we want to get emails about'), and the quality and quantity of communication students received ('the main problem is the diversity and quantity of things we are emailed about […] Receiving lengthy emails about smaller things we don't need to act on […] habituates not reading them'). Other themes included the importance of inter-staff communication to encourage cohesiveness ('students are often sent information without the rest of the School Office knowing. We need to get communications within the team working, who's doing what, where').
We developed strategic and sustainable initiatives to improve student and staff interactions. Multiple emails were replaced by a weekly newsletter delivering key messages and introducing key members of staff to students and ineffective methods of communication were replaced with more efficient and cost-effective platforms. Staff development programmes now include guidance and training for effective written communication. Preliminary results suggest improved overall student satisfaction.

Conclusion: A collaborative approach to improving student-staff interactions through effective communication improves the learning environment and reduces disaffection, thus improving the overall student experience.

3O5 (1854)
Students have great influence on decisions at University of Copenhagen – regarded as equals of the Board of Leaders

Authors
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Presenter: Mathilde Horn Andersen, Student, University of Copenhagen, Denmark

Background: In 2016 the Danish government presented a law amendment to get the students at the Danish University's to finish their degree faster. By 2020 the University's would have to reduce their students completion time with 5 months. They gave every University the responsibility of finding their own solutions to the new demands. The University of Copenhagen formed a committee of 6 students and 6 members of the University's board of Leaders to make a solution to accede to the governments demand.
Methods: The medical students at the University of Copenhagen participate in the hiring of professors, curriculum development, accreditation process and more. The faculty believes that a dialogue between all parties involved is expected.
The example analyzed in this case is the implementation of new guidelines for the student completion time. We have analyzed it qualitatively by regarding the overall student and faculty satisfaction with the process and result.
The faculty greatly appreciates the participation of students in many aspects of decision-making. Student involvement and engagement have a measurable effect on both the success and quality of educational changes and the student's satisfaction with the new demands.
Discussion and Conclusions: Creating and nurturing student involvement and engagement is profitable both for the faculty and the students who also benefit from the experience in their future as medical professionals. It gives a smooth implementation of decisions affecting the student body – including the difficult ones.
Students must be included in designing the rules and demands of the University. They are experts in their own and their peer's behavioral patterns and have a different insight to which changes will accede to the demands.
Take-home message: Start formalizing student involvement and engagement. This will subsequent allow for a buildup of skilled and empowered student involvement and engagement for the benefit of the single university and society as a whole.

3O6 WITHDRAWN

3O7 (3171)
Training Medical Students to become Great Teachers: A Longitudinal MS4 Medical Student as Teacher Elective (MST)

Authors
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Presenter: Elisabeth Schlegel, Donald and Barbara Zucker School of Medicine at Hofstra/Northwell, Hempstead, USA

Background: As pointed out by Erlich and Shaughnessy (2014) and others, teaching is a physician core skill. However, educational skill training is oftentimes not part of the medical school curriculum. The purpose of this innovative medical student as teacher (MST) elective is preparing final year medical students (MS4s) for roles as medical educators in their post graduate training using both didactics and experiential learning.
Methods: A longitudinal MST elective for MS4s combining didactics, educational theories and strategies, curriculum design and authentic teaching expectations was developed within our School of Medicine [SOM] curriculum. Replacing a 2-week block rotation pilot, it includes educational boot camps (22 hours), opportunities as educators (25 hours), independent study (15 hours), and a summative capstone project. A visual timeline, reflective online teaching logs, faculty debriefings, and mentoring enable students to successfully meet curricular goals and objectives. MS4s develop proficiency in various pedagogies and receive 2-week elective credit.
Results/Discussion: After co-facilitating over 20 educational sessions, the inaugural MS4s have been commended for their skills by faculty and students. The self-directed learning approach is compatible with required clinical rotations and residency interviews, while allowing sufficient time to acquire teaching skills. Data will be presented from semi-structured exit interviews evaluating program structure and learning objectives, individual assessments including reflective teaching logs, debriefings, journal club presentations and a 2-station teaching OSTE. Their final capstone curriculum project including a presentation, is critiqued by peers and faculty and available as future curriculum component at the SOM. This elective providing educational content and structure, reflection, and teaching opportunities can easily be adopted by medical schools with elective time and faculty resources. Flexible timelines and enhanced communication strategies, specific to authentic teaching opportunities, are key to accommodate individual student interests and schedules. Required face to face time must be scheduled early.
Conclusion: Successful MST electives allow students taking on faculty roles and provide benefits for medical school leadership, teachers and learners. It is a win-win for all. We describe a comprehensive longitudinal MST

program preparing students for roles as proficient medical educators in their future specialties.

3P: Short Communications: Faculty Development 1

Location: Darwin, Ground Floor, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

3P1 (1231)
Tailored faculty development to support undergraduate medical curriculum renewal: An aligned approach

Authors
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Presenter: Jana Lazor, University of Toronto, Ontario, Canada

Background: Our challenge was to create a faculty development (FD) program that aligns faculty capacities and skills with the goals and pedagogy of a new undergraduate medical curriculum that is undergoing significant innovation and change.
Methods: To ensure alignment between FD that is offered and the new curriculum being developed, we applied a process we refer to as "Assess, Align, and Engage", which reflects a learning-centered environment, with an eight step situational analysis to understand: (1) proposed curriculum changes; (2) faculty roles/tasks; (3) core knowledge, skills and attitudes required to perform faculty teaching tasks; (4) learner (faculty) characteristics; (5) student learning needs/characteristics, that the faculty need to be prepared to incorporate into their teaching practices; (6) health care environment context in which the students will be learning and faculty will be teaching; (7) educational evidence being used to inform the curriculum renewal; and (8) potential impact that the change may have personally on faculty and that may need to be managed to support the transition.
Results: The FD team designed a comprehensive FD strategy for 12 teacher roles identified by the framework. Tailored tools, resources, and a multi-modal approach was adopted for each role. Since August 2016, the start of the new curriculum, we provided 94 workshops located close to faculty clinical practice, 10 webinars, 14 educational videos, 18 print materials, 7 e-learning modules, 167 Educafes that offer coaching in local communities of practice, and individual peer coaching. Evaluation and scholarship are embedded in the development of the FD program.
Discussion/Conclusion: FD should be iterative and responsive to ongoing curriculum changes and newly identified faculty needs. Evaluation is key, specifically different FD modalities need to be evaluated to examine what can work and when, and inform future programming. Intentional alignment between FD and curriculum development can create a continuous quality improvement loop between the two practices that inform ongoing refinement of the curriculum itself as well as the faculty resources and learning events that are developed.

Take-home message: Planning for FD needs to start early and be integrated into all stages of curriculum reform.

3P2 (3612)
Creating a Collaborative, International, Post-Doctoral Fellowship in Health Professions Education

Authors
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Scott Compton, Duke-NUS Medical School, Singapore
Sandy Cook, Duke-NUS Medical School, Singapore
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Presenter: Sandy Cook, Duke University School of Medicine, Durham, USA

Background: With the emerging shortage of qualified basic science educators and the growing call for innovations in health professions education (HPE), Duke and Duke-NUS established a one-year post-doctoral fellowship in basic science education at each institution. The goal of the fellowships is to create rigorously trained academic basic science educators with an understanding of the challenges facing biomedical science education (e.g., information explosion, vertical integration). This abstract describes the structure of the program and presents the framework for evaluating its effectiveness.
Methods: A one-year curriculum was developed covering curriculum design; how to manage the learning environment; and, teaching, assessment, and evaluation strategies. Also included are requirements for follows to complete observed teaching activities with feedback, an educational research project, and structured mentoring.
Results/Discussion: By visiting each other's institution and ongoing collaboration, fellows learn the different methods for delivering similar curricula at each school and the associated cultural impacts on the education environment. Evaluation plans for the effectiveness of the fellowships include the fellows' reactions to the experience, other faculty members' perceptions of the value added by the fellowships, a review of the fellows' learning of content and pedagogy, their contributions to the curriculum, research outcomes, and career trajectories.
Two individuals were recruited, one at each institution, starting in summer 2017. The one-year fellowship curriculum was tailored to support individualized learning for each fellow, and to facilitate self-directed learning. Evidence resulting from the evaluation plan will be available in early Summer 2018. We expect this will become a unique global model for reducing the shortage of quality academic basic science educators, improving the quality of HPE, and contributing to the advancement of educational scholarship. In addition, we anticipate these efforts will demonstrate the value of rigorously trained basic science educators resulting in enhanced career opportunities worldwide.
Conclusion: We have created an effective method and curriculum for addressing the shortage of rigorously trained academic basic science educators.

3P3 (3148)
Effects of institutional context on lecturer agency in faculty development

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Presenter: Shirra Moch, University of the Witwatersrand, Johannesburg, South Africa

Background: Professional learning programmes in health science education seek to prepare lecturers for their teaching role and to improve the quality of pedagogical practices in order to benefit students. In 2014 we commenced a postgraduate diploma in health science education in a Faculty of Health Sciences in South Africa. This is a longitudinal programme comprising four modules including: Theories of teaching and learning; pedagogy in the health sciences; assessment and curriculum development. The purpose of this study was to obtain perceptions from the first group of participants (n=24) concerning factors which influenced development of agency in facilitating educational change following the programme.
Methods: Two focus groups were conducted with a total of ten participants. The focus groups were audio-taped then transcribed verbatim and coding of data was developed using MAXQDA (Release 12.3.1). The primary interpretive gaze of this study was Archer's social realist perspective of the interaction of structure and culture in the development of agency. The transcripts were coded to extract structure as material resources as well as roles within the system. Elements of culture included ideas, values and beliefs. This institutional context was used to explore lecturers' agency to enact self-change or to act as change agents following the diploma.
Results: Following the course, some participants did not change their own teaching performance or advocate for changed educational practices within their environments. Structural themes which indicated this agential constraint included physical learning spaces; and hierarchical silos within departments. Elements of culture which constrained agency included: value of good teaching; risk versus vulnerability; and technophobia. Factors enabling agency included identification with a community of practice; mastery of a health science education discourse; and multidisciplinarity.
Discussion: Whilst the diploma fosters epistemological and axiological insights, attention to both structural and cultural institutional constraints could improve lecturers' agency in implementation of improved educational practices. Further diplomates may also provide impetus within the community of practice to support these changes.
Conclusion: A critical realist lens can highlight programmatic and institutional factors which influence educational outcomes following a longitudinal professional learning programme.

3P4 (512)
From faculty development program to educational change in the clinical workplace: exploring the transfer of educational innovations through activity theory

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Presenter: Agnes Elmberger, Department of Learning, Informatics, Management and Ethics, Karolinska Institutet, Stockholm, Sweden

Background: Faculty development programs (FDP) are aiming to advance the teaching practice in health professions education by equipping teachers with knowledge and skills as professional educators. Research on faculty development has focused on scope and effectiveness of FDPs, however, little is known regarding how knowledge learned in such activities is transferred and transformed into the workplace and how change may happen as a result of faculty development. Drawing on activity theory and its notion of individual action as closely connected to context, we sought to explore the transfer of educational innovations into the clinical workplace.
Methods: Five interprofessional teams of clinical teachers attended a one-year FDP where they developed and transferred educational innovations to their workplaces. Focus groups were held with fourteen of the participating teachers at the end of the program and analyzed thematically. The findings were discussed in relation to activity theory.
Results: Transfer of the educational innovation was characterized by three interacting and iterative processes: (1) the innovation process, including access to expertise and protected time during development as well as the relevance of the innovation; (2) the clinical workplace process, including interactions with the workplace acquiring mandate for change, providing information and embracing reactions; (3) the team process, including collective action, team development and adopting new roles.
Discussion/Conclusion: Understanding change and pedagogical knowledge transfer is central in developing and sustaining educational scholarship and high quality teaching in health professions education. This study suggest that transfer of educational innovations created in a FDP comprise multiple interacting processes taking place in two activity systems, the workplace and the team. Contradictions arise between these systems as they have partly differing objects. These findings are relevant for the

broader issue of knowledge transfer in faculty development, highlighting the complexities of this issue. As transfer between faculty development and teaching practices in the clinical workplace seem to be a case of interlinked processes in multiple social systems, faculty development should support participants in navigating this transfer and consider the workplace as an active part in the process.

3P5 (592)
Promoting Approaches to Teaching in the Basic Sciences that Facilitate Students' Engaging in Deep Learning: The Impact of a Certificate Program in University Teaching

Authors
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Presenter: Diane Salter, St. George's University, St. George's, Grenada, West Indies

Background: Most Basic Sciences faculty begin teaching with little prior pedagogical background. This project evaluated the impact on teaching of a learning focused, professional development certificate program for Basic Sciences faculty.
Methods: Basic Sciences faculty participated in a task-based Certificate Program in Teaching and Learning. This learning-centred program modelled strategies that create optimal environments for student learning. Change in participants' approaches to teaching, consistent with approaches that enhance learning outcomes, was measured by Attitudinal Change and Behavioural Change. Attitudinal change was measured by pre-and-post scores on the Approaches to Teaching Inventory (ATI), (Prosser & Trigwell, 1999). Behavioural change was measured by analysis of curriculum faculty developed during the program.
Results: Pre-participation ATI analysis showed faculty scored as Balanced (42%), Information Transmission/Teacher Focused (34%), Conceptual Changed Student Focused (24%). Post-participation scores are being collected and will be shared during the presentation. Behavioural change was measured by a qualitative analysis of the participants completed tasks that demonstrated revised pedagogical approaches and comments in reflection papers such as: "These sessions have changed my thinking about how to teach large classes". A qualitative analysis identified themes of Reflection, Application, and Rethinking. Participants in this program showed changes in approaches to teaching consistent with promoting a student learning environment that fosters deep learning.
Conclusion: Many professional development programs for faculty have focused on 'Instructional Skills' vs rethinking approaches to teaching in a way that results in a learning environment that facilitates deep student learning and achievement of course learning outcomes. In the design and implementation of this program, the post-workshop

activities were integral to the program and provided a concrete way for faculty to 're-think' their approaches to teaching and incorporate changes to their course design and delivery.
Findings suggest that the model of this program with a task-based approach, flexible timeline and focus on student learning can provide shifts in approaches to teaching and promote ongoing participation in professional development.
Prosser, M. & Trigwell, K. (1999). Relations between teachers' approaches to teaching and students' approaches to learning. Higher Education, 37: 57-70. Kluwer Academic Publishers.

3P6 (3223)
Developing clinical education based on medical education research - findings from a faculty development program

Authors
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Agnes Elmberger
Erik Björck

Presenter: Klara Bolander Laksov, Stockholm University, Stockholm, Sweden

Background: Students in health and medical education spend a great deal of their education in clinical learning environments. There is today a growing knowledge of how learning in the clinical education environment can be facilitated, as well as about existing barriers to the implementation of these skills. By studying how clinical teachers engaged in educational development work, we wanted to better understand the conditions and systems required for successful implementation. This project aimed at examining the conditions for the successful use of medical-educational research results to stimulate learning in clinical education.
Methods: Based on knowledge generated from educational research, a faculty development program was designed to enable five teams of clinical teachers from three university hospitals to participate in a faculty development program aiming to develop, implement and evaluate an educational 'tool' together. The five teams that participated in the program were interviewed in focus groups at the start and end of the program. Observational and document data were collected throughout the process.
Results: All teams managed to develop a tool aimed at students or clinical teachers, implement and evaluate it. The faculty development program and its structure as a year-long scaffolding of driving and legitimising change processes in the clinical environment was acknowledged as facilitating the implementation of the educational tools. One year after the end of the program, four of the five teams had presented their work at medical education conferences, three teams are currently working to publish their work.
Conclusion: The design of the program around building capacity for change together with workshops focusing different aspects of Mayer and Stensaker's Change process prescriptors was identified as a successful

framework for successful implementation and use of medical education research in the clinical education environment.

The invitation of teams to faculty development program, together with a design building on scaffolding educational change and leadership enabled participants to translate medical education research into their clinical teaching practice.

3Q: Short Communications: Postgraduate Education 1

Location: Lima, Ground Floor, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

3Q1 (2828)
Optimising a resident's day on the ward

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Presenter: Vanessa Kraege, Internal Medicine, Lausanne University Hospital, Lausanne, Switzerland

Background: Residents' roles and activities have dramatically evolved in the last decades due to following factors: population ageing and polymorbidity, use of electronic patient records, importance of interprofessional skills, increasing administrative tasks, reduction of working hours thus increasing handovers, financial restrictions and pressure on lengths of stay (LOS). While these factors play a major role in residents' work experience and patient care, the daily organisation of the ward itself has hardly changed in many hospitals, including ours.
A recent study in our Department (Ann Intern Med. 2017;166(8):579-586) highlighted the long hours spent on the computer, the high rate of disruptive task switching and the important mismatch between planned and actual activities, e.g. administration often winning over postgraduate classes.
Methods: To address these problems we set up an interprofessional project with the aim of 1) reorganising the residents' day plan to reduce task switching, improving efficiency and providing protected time for education. 2) implementing an interprofessional morning meeting to rapidly define or adapt the therapeutic project for each patient. 3) planning time to prepare patient rounds, thus optimising the quality and efficiency of physician-nurse-patient interactions. 4) recruiting new medical secretaries allowing delegation of several administrative tasks.
Results: We implemented these changes between May and November 2017. Efficiency and satisfaction of teams increased. LOS decreased from 9.53-12.93 days (December 2013 to 2016) to 7.34 days (12/2017). Given the absence of other major changes, the significant LOS reduction in 2017 probably reflects the gain in our teams' efficiency.
A detailed analysis of residents' activities on the ward and their relative added value allowed us to highlight inadequacies and successfully implement a new organisation. We now look forward to measuring

indicators such as resident, nurse and patient satisfaction, and repeating a new time-motion study.
Conclusion: The evolution of medical roles, activities and patient population necessitate re-thinking and re-organizing the residents' traditional daily schedule. Implementing interprofessional collaboration on therapeutic projects, as well as delegating some administrative tasks, has a potentially positive impact on several outcomes.

3Q2 (1543)
Training as an investment: Does early procedural training generate more productive residents?

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Presenter: Claus Hedebo Bisgaard, Centre for Health Sciences Education, CESU, Faculty of Health, Aarhus University, Aarhus, Denmark

Background: Clinical production and postgraduate medical education both take place in the ward and can therefore be perceived as conflicting. The trainees' contribution to clinical production as the outcome measure of educational intervention has only been sparsely studied. This study examines how early procedural training influences residents' and specialists' share of clinical production for central venous catheterization, spinal and epidural anesthesia.
Methods: Residents' share of clinical production was compared between an early procedural training intervention group (n=20) and a historical control group (n=19) of first-year anesthesiology residents from three training departments. The results were compared to a contemporaneous control (n=7) and historical control group (n=7) from another department. All controls received traditional competency-based education. Additionally, residents' and specialists' share of total production were compared by year. The total procedural time spent by specialists was compared to the additional time needed for the intervention for a return on investment measure of specialist time.
Results: For all three procedures, the median residents versus specialists' share of the total production increased compared to intervention initiation year of 2015:
Spinal anesthesia 2015: 0.44 (0.26, 0.62); 2016: 0.60 (0.34, 0.85) to 2017: 0.71 (0.65, 0.76).
Epidural anesthesia: 2015: 0.21 (0.17, 0.25); 2016: 0.29 (0.25, 0.33) to 2017: 0.45 (0.37, 0.52), p=.008.

Central venous catheter, 2015: 0.30 (0.23, 0.36); 2016: 0.46 (0.35, 0.55), p=.008 to 2017; 0.64 (0.50, 0.79), p=.008. Specialists' time saved, three hours, corresponded to the three hours additional procedural training per resident. These differences could not be found in the temporal comparison for the control departments.

Discussion/Conclusion: Early procedural training had a positive effect on residents' level of production for central venous catheterization, spinal-, and epidural anesthesia. Specialists' production share decreased at the same time, thus balancing the time invested for the enhanced supervision.

Potentially, there is a positive trade-off effect of early procedural training. It generates more experienced and productive young doctors while at the same time freeing specialist time to other work functions, such as additional supervision or more advanced tasks.

Take-home message: Investing time in early training increases residents' contribution to clinical production.

3Q3 WITHDRAWN

3Q4 (1842)
How peers, supervisors and patients support reflection of residents, but also hinder it

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Presenter: Serge Mordang, Maastricht University, Maastricht, Netherlands

Background: Reflection on critical incidents (CI) in the workplace is crucial for residents' learning of complex skills. CI drive learning and development because they have the potential to make residents reconsider existing action repertoires and beliefs. To meaningfully support residents' reflection on CI, it is crucial to better understand why CI are perceived as critical, how residents handle CI, and what learning behavior is elicited.

Methods: This study draws on interviews with 33 medical residents exploring how they handle CI in the workplace. Questions were open-ended, building on and deepening residents' answers, aiming for 'thick descriptions' of reflection. After interviews were transcribed verbatim, we used a within-case and cross-case analysis to build a general pattern of explanation.

Results: Our analysis ran against a rather individualist perspective on reflection furthered in practice and research. It happens in interactions with peers, supervisors, and patients which can support but also hinder reflection. Residents want to meet supervisors' standards as well as standards implicitly set by peers (i.e., perform as well as they do). Moreover, high quality patient care is residents' top priority, which urges them to seek quick solutions or ask their peers or supervisor for advice, rather than reflectively dealing with an incident themselves. Quality and depth of reflection is likely to suffer. Dedicated time for peer discussions enhances deep reflection, while own supervisor involvement sometimes feels unsafe.

Discussion: CI experienced from interactions with peers and supervisors might be due to self-preservation feelings and image management in a competitive working environment. Furthermore, residents prioritize patient care over learning, which leads to more superficial reflection straightaway and limits reflection afterwards. For deeper reflection afterwards residents need more dedicated time. Moreover, psychological safety is crucial for elaborating on CI with peers and supervisors.

Conclusion: Residents' social context facilitates and hinders residents' reflection process in different ways. It is positive that colleagues keep residents sharp and focused in the workplace. However, quick solutions can discourage residents to reflect deeply on experiences. Peer discussions should be stimulated. Residents need more time and space to reflect profound on daily practice.

3Q5 (776)
Multi-methods evaluation of an experiential approach to improving residents' competence and confidence in obesity management consultation

Authors

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Doug Klein, Department of Family Medicine, University of Alberta, Edmonton, Canada
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Presenter: Denise Campbell-Scherer and Sonja Wicklum, University of Calgary, Alberta, Canada

Background: Family physicians play a vital role in the prevention and management of obesity. There is a pressing need to create high quality, evidence-based training programs for family medicine residents to develop competencies in identifying complex causes, assessing interactions with comorbid diseases and mental health, counselling on person-specific management options, navigating interdisciplinary care, and providing long-term, responsive, support.
Methods: We developed and evaluated a course integrating didactic lectures with an experiential learning approach. 5AsT-MD draws on the "5As of Obesity Management™" (ASK, ASSESS, ADVISE, AGREE, ASSIST), an evidence-based framework and suite of tools. Experiential learning included wearing bariatric suit, mentored group discussions, practice with standardized and in-clinic patients, and narrative reflection.
The pilot was delivered to two cohorts (n=60) of first year family medicine residents. Multi-methods were used to determine whether residents' awareness of the complexity of obesity, attitudes towards people living with obesity, and self-efficacy for obesity counselling improved. We assessed changes in attitudes, beliefs, and confidence using two validated scales, a course-specific questionnaire, and narrative reflections, which were analyzed thematically.
Results: Residents showed positive change in their belief about obesity, increased understanding of its complexity and chronicity, improved confidence, and self-perceived success in obesity counselling practice through uptake of the 5As framework and tools. Experiential learning elements proved crucial in increasing residents' ability to empathically engage with patients. The bariatric suit experience was powerful in helping residents examine their assumptions. Learning about the complexity and chronicity of obesity encouraged residents to critically reflect on their weight counselling practice and role as a family physician

Conclusion: The 5AsT-MD approach proved promising in preparing residents for evidence-based and patient-centred obesity counselling, increasing self-efficacy, and providing practical tools to support their practice. Experiential learning, peer discussions, critical reflection, and mentorship facilitate greater awareness of how medical, biographical, and politico-social factors intersect. This innovative approach equipped learners to have more effective and constructive encounters with patients. Multi-method evaluation allowed for a better understanding of how course components impacted learners and for adjustments and improvements to be made to course content and teaching methods.

3Q6 (3144)
E-learning presented as "just in time training"

Authors

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Presenter: Rikke Kaae, Aarhus University, Aarhus, Denmark

Background: Studies show that ultrasonography (US), conducted by experienced examiners, can be used to detect correct umbilical catheter (UC) placement and reduce the x-ray burden(1)(2). Evidence supporting the general use of clinician performed US for UC placement is limited(3) and the minimal amount of training necessary to be competent to detect the UC tip with an acceptable accuracy has not been investigated.
Aim: To assess the improvement in theoretical knowledge and the accuracy of the practical performance following a 1.5 h e-learning introductory.
Methods: The study is a comparative observational experiment. The e-learning comprised video examples with voiceover. A 25-item multiple-choice questionnaire (MCQ) test of "one best answer" type was developed and validated. Twenty paediatricians with minimal experience in the use of US were included. After completion of the e-learning the participants performed the US task on a live animal model; newborn piglets with catheters in umbilical vessels at different positions. The participants attended 12 US scanning sessions in order to detect whether or not the UC were in a correct or misplaced position. For the practical learning outcome the sensitivity and specificity of US based detection of correct UC placement when performed by the participants was estimated. The theoretical knowledge was measured by the participants´ change in the MCQ score.
Results: The participants´ MCQ scores (mean±SD) before and after completing the e-learning were 161±30 and 234±14 points, respectively. Mean MCQ score difference was 73±30 points (P < 0.0001, two-tailed paired t-test). The sensitivity for the participants' ability to detect a correct

UC as correct by US was 0.89(CL95% 0.83 0.94) and the specificity 0.87(CL95% 0.79 0.93). From the fifth scanning onwards: sensitivity 0.98(CL95% 0.90 0.99) specificity 0.95(CL95% 0.89 0.99).

Conclusion: E-learning increased the pediatricians' theoretical knowledge in US based assessment of UC placement and we found a high accuracy in their practical performance that further improved after additional five hands-on sessions.

The perspective of our results is that further development of "just in time" video based training may improve, streamline and standardize the training of specialists in new procedure.

3Q7 (2354)
Use of Virtual Reality in the learning of patient safety in the Emergency Department: Perceptions of doctors

Authors
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Joy Quah

Presenter: Shu Woan Lee, Changi General Hospital, Singapore

Background: The Emergency Department (ED) is a patient care setting that is prone to patient safety infringements. Reasons identified include varied training and experience of staff, high patient load, multiple transitions in care, and ED overcrowding.

Methods: Prior education in patient safety was done using online powerpoint videos (focusing on knowledge and showcasing past serious reportable events), simulation session (focusing on skills and team work) and assessment MCQs.

The investigators noted with concern the repetitive nature of safety infringements, which occurred in mainly junior doctors (Post Graduate Year 1-5) and set out to revamp the current education methodology.

Buy in was sought from the group of incoming doctors through a survey about the use of virtual reality (VR). A third party APP company was engaged to create a scenario set in the virtual ER.

Results: The department educators needed to be convinced on the willingness to adopt yet another methodology of learning.

The average age of the group of doctors were 29 years old. 62.5 % of them were moderately familiar with VR. Overwhelmingly, the doctors felt that virtual reality will aid in learning (> 90 %). 65.8 % felt that it would help them remember what they learn better.

Despite 50 % of them being unsure if the use of VR were time consuming, they were still willing to consider its use. There was no statistical difference between the perceptions of the doctors when compared between experienced (PGY > 5) versus less experienced (PGY 1-5)

Conclusion: Education efforts in the ED have focussed on knowledge and skills. Historically it has been difficult to teach "attitude". This was a survey to check perceptions and obtain buy in, aiming to increase motivation and improve learning and retention of patient safety pitfalls.

We hope this translates to better clinical outcomes as our juniors internalize the concept of patient safety.

3R: Round Table: Assessment of Trainees

Location: Hong Kong, 2nd Floor, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

3R1 (1450)
Video-based asynchronous DOPS - assessing skill acquisition by Orthopaedic residents

Authors
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Presenter: Benjamin Liang, Khoo Teck Puat Hospital, Singapore

Abstract Text: Although surgical training is traditionally seen as an apprenticeship, it is difficult to assess when surgical trainees are able to operate independently.
We propose a modification of an existing Direct Observation of Procedural Skills (DOPS) system by utilising sequential videos of the same surgical procedure, in order to obtain a record that can be reviewed asynchronously by an assessor, and provide trainees an increased opportunity for self assessment and reflection.
We believe that the videos would be able to document a resident's progression through the Dreyfus sequence of skill acquisition.
Three Orthopaedic residents rotating through the Hand Surgery department were involved in this study. Each resident selected a surgical procedure, and performed it for assessment three times, which were all captured on video. Each was performed approximately one month apart, allowing time for reflection and improvement. All videos were reviewed by a single fellowship trained senior Hand surgeon, and graded according to a pre-existing DOPS grading form. The time taken to perform the chosen procedure was also recorded.
In addition, residents were asked to perform a self assessment of skills and confidence, graded on a Likert scale. A qualitative survey was also administered in order to obtain resident feedback on this method of assessment.
All three of the residents were able to achieve statistically significant improvements in their DOPS score and surgical time. Their level of skill and proficiency was also judged by the assessing Hand surgeon to have progressed from "advanced beginner" status to "proficient" in the Dreyfus model of skill acquisition. Resident self assessment also showed significant increases in the perception of their own skills and confidence over time. Qualitative surveys showed that residents felt that the video record was useful both during the review with the assessor, and later on during revision.
Video recording of procedural skills is useful in documenting skill acquisition by a resident, and allows for asynchronous review of the procedure by a supervising surgeon. It also helps to increase self confidence of residents, and allows for subsequent reflection and revision of the procedure.

3R2 (487)
Supervisor's summative assessments of trainees: a study of the internal structure validity evidence for the interpretation and use of the results

Authors
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Cees van der Vleuten
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Presenter: Darryl McGill, The Canberra Hospital, Canberra, Australia

Abstract Text: Ensuring validity of assessment results is essential for the fairness of score interpretation and use. Doing so will provide evidence of assessor capability to consistently provide valid and reliable feedback about trainee competence and adequately assess different competency-constructs, requirements fundamental for fairness for any clinical-assessment.
To determine if term-supervisor assessment results used for unconditional-registration of medical trainees in Australia have internal-structure validity as proposed by the test-developers when used in a single assessment program.
The supervisor-assessment scores were for interns training in Canberra Hospital Australia. Internal-structure validity was tested using confirmatory factor (CFA) and model fit analysis. Measurement invariance was analysed to determine if the same variable is being measured across multiple groups (eg gender). Reliability was measured using Generalisability Theory with a one facet model for unbalanced data-sets to measure score-variance due to trainees for each score, and the number of assessments for a minimum adequate reliability (NAMAR) value ≥ 0.80 for each competency item.
CFA established that a hypothesised 3-Domain model provided the best model fit ($\chi 2/df=1.49$; TLI=0.980; CFI=0.984; RMSEA=0.034; SRMR=0.025; WRMR=0.693), one different to the test-developers proposed structure which was not identified as a valid model. Dimensional invariance was measured by determining if the same latent factors still had adequate model fit within subgroups.
Score differences existed related to supervisor gender (female supervisors giving higher scores) which is likely a true difference because the dimensional invariance had acceptable 2-group model fit for males and females. No differences existed for female and male trainee results. Scores for individual competency items were not reliably measured and some were unable to be adequately measured at all. Competency-item reliability was very poor, all having 100.
The assessment method for trainees' competence proposed by the test-developers for interns was not validated, bringing into question the fairness for the interpretation and use of assessment-scores used for unconditional medical practitioner registration.
The need for routine evaluation of supervisor capabilities as assessors, validity of their feedback, and fairness of assessment-score use from assessment programs of clinical competence is reinforced.

3R3 (373)
Beyond the tick-box: A self-regulated learning lens on trainee perceptions of the mini-CEX

Authors
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Presenter: Eva Kipen, University of Melbourne, Australia

Abstract Text: Effective formative assessment should facilitate feedback to drive improvement and foster self-regulated learning. Self-regulated learning is necessary for the development of active learning skills in the clinical environment. The mini-CEX is widely used in post-graduate medical workplace-based assessment. Yet, there is little understanding of the perceived relationship between the mini-CEX and trainees' self-regulated learning. The aim of this study was to explore trainees' experiences and perceptions of the mini-CEX, using self-regulated learning as a novel interpretive lens.
The study was qualitative, utilising individual semi-structured interviews. Purposive sampling was employed to recruit geriatric medicine trainees in Melbourne, Australia. The interview schedule was informed by Zimmerman's self-regulated learning framework. After recording, the interviews were transcribed and analysed thematically.
Twelve trainees participated in the interviews. Four themes were found with a cyclical inter-relationship between three themes: namely goal setting, task translation and perceived outcome. These themes reflected the forethought, performance and self-reflection phases of the self-regulated learning framework. Each phase was influenced by the fourth theme, supervisor co-regulation. Goal setting had motivational properties that had significant impact on the later phases of the cycle. The "tick box" goal aligned with an opportunistic approach and poorer perceived educational outcomes. Participants reported that effective external feedback following assessment was critical for their self-evaluation, affective responses, and perceived outcomes.
Trainees perceived the performance of a mini-CEX as a complex, inter-related cyclical process, influenced at all stages by the supervisor. Supervisor engagement is essential to support trainees to individually regulate their learning in the clinical environment and achieve the full benefits of formative assessment. Trainees and supervisors could benefit from greater awareness of the theoretical underpinnings of self-regulated learning in order to optimise workplace-based assessment learning outcomes.
The support of a supervisor is a key factor for trainees' self-regulated learning throughout the complex stages of the performance of a mini-CEX.

3R4 (1729)
Factors influencing General Practitioners in their attribution of a Global Assessment in medical training

Authors
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Joanne Fisher, General Practice Training Queensland, Brisbane, Australia

Presenter: Marisa Magiros

Abstract Text: Global Assessments (GAs) are used in Australian General Practice (GP) training during selection, in-training reviews, and within summative assessment. This project aimed to determine factors influencing assessors in their assignment of a GA score.
A modified Delphi process was used with participants recruited from GP Supervisor and Medical Educator groups nationwide. Consensus information obtained via questionnaires was reflected to the group for comment in subsequent Delphi rounds.
Demographic items collected included educator role, level of experience, and total number of doctors supervised. Participants were asked where they had performed GAs, and the factors they considered when making a GA. Participants ranked these factors independently, and in relation to training level of the doctor being observed, as well as commenting on consensus rankings. Participants rated their confidence in GAs as an accurate determinant of GP competence. Participants were asked to identify personal biases, and their approach to discrepancies in GA scores.
Of the 28 participants engaging in four Delphi rounds, most were female, aged over 40, and had roles as Medical Educators. GAs were most commonly used in direct observation of practice, formatively and summatively. Clinical knowledge, conscious incompetence, communication skills and help-seeking practices were ranked highly in considering GA. There was good agreement amongst participants regarding criteria significance across the training continuum and the robustness of GA. There was conflicting opinion about what skills and factors can be learnt versus what should be inherent characteristics of a doctor.
The factors contributing to a GA are broad and not limited to assessment of knowledge and skills, but include the non-clinical domains, namely communication, professionalism and organisational skills. Trust in the validity of GA by participants was strong, particularly when multiple assessors are involved. Personal biases do exist, and it is unknown at this stage whether or how they are overcome by assessors when making final judgment.
The strength of GA appears to be drawn from the breadth of factors considered that go beyond 'clinical' checklists by allowing for overall impressions and gut feeling, providing a 'rounded approach' to competency.

3R5 (3345)
Programmatic Assessment Practice-focused Guidelines: A knowledge translation tool to support competency-based assessment at Queen's University

Authors
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Damon Dagnone, Queen's University, Kingston, Canada
Jessica Rich, Queen's University, Kingston, Canada
Heather Braund, Queen's University, Kingston, Canada

Presenter: Laura McEwen, Queen's University, Kinsgton, Canada

Abstract Text: On July 1 2017, Queen's University was the first school in Canada to launch competency-based models of residency education institution-wide. Although validated frameworks to inform the development and evaluation of programmatic assessment exist, we determined these to be of limited utility to our assessment system users. Consequently, we assembled a research team to develop a practice-focused framework to guide the implementation of programmatic assessment by various stakeholder groups (e.g., residents, frontline faculty, program leaders, etc.). The draft programmatic assessment practice-focused framework was developed based on principles derived from the literature and iteratively refined by a panel of internal experts that included physicians from multiple specialties and PhDs in education. Through an iterative, collaborative process we were able to distill this work to a set of 9 guidelines. The group then drafted descriptions of associated activities for each guideline for 6 key stakeholder groups including: residents, frontline faculty, Academic Advisors, Program Directors/CBME Leads, Competence Committees, and Residency Program Committees. We then conducted focus groups with stakeholders to refine descriptions of their activities to better reflect the operationalization of programmatic assessment principles in practice and to ensure the accessibility of language used to describe these activities. These focus groups also served to underline the practical utility of this knowledge translation tool across user groups.
To-date the Programmatic Assessment Practice-focused Guidelines have been used to inform the overall structure of faculty development events and as the basis of various workshop activities. Ultimately, this knowledge translation tool has served to support the initial implementation of competency-based programmatic assessment at Queen's and we anticipate it informing refinements over time. Although our research continues to unfold with an external expert review process, we view a round table discussion at AMEE as an excellent opportunity to share this emergent work and gather input from a wider audience.

3R6 (2009)
Engaging departmental stakeholders in shaping their program of assessment

Authors
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Presenter: Nancy Dalgarno, Queen's University, Kingston, Canada

Abstract Text: Canada is adopting a competence-based medical education (CBME) model in residency education. The Royal College of Physicians and Surgeons of Canada has advocated for a programmatic approach to assessment with increased emphasis on direct observation of residents' clinical performance. This change has implications for physicians' and residents' workflow. Supporting and incorporating feedback from stakeholder groups as they pilot CBME assessment tools may increase engagement.
To what extent does involving stakeholders in the selection and modification of workplace-based assessment (WBA) tools for use in Ophthalmology assist in shaping their program of assessment?
The qualitative case study was conducted in an Ophthalmology Emergency Eye Clinic at a teaching hospital in Eastern Ontario prior to the July 1, 2017 CBME implementation. Phase 1 consisted of faculty piloting four WBAs over a three-month period by documenting perceptions of the tools. Phase 2 involved two focus groups, one for residents (n=9) and one for faculty (n=6), which explored qualities of effective feedback, feasibility, usability, value, challenges, and recommendations for the tools. Data were analyzed using a thematic design.
All participants discussed the need for a shift in the departmental assessment culture to support the transition to CBME and improve buy-in among stakeholders. The WBAs tools were generally viewed as formal evaluations and faculty were concerned about 'formalizing' feedback. Residents stated the need for more timely feedback given in a safe location. Generally, residents preferred written performance indicators rather than numerical. Residents and faculty valued verbal feedback more than written. These results provide insight into faculty and resident perspectives about assessment processes. An ongoing challenge is integrating feedback processes in the assessment culture and promoting WBAs as low-stakes coaching tools. Future research will examine the extent to which these perspectives about the program of assessment change following CBME implementation.

3R7 (2014)

Exploring how the new entrustable professional activity assessment tools affect the quality of feedback given to Medical Oncology residents

Authors

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Presenter: Nazik Hammad, Queen's University, Kingston, Canada

Abstract Text: Competency-based medical education (CBME) assessment tools are designed to support residents' development. Our Medical Oncology training program completed a pilot study of six competency-based assessment tools in preparation for July 1, 2017 CBME implementation.

To what extent are the entrustable professional activity (EPA) assessment tools effective in providing quality feedback to Medical Oncology residents?

Using a sequential explanatory mixed-method design, data was collected from four of six workplace-based assessment tools (WBA) (n=17), a resident focus group (n=4) and physician interviews (n=5). Data was analyzed using a quality feedback framework developed by the research team and thematic design.

WBA data indicated that the overall rating of EPA achievement was 71% "Achieved" and 29% "In progress". Quantifiable written feedback was included in 88% of assessments, 33% providing actionable feedback and 20% offering next steps. Two overarching themes were identified: 1) despite a shared understanding of quality feedback, delivery and quality of feedback was an ongoing concern; 2) faculty and residents had concerns about implementation of WBA tools. All participants indicated a preference towards verbal feedback delivery methods, but acknowledged the importance of written feedback. Both groups were concerned about time taken to complete the tools and questioned the feasibility within clinical contexts. There remained a lack of clarity surrounding the purpose(s) of WBA tools and processes for initiating, completing, and submitting tools. Lack of buy-in from faculty was also acknowledged by residents.

Greater emphasis is needed to ensure documentation of actionable feedback that encourages professional growth. Faculty development and quality improvement are critical for stakeholder's explicit understanding of using assessment tools, and how they will be applied to document overall competency development and achievement. Adopting WBAs is supported with the belief that specific adjustments will be required, but not known until full implementation has occurred.

3S: Conference Workshop: The World Federation for Medical Education (WFME) Recognition Program for Accrediting Agencies: Purpose, processes, and criteria (25)

Location: Wettstein, 2nd Floor, Swissotel
Date: Monday 27th August
Time: 1015-1200 hrs

Presenters:
David Gordon, WFME, Ferney-Voltaire, France
John Norcini, FAIMER, Philadelphia, USA
Marta van Zanten, FAIMER, Philadelphia, USA

Background: While the purposes of accreditation of basic medical education are to evaluate and ensure the quality of medical education programmes and encourage improvement, accreditation practices vary considerably worldwide. Consequently, the World Federation for Medical Education (WFME) has developed and implemented a global programme aimed at recognising agencies that accredit medical schools at an international standard. This workshop will provide an overview of the WFME recognition programme and an in-depth understanding of its purpose, processes, and criteria.
Who should attend: Anyone with an interest in the accreditation of basic medical education is invited to participate. Individuals involved with accreditation agencies or regulatory organisations are especially encouraged to attend.
Structure of workshop: The workshop will include presentations on the WFME Recognition Programme, followed by group activities aimed at increasing participants' overall understanding of the programme, including potential strategies for setting up an accreditation system and enhancing current systems to better comply with WFME criteria. Associated challenges and how an agency can move towards fulfilment of the elements will also be addressed. The workshop will conclude with a discussion of the important themes that have emerged.
Intended outcomes: At the conclusion of this workshop, participants will have gained an in-depth understanding of the WFME Recognition Programme, the process of recognition, and the specific criteria used in evaluating accrediting agencies. This information will be useful for individuals to help ensure that medical education, and specifically the accreditation of medical programmes, in their home settings is operating at a global level.
Level: Introductory / Intermediate

3U: Conference Workshop: Planning and orchestrating change: From change management to change stewardship (310)

Location: Helvetia 4, 1st Floor, Swissotel
Date: Monday 27th August
Time: 1015-1200 hrs

Presenters
Glen Bandiera, University of Toronto, Canada
Rhonda St. Croix, Royal College of Physicians and Surgeons of Canada, Ottawa, Canada
Ming-Ka Chan, University of Manitoba, Winnipeg Manitoba, Canada
Anne Matlow, University of Toronto, Canada

Background: Education leaders are called upon to design and orchestrate major changes in the current educational milieu. Embedded in both academic and administrative environments, education leaders must oversee change initiatives that arise from scholarly inquiry, institutional requirements, or external forces. Regardless of the nature of the change, success hinges on having a solid approach to change that is rooted in theory and practically tested in real world environments. We are not starved for good models of change management; in fact many appropriate models exist that may help in any given context. The challenge for education leaders is recognizing when change is afoot, articulating the nature and rationale for the change, and selecting the best approach for the given circumstances. Given these challenges, we have developed a workshop that has been delivered locally and that focuses on the unique aspects of change in education. We draw on multiple theories and practical experience to help education leaders design an effective approach to change while avoiding common pitfalls and frustrations. We include a process that maps multiple well-known models to one common framework to help leaders select the approach most likely to lead to success.
Who should attend: Anyone who is called upon to design or lead change initiatives in the education environment.
Structure of workshop: The presenters will conduct a small group interactive exercise designed to attune participants to the challenges of change in education. There will then be a large group discussion of some case examples brought by the presenters from their own experience in addressing challenging change initiatives. Two further large and small group exercises will allow participants to apply the concepts to an individual change initiative relevant to them.
Intended outcomes: Participants will be able to identify key elements in understanding he impact of change, describe an approach to designing an effective change initiative, and outline common pitfalls and avoidance strategies.
Level: Intermediate

3V: Conference Workshop: Preparing Faculty to Conduct GT-RR Reflection Rounds: A Space for Students to Explore the Meaning of their Interactions with Patients (157)

Location: Helvetia 5, 1st Floor, Swissotel
Date: Monday 27th August
Time: 1015-1200 hrs

Presenters:
Christina Puchalski, George Washington Univeristy, Washington, DC USA
Benjamin (Jim) Blatt, George Washington Univeristy, Washington, DC USA
Malgorzata Kranik, NIcolaus Copernicus University, Bydgoscz, Poland
Phillip Larkin, Our Lady's Hospice, Harold's Cross, Dublin, Ireland

Background: Medical education provides little opportunity for student reflection on the meaning of their patient interactions. Experiences like the death of a patient can be profoundly disturbing. Reflection is vital for students to grow from such experiences and develop their own inner resources to address patient suffering and buffer against burnout. Reflection Rounds, conducted in small groups by pairs of specially trained faculty, provides students with a safe space to explore the emotional and humanistic and/or spiritual aspects of their patient interactions.

Who should attend: This workshop will provide faculty the initial preparation necessary to conduct Reflection Rounds--distilled from the faculty training program developed for the Reflection Rounds initiative piloted in 17 North American medical schools. The faculty Train-the-Trainer program and Reflection Rounds itself were developed by the George Washington University Institute for Spirituality and Health (GWish) with funding from the Templeton Foundation—thus designated GT-RR. This workshop is designed for clinical teachers and medical educators from medicine, nursing and from all other health care professions.

Structure of Workshop:
15 min Introduction: Brief overview of structure, theory and objectives of GT-RR Reflection Rounds and the Spirituality and Health Competencies that inform them.
20 min Video Presentation/Discussion: Video of an actual Reflection Rounds with 4 medical students
50 min Practice: Participants in small groups experience reflection rounds: share personal stories guided by workshop leaders.
20 min Discussion: Participants share their reactions and outline how they might implement Reflection Rounds in their home institutions

Intended Outcomes: Participants will be able to:
1. Describe the theory and structure of GT-RR Reflection Rounds and its role in health care students' personal and professional formation
2. Employ the G-TRR structured format to conduct Reflective Rounds.

(A complete set of materials about GT-RR will be provided for each participant)
Level: Basic

3W: Conference Workshop: Golden standards for medical specialist training in Europe (1790)

Location: Helvetia 7, 1st Floor, Swissotel
Date: Monday 27th August
Time: 1015-1200 hrs

Presenters:
Hannu Halila, Finnish Medical Association, Helsinki, Finland
Hans Hjelmqvist, University of Örebro, Sweden
Bernard Maillet, UEMS, European Union of Medical Specialists, Brussels, Belgium

Background: Medical specialist training in the European Union is regulated by the Professional Recognition Directive. The Directive was last revised in 2013. The main purpose of the Directive is to ensure free movement of doctors within the EU/EEA area. This Directive does not regulate the content of specialist training, only the minimum lengts of training (3-5 years) within 54 specialities listed in the Annex V of the Directive.
UEMS, European Union of Medical Specialists, is the oldest of the European Medical Organisation, founded in 1958. The main goal of UEMS througout its now 60 years has been to ensure the quality of medical specialist training in Europe. This work has been done within the now 43 Specialist Sections. They have created European Boards as subgroups, in conjunction with the relevant European Society, with a view to defining European standards of medical specialist education and training. These European Training Requirements are widely acknowledged as golden standards throughout Europe.
Furthermore, UEMS has developed different means of quality assurance in specialist training. They include Visitation of Training Centers and European Specialist Exams.
UEMS has already during the revision of the Directive suggested that specialist training should shift from time-based to competency-based training.

Who should attend: All those interested in specialist training : educators, doctors in training, university teachers, clinicians.

Structure of workshop: The workshop will begin with an introduction to the European Union regulations and activities of UEMS in the field of postgraduate medical education. Through interactive group discussions the workshop will develop ideas for new methods to assess specialist training as well as elements for future competency based education : what should the newly trained medical specialist be able to do and know in the future.

Intended Outcomes: Participants will be familiar with the present system of postgraduate training in Europe and the methods of quality assurance. They will also through discussions have a vision of how training in the future should be developed.
Level: All

3X: Conference Workshop: Simulation, Entrustable Professional Activities and the medical school clinical clerkship (16)

Location: Osaka, 3rd Floor, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

Presenters:
Lisa Buckley, Ross University School of Medicine, Far Rockaway, USA
Dave Pederson, Ross University School of Medicine, Miramar, USA
Reid Adams, Ross University School of Medicine, Pontiac, USA
Sean Gnecco, Ross University School of Medicine, Miramar, USA
Joseph Crutcher, St. John's Providence Southfield, USA

Background: Over the past several years, program directors have increasingly expressed concern that some medical school graduates are not prepared for residency (Lyss-Lerman et al., 2009). At the same time, there has been an international paradigm shift (Association of American Medical Colleges (AAMC), 2008; The Association of Faculties of Medicine of Canada, 2010) to better define educational outcomes and assess competency in health professions (Carraccio et al., 2016; Englander et al., 2013). In order to address these issues, efforts are under way to examine the requirements at key transition points in the formation of physicians (college to medical school, medical school to residency, and residency to practice or fellowship). In 2014, the Association of American Medical Colleges (AAMC) published a list of thirteen core entrustable professional activities (EPAs) for entering residency, which outline the knowledge, skills and behaviors of a graduating medical student (Association of American Medical Colleges, 2014). The publication includes items student should be capable of achieving without direct supervision on their first day of residency (Association of American Medical Colleges, 2014). Since the AAMC publication, there has been an increased focus on EPAs in medical education and research, although many question remain unanswered.
Intended Outcomes: Using the AAMC's EPAs as a guide to clinical clerkship education, we will present and discuss the various ways hospitals have added simulation curriculum to the clerkship rotations with the goal of addressing these EPAs. This course will focus on how we have integrated EPAs 1: Gather a history and perform a physical examination, 2: Prioritize a differential diagnosis following a clinical encounter, 3: Recommend and interpret common diagnostic and screening tests and 12: Perform general procedures of a physician, into the clinical medical school education and hope this information will be useful to schools who are looking to implement similar programs.
Who should Attend: Medical schools educators that are interested in incorporating EPAs into their clinical education curriculum.
Structure of Workshop: Lecture style information session followed by questions and answers and then a small group discussion activity to assist participants in thinking about how to apply the information.
Level: Intermediate

3Y: Conference Workshop: Are you ready for smart patients? Are your digital capabilities up to speed in a digitised and democratised world? (3161)

Location: Samarkand, 3rd Floor, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

Presenters:
Susan Kennedy, Health Education England, London, UK
Richard Price, Health Education England, London, UK
Phil Southworth, Imperial College Healthcare NHS Trust, UK

Background: The smart patient is with us and, as Eric Topol says in 'The Patient Will See You Now', the relationship (between doctor and patient) 'is changing and must change' in a digital world.
Essential to any doctor in our complex and ever-changing digital world are those digital capabilities that enable them to exploit technology in the better care of patients, to embrace the democratisation of medicine and to ensure they can thrive in this brave new world.
Health Education England's Technology Enhanced Learning (TEL) Programme plus the UK's National Information Board's (NIB) Building a Digital Ready Workforce (BDRW) Programme have developed a digital capabilities framework for use by all health and care professionals across the country.
Doctors can use the framework for self-assessment, identifying learning and development needs, informing personal and professional development plans, directing learning, reflecting and evaluating on progress and performance.
Who should attend: Anyone unsure of their own digital capabilities and wanting to self-assess against the framework. The workshop will provide guidance in identifying areas for continuing professional development in specific digital capabilities.
Structure of workshop:
• Icebreaker – what digital capabilities do you already have? (Different ways this might be done but will involve standing, moving, handraising)
• What does digital literacy mean to you? Paired work with post-its
• What does digital literacy mean to doctors and patients? Table work
• The HEE Digital Capabilities Framework. Slides from presenters
• Self-assessment. Individual work with the framework
• Digital journeys. Group or paired work looking at the digital learning and transformation journeys that they as individuals and/or their teams/departments/organisations are on. Illustrated group responses.
• Plenary/discussion.

Intended Outcomes:
• Participants will have a clear understanding of what digital literacy is
• Participants will have been able to assess their own level of digital literacy
• Participants will have begun to identify their own and their colleague's learning and development needs in relation to digital capabilities
• Participants will have identified at least 4 key areas on which to work in the coming year
• Participants will be signposted to existing education and training resources that support the development of digital capabilities.
Level: Introduction/Intermediate

3Z: Conference Workshop: Creating your personal learning network: 10 tips from a systems lens (2385)

Location: Guangzhou, 2nd Floor, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

Presenters:
Felix Ankel, HealthPartners Institute, Bloomington MN, USA
Sally Santen, Virginia Commonwealth University, Richmond VA, USA
Robin Hemphill, Virginia Commonwealth University, Richmond VA, USA

Background: Health professions education is at a crossroads. We are living in exponential times using linear methods to manage educational programs, transition from time based to competency based medical education, and navigate hierarchical organizations to maintain sustainable financial models. Educational theories are moving from cognitive and constructionist models to connectivist models http://eprints.gla.ac.uk/118043/9/118043.pdf allowing learners and educators to thrive in a digital age. Future health professions educations leaders will develop and nurture robust personal learning networks to help them adapt to complex systems. This workshop will introduce participants to 10 elements of a healthy system and challenge them to identify a local person with perceived competency in each area.
Participants will leave the session with a draft PLN and action plan when they return to their home institution.
Level of the target audience: Advanced
This session is designed for health professions educational leaders
Learning Objectives: Upon completion of this session, participants will be able to...
1. Share an outline of their personal learning network
2. List 10 disciplines in the domains of autonomy, complexity, and context management to create a healthy learning program.
3. Articulate a systems approach to their learning environment
Organization and method of presentation: Introduction to PLN Identification of three top people in current PLN, Think--pair--share (T-P-S)
Discussion of system resilience (T-P-S)

Discussion of complexity management (T-P-S)
Discussion of context management (TPS
General Q and A and next steps

3AA: Conference Workshop: Experiences with Entrustment Decision Making in EPA-based medical training. Practical insights from the Netherlands and Germany (1354)

Location: Nairobi, 2nd Floor, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

Presenters:
Jacqueline de Graaf Department of General Internal Medicine at Radboudumc Nijmegen, Netherlands
Harm Peters, Dieter Scheffner Centre for Medical Education and Educational Research, Charité – Universitätsmedizin Berlin, Germany
Marieke Bolk, Dutch Association of Medical Specialists, Utrecht, Netherlands
Auk Dijkstra, Dutch Association of Medical Specialists, Utrecht, Netherlands
Marieke van der Horst, Dutch Association of Medical Specialists, Utrecht, Netherlands
Ylva Holzhausen, Dieter Scheffner Centre for Medical Education and Educational Research, Charité – Universitätsmedizin Berlin, Germany

Background: The concept of EPA-based medical training is implemented in more and more countries. What are experiences we can share and how can we work together to empower and accelerate implementation? The focus of this workshop will be on the main goal of medical training to guide and monitor the professional development of trainees towards independent practice as a physician. Entrustment decisions are an important hallmark in this process. In daily entrustment decisions (ad hoc entrustment) supervising physicians decide under how much supervision a trainee can perform certain professional activities under the given circumstances. Additionally, a summative entrustment decision can be made, which gives a trainee the generalized permission to perform a professional activity under a certain level of supervision. But what exactly does this mean? And how do you do that in the right way? We'll guide the participants through the approaches and experiences made in a Dutch postgraduate and a German undergraduate medical curriculum regarding EPA-based training and assessment.
Structure of the workshop: The workshop will start with a focussed introduction on the practice of Summative Entrustment Decision Making in resident training in the Netherlands. We explain the procedure with animated video and demonstrate experiences of residents and medical teachers in a video registration. In a second step, we will discuss how the concept of entrustment decision making was adapted and implemented in an undergraduate curriculum in Germany. In small groups

participants will reflect on the entrustment decision making concept, discuss about needs, advantages and pitfalls and share experiences. All participants may use the demonstrated tools and materials.

3BB: Conference Workshop: Assessing Cultural Competence in OSCEs (567)

Location: Mexico, 2nd Floor, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

Presenters:

Costas Constantinou
Alexia Papageorgiou
Peter McCrorie

Background: Cultural competence has been acknowledged as an important skill doctors should have in order to achieve better health outcomes. There is evidence to show that cultural competence is associated with patient satisfaction, better doctor-patient relations and adherence to therapy. However, integrating and assessing cultural competence in medical curricula has been patchy. This workshop aims to make participants aware of the importance of cultural competence in medical practice and its integration in medical curricula, and train them in how to assess cultural competence through an OSCE station.

Who should attend: Clinical communication teachers, social scientists, experts in medical education.

Structure of workshop: The session will be very interactive and will employ brainstorming, discussion and hand-on training in order to achieve its aims:

• Brainstorming discussion on the importance of cultural competence in medical practice.

• Discuss evidence from the literature with regards to the importance of cultural competence and how it can be integrated and assessed in medical curricula.

• Simulate an OSCE station: One participant will play the doctor. The participant will be given time and information to prepare for the medical consultation. The information will include cultural competence skills. One of the presenters will play the actor and another presenter will be the examiner. The rest of the participants will observe and give feedback to the doctor. The scenario will be about a migrant patient who comes to the consultation with a perspective very different from that of the doctor. The doctor will have to communicate with this patient effectively.

• Feedback and reflection: The participant who plays the doctor will be invited to do self-reflection. Then the observers will give feedback to the doctor and then the patient and presenters. All participants will be invited to give feedback on the station and the workshop before concluding.

Intended outcomes: After the workshop, the participants will be able to:

• Understand the importance of cultural competence in medical practice.

• Appreciate the need to integrate cultural competence in medical curricula.

• Become aware of and confident in how to assess cultural competence in a medical curriculum through an OSCE station.

Level: Intermediate

3CC: ePosters: Technology Enhanced Learning & Flipped Classrooms

Location: Kairo 2, Ground Floor, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

3CC1 (3354)
Accessible 3D Scanning Technology for 3D Printing in Your Classroom

Authors
Charles Wesley Price, St. George's University, St. George's, Grenada
Xochitl Vinaja, St. George's University, St. George's, Grenada
Jessica Holland, St. George's University, St. George's, Grenada
Katie Yost, St. George's University, St. George's, Grenada
Brandon Holt, St. George's University, St. George's, Grenada
David Nahabedian, St. George's University, St. George's, Grenada

Presenter: David Nahabedian, St. George's University, St. George's, Grenada

Background: By blending art and science with the mission of education, medical illustrators bring innovation to the classroom bridging gaps that usually isolate departments. The medical illustration team at St. George's University is experimenting with three desktop 3D printers to create, modify and print anatomical models captured through a variety of methods, from photogrammetry to high-end 3D scanning. A collaboration with the School of Medicine and Veterinary Medicine has been forged to establish the most accessible technology and technique to replicate specimens for student hands-on learning.
Several 3D data capture methods are in use in our lab therefore a comparison of results has been made using bone specimens on loan from both the SOM and SVM departments. The quality of 3D prints created from these capture methods were assessed using the following criteria: accuracy, detail, quality of texture map and amount of post-scan processing required. Two common types of 3D printing were compared, Fused-Deposition Modeling and Stereolithography as well as prints derived from the same sets of photographs, but generated by separate software solutions.
Preliminary findings show that an economical photogrammetry station can be perfected to produce 3D prints with comparable quality to that of 3D scans. This may prove useful for departments with limited budgets who have a need for rare and fragile anatomical specimens but not the budget for expensive 3D scanning equipment. As the price of 3D printers continues to fall, they will become a staple on medical campuses worldwide. An increase in demand for 3D printed anatomical specimens reveals a need for affordable 3D data capture methods. Photogrammetry is a solution that uses common photography techniques and equipment. Currently, educational licenses to online software are available which allow educators to upload and process their photographs into a printable object for free.
Photogrammetry is accessible and reliable for 3D printing on a modest budget.

3CC2 NOT PRESENTED

3CC3 (2248)
Redesign the professionalism teaching and learning : flipped the classrooms for better understanding, another role of medical teacher.

Authors
Kalyanee Asanasak
Patcharee puttichart
Cheerawan Chootip
Cherabat Techato

Presenter: Kalyanee Asanasak, MEC Songkhla hospital, Songkhla, Thailand

Background: Training medical professionalism is one of the most important role of the medical teacher and it is also one of the responsibiles for graduated medical doctors.
" Role model " was claimed to be one of the best way in teaching medical professionalism. What about classroom teaching? It is always a boring and difficult issue to everyone to begin the class. At Songkhla medical education center,we used flip-classroom techinque, for teaching professionalism.
All the medical students were divided into small groups each consist of different members from each year. The professionalism and ethics team teachers, consist of various medical practitioners include mainly doctors and nurses select the topic for discussion. Each group was chosen in-turned to be a leading team and worked on the assign topic with the consultant teacher. Then at the professionalism session, the third wednesday every three months month, they present the topic and lead the whole class learned by various methods for example role-play, debating, game, video-clip, dramatic play, and opened discussion. At the end of class,the consultants teachers, 2-4 teachers selected from various medical specialized and other medical partners for examples nurses, pharmacy etc.will wrapped up the sessions and made sure the students have the correct understanding by reflection and debriefing techniques.
At the beginning, the leading team were reluctant and in-confidence. After a few class with some guidance, the leader students are more capable and use various techniques in order to make the topic more interesting and easier to understanding. They even competed with each other to make their class better. Resulting in better understanding and more participation in the class. The appreciation scores from the attending students were high, have fun and thoroughly understand their medical professionalism behavior.
The flipp-classroom techniques together with peer to peer teaching governed by IPE modulators were used to make teaching professionalism more interesting. And assessing their knowledge and attitudes by debriefing and reflection techniques.

No matter how difficult in disciplined the medical students professionalism it's the medical teacher role to implant it to their students.

3CC4 (2469)
The Effects of the Flipped Classroom in Teaching Evidence Based Nursing : Using Team Based Learning and Mobile Application

Authors
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Tsung-Chu Lan, Taoyuan Chang Gung Memorial Hospital & Chang Gung University of Science, Taiwan
Jeng Wang, Chang Gung University of Science & Technology, Taiwan
Chen-Li Kuo, Chang Gung University, Taiwan
Hui-Ling Lin, Linkou Chang Gung Memorial Hospital, Taiwan
Shu-Fang Vivienne WU, National Taipei University of Nursing and Health Sciences, Taiwan

Presenter: Hui-Ling Lin, Linkou Chang Gung Memorial Hospital, Taoyuan, Taiwan

Background: The evidence based nursing has become one of essential components to improve quality of care at clinical. The e-learning will be also critical to the future learning/teaching environment. It's not only be benefited through the method of team learning, but also actively learn with flexibility of time. Therefore, flipped classroom with an e-learning program and team based learning method will be developed for nurses.

This is a quasi-experimental study. The control group received nurses' traditional nursing classroom teaching, while the experimental group received flip teaching methods. A total of 75 patients in the control group and 76 patients in the experimental group. They were arranged survey about the nursing knowledge scale and Self-efficacy scale. The datas collected from pre-test, post-test, and one month 3 time points.

Overall, the experimental group performed better than the control group after the flipped program. The experimental nursing knowledge and practical self-efficacy after the test of the three time points, both groups received empirical nursing teaching courses and enhanced the knowledge (control group 75.07 ± 14.55 VS experimental group 80.92 ± 14.62), especially in the experimental group progress more significantly than the control group (t = 2.47, p = .015 *****); the other in practical self-efficacy, both groups can effectively improve (control group 82.15 ± 17.52 VS experimental group 89.03 ± 15.19), and the experimental group progress more significantly than the control group (t = 2.58, p = .011 *****). However, there was no significant difference between the two groups in the knowledge of post-mortem nursing and practical self-efficacy, but overall the experimental group was still more effective than the control group.

From the above, it can be understood that the use of flip teaching combined with team-oriented learning can effectively enhance the effectiveness of knowledge and self-efficacy. The findings can be used as an important reference for future demonstration teaching in order to improve teaching quality.

3CC5 (1877)
Learning Outcomes of Prenatal Counseling by Simulation-based Flipped Classrooms Compared to Conventional Lectures

Authors
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Cheng-Yuan Tsao, Department of Clinical Education and Training, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan
Jong-Rung Tsai, Department of Respiratory Department, Kaohsiung Medical University, Kaohsiung, Taiwan

Presenter: Ching-Ju Shen, Kaohsiung Medical University, Kaohsiung, Taiwan

Background: Flipped classroom is a blended learning strategy that enhances students' abilities and achievements. This pedagogy reverses the teacher-centered teaching styles to student-centered learning environment. We implemented a flipped classroom curriculum of obstetric topics for senior medical students, with their learning outcomes measured by Objective Structured Clinical Examinations (OSCE).

200 participants were included in this study. Prenatal counseling topics were selected according to suggestions and feedbacks from previous students. Students were randomly assigned to the lecture group or to the flipped group. Prior to the class, students in the study group were instructed to read assigned materials, based on which they would utilize in interactions with standardized patients and performance of ultrasound-guided amniocentesis in the class session.

Compared to those in the conventional lecture group, students in the flipped group score significantly higher on average for Obstetrics in OSCE. Lower failure rates in the study group in the Obstetric station were observed, with cut-off scores determined by borderline regression methods.

The flipped classroom approach has been applied to medical education for many years to improve learning outcomes. Hybrid models that include simulation materials ensure learners to explore relevant subjects more thoroughly.

Simulation-based flipped classroom is an effective learning style for prenatal counseling. The novel learning method leads to reflective observation, abstract conceptualization and active experimentation. It could also be adopted in clerkship rotations, where a clinical setting is simulated to enhance students' learning experiences.

3CC6 (1148)

'Pass the Papers': Designing an exam preparation module that meets the diverse needs of Core Psychiatry trainees

Authors

Naomi Hampton, Southern Health NHS Foundation Trust, Southampton, UK

Anna Evans, Southern Health NHS Foundation Trust, Southampton, UK

Presenter: Naomi Hampton, Southern Health NHS Foundation Trust, Southampton, UK

Background: UK trainees in Psychiatry are required to pass three examinations in their first three years with high standards expected. These exams have a low pass rate, can cause a great deal of stress and contribute to difficulties in retention of trainees. Wessex Deanery trainees have protected time allotted to group exam preparation. However, historically engagement and attendance at these sessions has been difficult. Therefore opportunities are lost for shared practice and mutual support.

We have designed a course running for the first time October 2017 - June 2018, aimed at supporting trainees preparing for MRCPsych Paper A. The course is run by more senior trainees who have recently passed the exams and can focus on relevance and effectiveness. A blended learning approach is used, incorporating e-resources produced by the Royal College of Psychiatrists. We have encouraged a flipped classroom model: trainees present to each other in a style inspired by the 'Pechu-Kuchu¬TM' model. Succinct presentations are given in consecutive 90 second slots, creating a lively and engaging environment, as well as allowing for a large volume of material to be covered in a short time.

Select participants of the current course (n=11) and previous two years (n=8) were surveyed. The current group felt the course "suited my learning style" rated as 3.8/5 compared with 2.1/5. The current group's perception that the course would improve their chance of passing was 4.0/5 compared with 2.0/5.

Results for the Paper A examination (June 2018) will be compared with previous Wessex trainee performances.

Our work suggests that trainees find a 'flipped classroom', fast-paced course relevant and effective. Involving senior trainees ensures an up-to-date course while allowing course participants to lead maximises their learning opportunities. The lively concise presentations have proved a popular method to improve engagement and explore different approaches to fact-based learning.

The challenges of providing a relevant course to a diverse group have been met with a trainee-led, lively, 'flipped classroom' course which fosters a supportive environment for trainees preparing for exams.

3CC7 (692)

Using OSCE to assess learning outcome of the flipped respiratory therapy course

Authors

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Chien-Ling, Su, Taipei Medical University Shuang-Ho Hospital, New Taipei City, Taiwan

Po-Fang Tsai, Graduate Institute of Humanities in Medicine, College of Humanities and Social Sciences, Taipei Medical University, Taipei, Taiwan

Presenter: Yun-Ting Tseng, National Taiwan University Hospital, New Taipei City, Taiwan

Background: In Taiwan, the respiratory therapy specialized education has been continued for 16 years. As most of students aim for the certification of respiratory therapist that needed to pass the national examinations, they spent lots of time in field of "memorization". Nevertheless, clinical skills are still important and the practice depends on laboratory class. Due to different kinds of equipment needed to explain, clinical lecturers must be employed in the laboratory class. Additionally, students in varying degrees result in the process delayed and reduction of the practice time. Accordingly, draw up the completely new way for respiratory education urgently.

Due to comparable complexity, the sections "oxygen therapy" and "aerosol drug therapy" were chosen for control and experiment group. The section "oxygen therapy" was taught by traditional lecture and the "aerosol drug therapy" by flipped instruction. In terms of the flipped instruction, students had to perform online learning for aerosol drug therapy and were engaged in team-based learning during the class. Every student received pretest and posttest respectively at begin and the end of each class. The Objective Structured Clinical Examination (OSCE) was also implemented to assess students" learning retention for oxygen therapy and aerosol drug therapy.

According to results of paired sample t test, students' posttest scores after flipped classroom are significantly improved (T=-9.064; p=.000). Students performed also better in aerosol drug therapy than in oxygen therapy during OSCE (T=-4.269; p=.000).

Students performed better in the flipped section. Our flipped instruction is consisted of online learning before class and team-based learning in the class. This study could not clarify which part effected more on students' learning outcome.

Comparing the spoon-feeding memorizing of operation steps, the flipped instruction is more proficient to teach respiratory therapy.

3CC8 NOT PRESENTED

3CC9 (814)
MOOC (Massive Open Online Course) to improve clinical assessment skills and interdisciplinary collaboration in primary care

Authors
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Elin Olaug Rosvold, Department of General Practice, Institute of Health and Society, University of Oslo, Oslo, Norway

Presenter: Lene Lunde, Department of Nursing Science, Institute of Health and Society, University of Oslo, Norway

Background: Responsibility for increasingly complex patient care are migrating to primary care, requiring capacity building and competence development to strengthen interdisciplinary team collaboration, and clinical skills for better decision making and patient safety.
We have developed a MOOC to improve staffs' clinical skills in systematic health assessment and prepare students for clinical rotation in primary care.
The MOOC is a module-based digital learning resource, developed in close collaboration with healthcare practitioners in primary care. The learning objectives are to gain experience, knowledge and skills in a) systematic observation of vital signs; b) triage with relevant observations and assessments to determine severity and urgency; c) physical examination and comprehensive physical assessment; and d) in depth focus on heart and lungs.
We recruited healthcare professionals and students for a pre-pilot test of the MOOC in November 2017. A full scale 6-week course pilot test will be performed in Spring 2018 to provide information about 1) usefulness of the modules, 2) ease of use, 3) advantages and disadvantages of MOOC for learning, and 4) potential for team training.
Results from the pre-pilot test supported that topics in each module were relevant and highly useful for the participants and their collaborators. Assignments were rated as useful and appropriate, coming with huge potential for interdisciplinary collaboration. We will present results from the full-scale pilot of the MOOC, focusing on healthcare practitioners and students' perspectives, usefulness, ease of use, suggestions for improvements, and use of the MOOC in workplace and education settings.
Health assessment skills can increase staffs' capacity to differentiate common clinical issues in primary health care and stimulate interdisciplinary collaboration to prevent deterioration of the patient's condition. The MOOC is a promising platform for distributed learning and competency development in primary care.
The MOOC has potential to enhance healthcare practitioners' capacity to evaluate patient's complex condition and engage in interdisciplinary collaboration to prevent further deterioration.

3CC10 (204)
Use and Content Selection Among Medical Students Utilizing an Online Educational Blog During an Obstetrics and Gynecology Rotation

Authors
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Background: Blogs and podcasts are increasing in popularity in medical education due to their convenience, portability, and flexibility. The goal of this study was to describe the use and content selections among medical students utilizing an online educational blog during an Obstetrics and Gynecology rotation.
The data for this is educational case report was collected during the fall semester of 2017, when senior medical students were invited to view an online educational blog during their orientation to the obstetrics and gynecology clinical rotation. The blog posts included a written outline and audio podcasts that could be viewed or heard online as well as downloaded for later use. Additional blog posts were added throughout the study time period covering topics requested by the medical students. Multiple groups of students rotated through the obstetrics and gynecology service during the semester, at the conclusion of which the page views for each blog post were assessed. Page views were adjusted for the number of students on service and if a post was created when a rotation was in progress, the page views were adjusted for the number of days the Thirteen educational posts, covering 7 obstetrical and 6 gynecologic topics, were presented on the online blog. In one semester, 125 students rotated through the obstetrics and gynecology rotation during which the online blog had a total of 206 page views among the 13 posts. The posts covering Group B Streptococcus Infection Prevention (43 views), Induction of Labor (26 views), and Fetal Heart Rate Monitoring on Labor and Delivery (21 views) were the topics with the greatest page views. When adjusted for post availability and the number of students on service, the posts with the top page views were Shoulder Dystocia, Group B Streptococcus Infection Prevention, and Induction of Labor. As a group, obstetric topics garnered greater page views than gynecologic posts ($p < 0.01$).
Discussion and Conclusion: Students on an obstetrics and gynecology rotation were willing to utilize an educational blog that contained downloadable outlines and audio podcasts. Obstetrical topics had greater viewership compared to gynecologic topics.

3CC11 (436)
Case Based Blended Learning (CBBL) – a strategy to foster the transfer of declarative to procedural knowledge or more?

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Background: An increasing number of patients to treat, combined with a rapidly growing amount of knowledge, is supposed to be very challenging for doctors in the future. The time needed for a decision, whether to come to a diagnosis or to send the patient to an expert, should be as short as possible. Investigating the cognitive actions of medical students solving a patient's case, lead to the conclusion that educators should focus on a higher level of reasoning. Developments in information technology in medical education offer a large variety of tools for educators. The most challenging part for medical students is to handle the huge amount of clinical information. Case based learning could be a promising approach to teach students how to investigate for the important information.

To show how e-learning influences the clinical reasoning, the diagnostic efficiency and the grades among medical students.

Prospective cohort - study. Methods: A questionnaire as well as a semantic differential will be used to measure the support of e-Learning, the attitude of medical students towards eLearning and new learning concepts. This study was designed to measure and quantify the potential of e-learning as a new teaching technique. Effects on OSCE grades are measured at different time points.

Objective Structured Clinical Examination (OSCE) results from (n=619) medical students in 2013 before CBBL implementation, and after CBBL implementation in 2015 (n=624) and 2016 (n=643) were analyzed. A significant improvement (adjusted p=0.002) of the mean OSCE score by 1.02 points was seen between 2013 and 2015 (min=0, max=25).

E-Case Based Learning is an effective tool in increasing student mobility, satisfaction, improving performance outcomes and may provide a sustainable learning platform for many fields of medicine in future. The students' satisfaction and acceptance of the implemented case based eLearning program in the fields of psychiatry, microbiology and laboratory medicine and orthopedic surgery point at the value of autonomous motivation and affective involvement fostering efficient learning styles.

3CC12 (528)
Developing Our Baby: SingHealth Obstetrics and Gynaecology (OBGYN) Junior Doctors' Handbook App

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Background: At the Department of OBGYN, KK Women's and Children's Hospital (KKWCH), Singapore, a physical handbook of departmental guidelines exists to guide safe practice. Guidelines change when new evidence is published, presenting a challenge in ensuring continued content upkeeping. Mobile applications (apps) provide a 'just-in-time' resource which is especially useful for junior doctors balancing newly increased responsibilities with relative inexperience.

A pilot study on the use of an app to replace the existing handbook was conducted amongst junior OBGYN doctors. Preliminary discussions were undertaken with the Program Director, Academic Chair and faculty, to identify relevant areas for the alpha-version. The app was developed in-house with SingHealth Residency's EduTech Office with preliminary funding from the Academic Clinical Program (ACP). The alpha-version launched in August 2017. Junior doctors were recruited to trial this app. Data on usefulness and weaknesses were collected through serial focus groups and analysed using grounded theory.

Consultative discussions recommended these initial key areas for inclusion:

i. Procedural and consent information
ii. Risk calculators for ambulatory counseling
iii. Clinical pathways and algorithms for inpatient and ambulatory management.

All participants had experience using apps. Focus groups reported that apps would be useful resources in ambulatory and inpatient settings.

There were differing views on app appearance and presentation between IOS and Android users. Topics of commonest reference amongst OBGYN junior doctors were identified. Practice guidelines unique to the department were deemed most pertinent. These findings were incorporated promptly into the beta-version. Beta-testing is currently underway with ongoing qualitative data collection.

Following the App's Beta trial, a seamless uptake is expected in view of the ubiquitous use of smartphones, which is scalable for use in other departments within our sponsoring institution.

App development is feasible through engagement of stakeholders within the residency sponsoring institution. Following the proof–of-concept through the alpha-version and focus group data, continued funding for this project has been promised by the ACP.

Apps are easily developed using existing resources. Showing proof of utility following new educational interventions helps engage future funding for project longevity.

3CC13 (471)
Technological pedagogical content knowledge (TPCK) in medical education: Taiwan medical teachers' perceptions of and preparedness to use technology-enhanced learning in curriculum design.

Authors
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Background: Supporting successful transition to practice is key to retaining new graduate nurses in the workforce and to meeting the requirement for cultural diversity in healthcare services.

The result is a part of a three-year program that aims to explore the experience of technological pedagogical content knowledge (TPCK) among medical educators in Taiwan. There were three stages in this study: interviews of medical educators, analyses of medical education programs, and surveys of TPCK for medical teachers. We found 565 copies of medical-education–related teaching materials with 109 full texts for analysis. Eleven technological methods were identified. Simulations were the most popular method among the technological methods used in medical education programs. We interviewed 15 medical teachers on their five years of teaching experience. It was found that 60.7% of the teachers used technological methods in their curricula. For some teachers, the tendency of technology was another reason to use technology. We adopted random sampling to obtain participation from 319 medical teachers and received a 32.3% response rate. The content knowledge and technological content knowledge were the highest in TPCK. We found that the female sex, doctoral degree education level, full time work, nursing educators, and learned technological method were influence factors for the TPCK scores.

Technology is likely to become more ubiquitous in the education sector (Masters et al., 2016). Although educators are aware of the popular demand for technology products, it is clear that they are also aware of role of technology in the daily lives of students. Thus, educators expect to increase student interest by connecting with students through technology (Stoilescu, 2015). The present study found that in the experience of 15 educators, TK, TPK, and TPCK accounted for one-third each, which was the same as the results of Mouza et al. (2014). TK, TPK, and TPACK constitute important areas of knowledge for preprofessional educators in the ntegration

of ICT in the classroom and development TPACK after technology training.

Interdisciplinary team learning can be an effective strategy to develop TPCK for medical teachers.

3CC14 (1911)
iExaminer system: An effective teaching method to improve funduscopic examination skills

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Presenter: Kiyoshi Shikino, Chiba University Hospital, Chiba-city, Japan

Background: Funduscopic examination is an essential skill for primary care physicians as an aid in the diagnosis of several conditions. However, providing adequate training in this skill is challenging to both learners and instructors since it is not possible to share what is observed during the examination. The Welch-Allyn iExaminer system enables the capture of images from the ophthalmoscope using a mobile phone's digital camera. We investigated whether this methodology is superior to our previous traditional method for funduscopic examination.

A controlled trial was designed to compare the effects of the two practical guidance methods on student performance during fundus examinations. The study population was comprised of 56 undergraduate medical students participating in a general medicine clinical clerkship rotation. The participants examined the fundus on an eye simulator (EYE®, Kyoto Kagaku Co, Kyoto, Japan) before and after clinical skills training and presented their findings (3 findings each before and after the training session). Participants were randomly assigned to either a practical guidance method with the Welch-Allyn iExaminer System (intervention group: n=29) or a practical guidance method without the iExaminer System （control group: n=27). The training time was restricted to 30 minutes in both the intervention and control groups. Major outcome measures were the diagnostic accuracy of funduscopic findings and duration of examination in both groups.

Diagnostic accuracy was significantly higher using the iExaminer System (intervention group: $19.5 \pm 0.45\%$ to $46.0 \pm 0.49\%$, control group: $24.7 \pm 0.46\%$ to $27.2 \pm 0.53\%$, $F_{(1,166)} = 8.91$, $p = .003$). The duration of funduscopic examination was significantly shorter using the iExaminer System (intervention group: 82.6 ± 14.4 s to 62.1 ± 22.5 s, control group: 81.7 ± 14.9 s to 73.1 ± 23.3 s, $F_{(1,166)} = 13.18$, $p < .001$).

Teaching the funduscopic examination using the Welch-Allyn iExaminer system leads to improved diagnostic accuracy while reducing total examination time. Teaching the fundus examination method based on the iExaminer system is an effective and efficient method to improve the clinical performance of funduscopic examinations in medical students.

3CC15 (2197)
Evaluation of an eLearning program for GPs in health and developmental surveillance in children. Lessons learnt

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Background: Child health and development is conducted by Child and Family Health nurses in Australia. However there is a high drop off in visits by infancy and many developmental diagnoses eg. autism are still diagnosed late. GPs are well placed to participate in this surveillance strategy and have indicated a high interest in training in this field. Whilst face to face workshops have been run successfully, an eLearning platform was also developed to provide a blended learning platform to consolidate learning.
GP registrars attending a face to face workshop were invited to participate in the pilot project. The program consists of 5 Modules and pre and post course assessments and a 3 month post course survey to identify translation to practice behaviours. The workshop consisted of 3 practical stations addressing skills in physical examination, developmental screening and anticipatory guidance. A survey was administered to obtain feedback about the face to face and eLearning program.
A total of 68 registrars who attended the workshop commenced the eLearning program. Twenty one participants completed the program with 10 partially completed and 37 not completed. The registrars enjoyed the workshop and found it helpful in increasing their knowledge and confidence about the use of the child Personal Health Record as a surveillance tool and increased the likelihood their skills learnt to be put into practice. Of those who completed the eLearning, most found it informative, engaging, useful and practical. The blended program was ranked as most preferred whilst face to face sessions alone and eLearning alone ranked second and third. There were some participants who found that systems issues interfered with their completing the eLearning and that more refinements to resolve these issues are important to reduce the rate of non-completers.
This project demonstrates the successful delivery of a blended eLearning program for GPs in health and developmental surveillance. Of those completing the program, feedback was very positive. This also highlights the importance of sound elearning platforms to reduce participant drop off. There is the potential for the elearning program to be combined with local supervision through the use of clinical competency checklists.

3CC16 (144)
Audiovisual resources in virtual campus to refresh radiological anatomy

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Background: Radiology learning requires a solid anatomic knowledge base. We realize that students in the third year of medicine degree -when general radiology is taught at our University- need some anatomical refreshing before recognizing pathology by imaging, in order to better understand the radiological signs. However, the number of face-to-face classes is limited and any anatomy class would come at the expense of some other important radiological aspects.
Our team in the radiology department decided to record the basics of normal anatomy in several short videos based on imaging (CT, MR, US) that were uploaded on the Virtual Campus. Anatomic radiology was divided into the following topics: "Anatomic bases of chest X-ray", "Normal abdominal ultrasonography", "Normal abdominal CT, "Radiology of the Central Nervous System", "A review of radiological skeletical-muscle anatomy" and "Bases of a normal Angiography" (the latter in preparation).
Videos were recorded by a professional audiovisual team in our University. All the recordings were made by shooting only radiological images with radiologist's voice, except the "Normal abdominal ultrasonography" where the radiologist's hand position is also shown. The duration of the videos is between 9 and 27 minutes. The incorporation of this educational material was done in phases –two videos every year- in order to evaluate the students' response. The videos, uploaded from 2015-16 course until now, have already accumulated 2.872 visits, which is considerable bearing in mind that is not broadcast on an open channel.
The combination of audiovisual resources and virtual campus is an ideal environment for teaching. Students can access the educational videos at any time and refresh anatomical aspects. We recommend the online viewing of each video prior to the corresponding pathology face-to-face class. This tool improves student knowledge before classes, favours interaction with the teacher and saves time, allowing the introduction and discussion of new complementary aspects of clinical radiology.

Recorded audiovisual resources are a perfect choice to refresh and understand imaging-based anatomy.

3DD: Posters: Surgical Education

Location: Hall 4.1, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

3DD1 (1707)
Evaluation of Hospital-based Clinical Training Modules for Operating Room Personnel

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Background: Finding time away from work for educational courses is increasingly difficult for operating room personnel (ORP). The AOTrauma ORP Educational Taskforce has thus developed a new format of hospital-based education. These 2 to 4-hour Clinical Training Modules (CTMs), each covering well defined content on a specific topic, aim to teach principles of fracture fixation in the context of local needs and local hospital policy.
Method: The production of CTMs started in 2013. All modules are created by established AOTrauma ORP and surgeon faculty and were reviewed by global experts. In 2015, the first CTMs were conducted, with topics such as introduction to fracture fixation and osteosynthesis with plates and screws. Today, 5 modules are available. Translation into Spanish, French, Dutch and Russian has started. To evaluate the format and impact of the CTMs, the Taskforce prepared an online survey with 13 questions about the educational impact, content, faculty performance and logistics.
125 participants of CTMs held in 4 countries and 3 regions (Asia Pacific, Middle East and Europe) completed the anonymous evaluation (response rate: 65%) via SurveyMonkey.
Results: 81% of the participants found the content of the modules very useful or extremely useful. 66% said they have learned something new and plan to use this in their practice. 30% stated that the CTM confirmed their current practice. All educational objectives of the respective CTMs scored between 4.51 and 4.85 on a scale of 5 (with 5 being objectives fully met). 100% would recommend this training to their colleagues.
Discussion: The increasing number of CTMs run every year (27 in 2016, 38 in 2017, 21 in Q1 2018) and the evaluation results suggest they are well-received, useful and effective educational activities. Further inquiry will be done to identify and promote best practice in adjusting CTM content to the level of the local participants to further increase educational impact.
Conclusion: CTMs allow hospitals to organize training and education internally. The organization is easy, flexible and affordable. The competency-based content completes the educational portfolio of ORP worldwide who are involved in fracture fixation and care.

3DD2 (2131)
Differences in shared decision making behaviour between residents in training and orthopaedic surgeons: survey study explaining shared decision making behaviour in the care of hip- and knee osteoarthritis

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Background: In orthopaedic surgery the focus in shared decision making (SDM) mainly goes to decision aids. Little is known about SDM behaviour of physicians and how to improve this. Behaviour can be explained by the theory of planned behaviour, which states that behaviour is directly related to intention. Intention is determined by attitude, subjective norm and perceive behaviour control. The aim of our study was to explain SDM behaviour of orthopaedic surgeons and residents in the care of hip and knee osteoarthritis.
Method: A survey was done among staff physicians and residents in training for orthopaedic surgery. We addressed physicians working with hip and knee osteoarthritis patients in the Netherlands. We developed a questionnaire to measure intention and the determinants of intention for SDM behaviour. A 7-point Likert scale was used, with high scores representing high scores on the items.
Results: Of the 385 addressed physicians, 135 (34%) responded. For intention of SDM behaviour, 47% of the physicians scored 6 points (range 1-7). A mean score of 5 (range 1-7) was seen for attitude and staff physicians scored higher compared to residents. For subjective norm, staff residents were stronger influenced by external parties like insurers and health policy makers. Residents found themselves less in control of SDM behaviour and scored lower on perceived behaviour control. In the bivariate analysis attitude, subjective norm and perceived behaviour control were correlated with intention for SDM behaviour. Perceived behaviour control was associated the strongest with an R of 0,54 (p <0,001).
Physicians express high intention and attitude on SDM behaviour and ascribe restrictions in SDM to external factors. Physicians mention issues like time constrain and poor patient understanding important in this. The found differences between residents and staff physicians are striking. This underpins the need for education for residents and results could be used for designing SDM training.
Conclusion: Physicians report high intention and attitude on SDM. Scores were lower for residents compared to staff physicians. Perceived behaviour control is the most important determinant of SDM behaviour for physicians working with hip- and knee osteoarthritis patients.

3DD3 (3225)

Exploring the training experiences of residents in the new direct-entry vascular surgery program format

Authors

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Background: Training in vascular surgery is currently undergoing a transition from a 5+2 fellowship model (vascular fellowship following completion of general surgery residency) to a direct-entry pathway immediately following medical school (0+5). This paradigm shift is in part due to the declining numbers of applicants to vascular surgery programs. Residents in the 0+5 model are provided a more focused route of vascular surgery training. Few data exist that describe residents' experiences with the 0+5 pathway.

Method: Using focus groups (FGs), we explored the experiences of junior and senior vascular residents currently in 0+5 programs in Canada.

Nine FGs were comprised of 3-5 residents each (N=27) and were facilitated by a resident (FN), with field notes taken by a research assistant. Due to geographical location, some were conducted via Skype. A piloted 15-item facilitator guide was used, and FGs were recorded and transcribed for analysis. The qualitative framework method was utilized for thematic analysis.

Results: The following broad themes emerged: diversity in teaching styles of staff and fellows; the roles that residents play in research and how programs contribute to research development; the importance of feedback and how it's used; the benefits and disadvantages of the resident-fellow mix; resident versus fellow operative and clinic exposure and experience; the impact of different rotations; increasing levels of responsibility; time constraints in the operating room; academic structure; communication routes; and integration of residency within existing fellowship programs. Multiple concepts within each theme provided rich data on residents' experiences.

Discussion: Conducting FGs provided important insight into vascular surgery resident perspectives, program performance, and overall reception of the new direct-entry pathway. The data highlight the major strengths and weaknesses of current training programs, informing a framework for future program development and potential valuable information for other residency specialties.

Conclusion: Vascular surgery residents in the direct-entry (0+5) pathway provided a wealth of information regarding their experiences. The themes of teaching, research, feedback, resident-fellow mix, operative and clinic exposure, and off-service rotations can inform vascular surgery residency program directors and aid in curricula development as the specialty continues to evolve.

3DD4 (3433)

AO Surgery Reference usage data for assessing educational needs

Authors

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Background: AO Surgery Reference (AOSR) is an internet-based resource for the management of fractures. It describes the complete surgical management process from diagnosis to aftercare for all fracture patterns described in the AO/OTA classification in a given anatomical region. The usage data (360 thousand sessions and 2.8 million pageviews per month) provide information on the knowledge gaps AOSR users are seeking to address. The analysis of these data could offer valuable insights for the development of educational opportunities and resources related to existing or emerging curricula.

Method: For selected anatomical regions, the pageviews of all provided treatment options and approaches are collected and analyzed, e.g. for differences across geographical regions and comparison with effective fracture frequency (TBD). Currently the focus is on the pediatric AOSR procedures, for which total 70,000+ pages have been viewed since it was launched in 2016.

Results: The ongoing analysis shows differences in how often fracture patterns are accessed and how often each treatment option or surgical approach for a specific fracture pattern is accessed. For example, in the case of pediatric distal humeral fractures, the Elastic Stable Intramedullary Nailing (ESIN) technique has been accessed 1300 times with a varied geographical distribution, showing much higher relevance throughout Europe and Asia compared with North America and Latin America. In the next phase of the analysis, the effective fracture frequency in the different geographical regions will be collected and compared to the AOSR data.

Conclusion: The differences in pageview frequency and distribution could be attributable to the complexity of the given problem, frequency of a fracture, or geographical treatment preferences. To contribute to educational needs assessment of globally applied curricula, this data will enable a more granular approach to curriculum design. Usage data from the AO Surgery Reference can be a valuable tool in the assessment of educational needs for curriculum development both globally and regionally.

3DD5 (717)
Learning Needs Analysis: A tool to motivate surgical faculty and stimulate reflection and self-directed learning

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Background: With advances in medical education, it is essential that faculty continuously update their knowledge and skills to keep abreast with the evolving, multiple roles of medical teachers. However, surgical faculty find it challenging to do so amidst their busy schedule. The yearly participation rates in teaching-related development programs are less than 25%. This abstract describes our program's initiative to motivate participation through learning needs analysis and individualised faculty development plans, using an adult learning approach.
Method: Program faculty, ranging from senior residents to senior consultants, were invited to complete a self-assessment of their current and ideal levels of competencies in 33 teaching activities. The competency levels were rated according to the 5 levels of Dreyfus Skills Acquisition Model and the teaching activities were categorised into 6 areas defined in The Good Teacher, Harden and Crosby.
Results: Response rate was 61% (n=56). The mean rating for each area of teaching activities ranged from 2.6 to 3.1 (between Advanced Beginner and Competent) for current level of competencies, and from 4.3 to 4.5 (between Proficient and Expert) for the ideal level of competencies. All except one faculty had identified a gap between their current and ideal levels of competency in at least one area of teaching activity.
Discussion: The survey result revealed that faculty had learning needs, regardless of seniority, clinical experience and education responsibilities. However, the needs differ according to individual self-assessments. The survey data enabled the program to provide each faculty with an individualised learning needs analysis and a personalised faculty development plan with a list of relevant courses. To ensure accessibility, only locally-organised courses were recommended and fee sponsorships were budgeted for. The program also initiated quarterly surgical education journal clubs within the department schedule; which boasted close to 50% attendance.
Conclusion: A learning needs analysis can be useful to target faculty development efforts and serves as a tool for faculty to reflect and enhance their awareness regarding their multiple roles and areas for improvement. This is the first of many steps towards motivating our faculty towards self-directed, life-long learning in education.

3DD6 (1020)
A Study of Medical Students' Satisfaction with Clinical Education in Surgery Section comparing with Medicine Section: Why do they prefer Medicine Section?

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Background: The surgery and medicine sections are the major subjects for the medical students. At the end of each section, the students were required to complete an evaluation form to rate their satisfaction. Initial investigation suggested that the majority of students preferred practicing in medicine than surgery section despite similar workload. This study was conducted to evaluate the issues that led the decline of students' satisfaction with the practice in surgery section.
Method: The method of data collection was questionnaire, including the areas of medical teachers, learning system, related personnel, patient building as well as the open-ended questions for additional opinion.
Results: The questionnaire respondents included 84/91(92.31%) and 69/82(84.15%) medical students from medicine section and surgery section respectively. The students' average satisfaction for each unit in 2014, 2015 and 2016 was 4.09, 3.67 and 3.79 for surgery and was 3.99, 4.07 and 4.14 for medicine respectively. The average 3-year satisfaction for each unit regarding medical teachers, learning system, related personnel and patient building was 3.72(74.4%), 3.69(73.8%), 4.17(83.4%) and 3.68(73.6%) for surgery; and was 4.22(84.4%), 3.94(78.8%), 4.18(83.6%) and 3.94(78.8%) for medicine respectively. The medical students preferred medicine section because medical teachers appeared to spend more teaching time with them, arrange tutorials regularly and provide more lectures and discussion sessions.
Discussion: Medical students had strong desire for learning and practice medical procedures. Nevertheless, the students tended to prefer the surgical teachers because of their less strictness. In both sections, their satisfaction included the areas of working with medical internships residents and attentive academicians, having complete course orientation, clear informative course outlines and handouts, and having discussion sessions. Moreover, the students suggested reducing the amount of medical report writing and the hours of being on duty. Medical students preferred medicine than surgery section because of more tutorials especially case discussion as well as examination preparation provided by the medical teachers.
Conclusion: Time dedication by medical teachers is the most important factor for medical students' satisfaction since case discussion and medical procedural training is vital. Well-organized course orientation could provide benefits for students' further education.

3DD7 (1092)
Enhancing nurses' willingness to participate in robotic surgery by simulation and real situation training program

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Background: Robotic surgery has been introduced since 2013 and nurses experience more stress with increasing applicant operations. What is worse, the total operation time is prolonged that might threaten patients' condition under anesthesia. Study showed that nurses would be reluctant to assist with the innovative procedure under sense of unpreparedness. So, a training program is mandatory. The aim of the study was to enhance nurses' willingness to participate and improve skills and knowledge.
Method: One-year study took place at a teaching hospital and purposive sampling used in 2016. 58 working at operation room (OR) nurses met the criteria, who were more than 1 year of working experience without prior robotic surgery participation. Training program consisted of basic and advanced session. Basic session included 10 times simulation training and 2 times class course. Advanced session was reality training in OR 10 times, Objective Structured Clinical Examination (OSCE) and actual practice supervised by senior nurses based on a structured checklist.
Results: 52 nurses completed basic session and 6 nurses the advanced one. On a satisfaction survey, 96.7 and 95.4 points were rated. In 2017, the numbers of robotic-assist nurses expanded to 34 from 28. Shortened 13.6 minutes were calculated on average for surgical supplies preparation. And, the volumes of operations raised up to 55.3% compared to last year.
Discussion: Being a skillful OR nurse to assist in robotic surgery takes one year to achieve. Participant simulation and real situation training course were helpful to shape comprehensive and in-depth knowledge. OSCE evaluation provided a positive idea to modify individual's learning experience. Consequently, OR nurses felt confident and were willing to work on surgery.
Conclusion: Robotic surgery would be the choice of treatment in the future and it is still controlled by a human. Simulation and real situation training can help OR nurses to overcome fear and anxiety of using the high-tech machine.
Take-home message: Simulation based and real situation training are necessary for nurses to master the cutting edge of technology.

3DD8 (1785)
Establishing validity of a novel competency based orthopaedic objective skills and clinical examination (OSCE) using convergent and divergent comparators

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Background: Objective evaluations of resident surgical performance can be difficult to simulate. Observing a resident trainee perform an entire clinical exam and surgical procedure in routine clinical practice is challenging and occasionally impractical. A novel competency based surgical OSCE was developed to evaluate independent surgical decision making and skill. The goal of this study was to test the construct validity comparing previously validated Ottawa scores (O-scores) and Orthopedic in-training evaluation scores.
Method: An OSCE designed to simulate typical surgical cases treated by a general orthopedic surgeon was developed to evaluate resident surgical performance. Post-graduate year (PGY) 3-5 trainees interview a standardized patient, perform a physical exam, ask for investigations, and perform a surgical procedure on a cadaver that has a fracture or disorder simulated. Examiners evaluate all components of the treatment plan and provide an overall score on the OSCE and also provide an O-score on overall performance for each surgery. Convergent and divergent validity was assessed comparing OSCE scores to O-scores and OITE scores. SPSS was used for statistical analysis. Analysis of variance (ANOVA) was used to compare post graduate year averages and Pearson correlation coefficients were calculated to compare OSCE versus O-score and OITE scores.
Results: A total of 96 simulated surgical cases were evaluated over a three year period for 24 surgical trainees during 3 independent simulations. There was a significant difference in OSCE scores based on year of training. (PGY3 - 6.06/15, PGY4 - 8.16/15 and PGY5 - 11.14/15, $p<0.001$). OSCE and O-scores demonstrated a strong positive correlation of +0.89 while OSCE and OITE scores demonstrated a moderate positive correlation of 0.68.
Discussion: OSCE scores demonstrated strong convergent and moderate divergent correlation. A positive trajectory based on level of training and stronger correlations with established, validated scores supports the construct validity of the novel surgical OSCE. Future efforts should focus further on incorporating OSCE scores into high stakes decision making about resident promotion.
Conclusion: Construct validity of the novel surgical OSCE has been investigated and is supported by our study showing that the OSCE is a valid assessment tool.

3DD9 (2016)
From nobody to somebody by a surgical safety checklist ward round

Authors
Smith Soimadee

Presenter: Smith Soimadee, VachiraPhuket Hospital, Phuket, Thailand

Background: Senior staff usually lead ward round activities only one or two times a week. Mostly daily surgical ward rounds activities were led by junior doctors with the team comprising of one exturn and four 4th year medical students. The 4th year medical students learned by observing a junior doctor working with exturn. They have no roles but only stay on the sidelines. We tried to use surgical safety checklist ward round to draw them into ward rounds activities and become part of the team.
Method: A senior surgeon designed a surgical safety checklist ward round that comprises key activities such as patient identification and interaction, intravenous fluid prescription, nutritional assessment and orders, drug chart review, venous thromboembolism risk assessment, line tube and catheters safety. The 4th year medical students were trained to use it in a ward round led by a senior surgical staff following which they were assigned in 3 teams to use these tools helping junior doctors during ward rounds activities. Outcomes were observed from medical records audit and patient interviews.
Results: Patient identification in every steps of care was done completely only 53%. Giving patients information and opportunities to ask questions were improved from 50% to 77%. Loss of patient interaction process was decreased from 40% to 7.6%. Nutritional assessment and orders were improved from 40% to 70%. Venous thromboembolism risk assessment was improved from 0% to 47.5%. Many aspects of care were improved compared to previous outcomes from medical record audit and patient survey. Some processes were skipped due to time limitations and the team leaders think that processes were not important. Surgical safety checklist ward round can be used as a tool to engage 4th year medical students in the ward rounds activities. We use it as a framework for communication. It may be more effective if we set this topics in our curriculum to train our students and change them from nobody to somebody which can improve our patient safety.
Conclusion: Surgical safety checklist ward round can be used to draw medical students into ward round activities and can change them from nobody to somebody which improves patient safety.

3DD10 (2723)
High definition Video Recording With a GoPro Hero 5 Black in the operating room: A novel technique to improve learning in general surgery

Authors
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Background: Video-recording procedures in the operating room is helpful for surgical technique analysis, teaching and training medical students. The video recording system proves expensive for many hospitals. The GoPro Hero 5 black provides high-quality surgical recordings with economical expenditure.
Method: The surgical procedures were recorded by a GoPro Hero 5 Black camera, which can provide 4K video qualities. The camera was fixed to the GoPro head strap on the surgeon's forehead. The camera setting was in standard GoPro color with 2.7 K resolution (2688x1520p), 60 frames per second, narrow field and exposure value (EV) at -0.5 - 1.0. The recorded videos were checked, reviewed, and edited for production.
The retrospective, non-comparative study was conducted at Department of Surgery, Faculty of Medicine, Srinakharinwirot University between January to December 2017.
Results: A total of 110 surgical procedures were recorded included 55 procedures in general surgery (e.g. appendectomy, herniorrhaphy and excision biopsy), 20 procedures in colorectal surgery, 10 procedures in vascular surgery, 15 procedures in Upper GI surgery (e.g. Sengstaken-Blakemore tube insertion, gastrostomy) and 10 trauma care procedures (e.g. chest tube insertion, pelvic wrap). The recorded videos demonstrated a high quality for teaching a stepwise and surgical anatomy.
A GoPro recording camera has a great advantage in surgical education including 1) Small, portable and commercially available with a reasonable price 2) Preserves the opportunity for the medical student to learn from basic to rare surgical procedures 3). Broadcasting the live procedure to the smart phone or tablet (e.g. iPad) via the GoPro application 4) Easy to transfer and imported into video editing program 5) Encourages self-reflection and teaching with academic prospect (e.g. medical conference and publication). However, the limitation of usage GoPro in the operating theater was a lack of battery capacity consequential to limitation of recording time to 50-60 minutes. Nevertheless, changing the internal backup battery can solve the problem.
Conclusion: We found that the using of GoPro produces high quality recordings which are an excellent tool in education towards the encouragement of self-reflection and enhancing the teaching quality of surgical procedures.

3DD11 (2793)
Cross-institutional collaboration through social media in helping and auditing pediatric surgical training in Taiwan

Authors
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Pei-Chun Lin

Presenter: Yun Chen, Far Eastern Memorial Hospital, New Taipei City, Taiwan

Background: Due to the progress of prenatal diagnosis coupled with a declining birth rate, many rare congenital surgical diseases are even rarer. Thus pediatric surgical trainees may not have sufficient clinical experiences and adequate training quality. A cross-institutional collaboration through social media was emerged to strengthen pediatric surgical training in Taiwan.
Method: At first, we defined the core surgical competences that meets the qualification of the specialty. Then we setup an online network through social media, LINE, to let all the trainers and trainees from different institutions shared and gathered the information about the defined index surgical cases. The trainees could participate the operations at different centers thus enriched their training. A questionnaire designed to approach participants' perception of this cross-institutional collaboration network were collected and analyzed.
Results: 31 questionnaires were returned (response rate 53.4%) and all of them used LINE as major social media tool. 100% of them agreed that this LINE group help establish training partnership with other centers. 96.8% agreed this can facilitate the cross-institutional resources sharing and complementarity, and build the training consensus among different institutions. 87.1% agree that through social media can motivate the sharing of index surgeries as well as help and audit trainees to fulfill the training requirements.
Conclusion: Cross-institutional collaboration through social media is beneficial for pediatric surgical training. By providing the information of index surgery and cross institutional training can help trainees' qualification in Taiwan. This collaboration platform can be applied on the training of other surgical subspecialties with limited resources.
Take-home message: Cross-institutional collaboration through LINE is an effective tool for pediatric surgery institutions to cope with the shortage of index surgeries and enhance the training quality through sharing the cases, having the training partnerships and establishing the trust both from trainers and trainees in Taiwan.

3DD12 (2819)
Application of FACETS Program for OSCE Pass score in Surgical Clerkship

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Background: The FACETS program, which is based on the item response theory model, the Rasch model, is a multiphasic model that is designed to evaluate the reliability of the task, evaluation area, and rater.
The purpose of this study is to evaluate the usefulness of the FACETS program for the evaluation of surgical clerkship.
Method: In 2016, 119 third-year medical students in the Surgery Clinic were randomly assigned to six items (local anesthesia, abscess drainage, suture disinfection, sewing, breast examination, and image dressing) and were evaluated by twenty professors. The mean and standard deviation of test items and rater scores were calculated using the SPSS program, and the multiphasic aspect of scores were analyzed with the FACETS program.
Results: The difference of the grades by each item was different according to statistical analysis method (Welch method ($p = 0.37$), and Brown-Forsythe method ($p = 0.75$)). Thirteen different combinations were made ($F = 3.206$, $p = 0.01$). The score of the repair-local anesthesia combination was the lowest with 79.6 ± 48.2 points, and the score of the image dressing-breast examination combination was the highest with 164.9 ± 17.5 points. The difference between the grades according to the rater was statistically significant ($p = 0.00$). The students' fit, external fit, reliability, internal fit, external fit were 0.89, 1.00, 0.79, 0.91, 1.07, and 0.93 respectively. There was a fit of 0.86 for the rater, 0.96 for the fit, and 0.960 for reliability. However, some raters lacked consistency. When a score of 70 is applied as a reference score, 22 out of the 78 students who initially received a passing score the acquisition score did not meet the criteria with the corrected score. On the other hand, 10 out of 41 students who received a non-passing grade in the acquisition score were adjusted to the passing grade in the corrected score.
Conclusion: The FACETS program confirmed the deviation between the OSCE checklists and raters. In conclusion, the determination of standard setting with the criterion based on the corrected score, not the raw score is more optimal.

3DD13 (3103)

The Five-Step Teaching Method in Laparoscopic Camera Manipulation on Medical Students: A Randomized Controlled Trial in a Philippine Medical School Curriculum

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Presenter: Gwendolyn Tattao, De La Salle Health Sciences Institute, Dasmarinas, Philippines

Background: Although much attention is focused on teaching skills during residency, only few efforts are made for medical students. In the Philippines, no standardized camera navigation curriculum is currently available. This study aims to examine if laparoscopic camera manipulation, simulated on a box trainer, using the five-step teaching method, is more effective than the traditional feedback and return-feedback method in developing psychomotor and visuospatial skills in 4th year medical students.

Method: Through randomization, two groups were created (N = 129). One group received training using the five step method: (1) conceptualization – learner understands need for the skill, (2) visualization – preceptor demonstrates the skill exactly as it should be done without talking, (3) verbalization by the preceptor – preceptor describes each step while repeating the procedure, (4) verbalization by the student – student commits the process to memory by talking through the skill, (5) practice – student performs the skill. The other group did not talk through the skill, instead, proceeded immediately to performing the skill. The students were then assessed using a rubric that included proper handling of the camera head and the light cable, and performing image gathering accurately. The subjective comfort level of each participant in performing the psychomotor skill was also assessed using the 5-point Likert scale.

Results: Mann-Whitney-Wilcoxon test demonstrated that verbalization by the student through a skill translated into a greater ability in handling the camera head properly (p=0.021) and in gathering image more accurately (p=0.008). There was no significant difference in handling the light cable between the two groups (p=0.205). Generally, however, a higher overall proficiency level was noted among students who talked through the skill (p=0.001). Moreover, the overall comfort level in performing the skill was higher in those who articulated the steps while doing the skill (p=0.026).

Conclusion: The five-point method is an effective technique in teaching laparoscopic camera manipulation in that it produced a satisfactory learning experience for the student in a desired amount of time. In the advent of laparoscopy, it becomes imperative to include such skill in the medical students' curriculum.

3DD14 (3242)

The Development and Validation of an Assessment Tool for Training in Percutaneous Nephrolithotomy

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Background: Percutaneous nephrolithotomy (PCNL) remains the first line treatment for large renal calculi and is considered a technically challenging procedure with multiple steps for urological trainees to learn. To ensure good patient outcomes and decrease the number of adverse events, it is important to standardise training through the creation of a procedure-specific curriculum. The aim of this study is to develop, and content validate an assessment tool for PCNL taking into consideration the procedure specific risks.

Method: An observational, multi-institutional prospective study applying healthcare failure mode and effect analysis (HFMEA) to the procedural steps of PCNL to identify potential risks. Development of the assessment tool followed the five steps of HFMEA; defining a topic, assembling a multidisciplinary team, systematically mapping the procedure, considering failure modes and effects to identify any areas of weakness and producing a final assessment tool containing interventions to reduce risk. The tool was content validated and revised throughout the entire design process via multi-institutional, multi-disciplinary discussion.

Results: The PCNL assessment tool was developed, containing 26 processes and 62 sub-processes. Application of HFMEA identified 101 failure modes and 24 modes with a hazard score ≥ 8; measures were implemented to minimise the occurrence and impact of these.

Conclusion: The development and validation of an intraoperative PCNL assessment tool means it can now be used in conjunction with other modules such as e-learning and non-technical surgical skills in a complete PCNL curriculum for urological trainees. The end goal being the development of accomplished surgeons competent in PCNL, a keystone in the delivery of gold-standard healthcare. In the future, this assessment tool can be utilised to assess the learning curve of the procedure.

Take-home message: The PCNL assessment tool based on HFMEA scoring identified key stages of the procedure and can aid objective assessment in urological training.

3DD15 (610)
Are there still barriers for residents in putting externally acquired surgical skills into practice?

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Background: For decades teaching surgery happened "in-service", conducted by local surgeons. Skills learned elsewhere often met with barriers: authority of the chief surgeon, local habits and protocols. Over time, surgical education has changed and we aim to see whether barriers still exist for surgical residents.
Method: During two consecutive years residents attending an internationally accredited 4-day course at a central European location on osteosynthesis took a pre-course and two post-course knowledge tests. The delayed post-course test included a questionnaire related to possible barriers participants might have met when trying to merge knowledge and skills acquired during this course with local practice.
Results: Two groups of 60 PGY1 or PGY2 surgical (60%) and orthopedic (40%) residents each participated either in 2014 (group A) or 2015 (group B) in the same AO-Trauma Basic Principles of Fracture Management course held in the Netherlands. Pre-course assessment response rate was 94-97%. First post-course (voluntary) assessment response rates (within one week) were 58% and 72%; the delayed (after 5 months) post-course assessment 38% (group A) and 72% (group B); on average 56%. In group A, 45% and in B 50% were not able to implement course knowledge or skills because of a lack of patients, mainly due to a rotation-scheme excluding trauma management in that period. Dominance or resistance of a chief surgeon, hospital management, or existing protocols were never reported as factors preventing implementation of newly acquired knowledge.
Discussion: Authority and fixed protocols no longer seem barriers for surgical residents to apply externally acquired knowledge. Lack of suitable patients within 5 months after attending an osteosynthesis course, instead, is the barrier to apply new knowledge. Apparently, current, prefixed, clinical rotation schemes do not align well with (externally) provided educational programs.
Conclusion: Clinical rotation schemes for surgical residents should be better timed or be flexible to be adjusted to (externally) provided educational programs, or vice versa, to allow for timely application of newly acquired skills to retain what was learned.

3DD16 (2673)
The Neural Implementation of Surgical Expertise within the Mirror-Neuron System: An fMRI Study

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Presenter: Ide Heyligers, School of Health Professions Education, Maastricht University, Maastricht, Netherlands

Background: Motor expertise is an important aspect of high-level performance in professional tasks such as surgery. While recently it has been shown that brain activation as measured by functional magnetic resonance imaging (fMRI) within the mirror-neuron system (MNS) is modulated by expertise in sports and music, little is known about the neural underpinnings of professional, e.g., surgical expertise. Here, we investigated whether and (if yes) how surgical expertise is implemented in the MNS in medical professionals across three levels of surgical qualification. In order to answer the more specific research question, namely whether the neural implementation of motor expertise develops in a linear or non-linear fashion, the study compares not only brain activation within the MNS related to action observation of novices and experts, but also intermediates.
Summary of Work: Ten novices (medical students), ten intermediates (residents in orthopedic surgery) and ten experts (orthopedic surgeons) watched 60 5-s video clips of daily-life activities and surgical procedures each while their brain activation was measured using a 3-T fMRI scanner. An established localization procedure was followed to functionally define the MNS for each participant individually. A 2 (video type: daily-life activities, surgical procedures) x 3 (expertise level: novice, intermediate, expert) ANOVA yielded a non-significant interaction.
Summary of Results: However, post-hoc comparisons showed that intermediates displayed marginally significantly lower brain activation in response to surgery-related videos within the MNS than novices. No other significance differences were found.
Discussion & Conclusion: The results suggest a non-linear relationship of expertise level and MNS-activation level in a domain-specific action-observation task.
Take-home Message: The relationship between expertise level and MNS-activation level in a domain-specific action-observation task seems to be non-lineair.

3EE: Posters: OSCE and Work Based Assessment

Location: Hall 4.1, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

3EE1 (2940)
Audio-feedback in the summative OSCE - technical realization and process implementation. First results of a pilot project at the University of Basel, Switzerland

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Background: During an OSCE, many observations of the candidates are gathered, representing valuable information for the further education of the students. However, in summative exams these are usually not handed out to the students.
The aim of this project was to realize a technological solution for and to implement a process for examiners and candidates reaching from the recording to the retrieving of feedbacks regarding the before mentioned observations.
Method: Presentation and strength and weakness analysis of: the technological solution from recording to retrieving; the integration of the recordings as a task for the examiner.
Since 2017 examiners were supposed to give an immediate audiotaped feedback regarding the performance of the candidate right after the station, during a two minutes candidates rotation time. For this purpose an audiotape function was implemented into the electronic checklist of the Basel developed iPad based program iOSCE. The examiners were instructed to the new tool only during the regular briefing.
After the OSCE, the candidates had the option to play back their personal feedback on an internet platform via an emailed link and their university acess data.
Examiners and candidates were asked to evaluate the technical aspects and quality of the process by a questionnaire.
Results: The audio feedback function was used in 3 OSCEs with a total of 200 examiners and 481 candidates. A total of 1469 audiotapes were recorded, which is 42.7% of the cases. The recordings had an increase from 34% in the first to 50% in the third exam. Some of the examiners recorded a feedback for almost every student, some expressed a lack of time to do so, a few would have preferred a written format or did not record feedbacks due to other concerns.

82% of the candidates played back their audio data, the technical procedure was considered flawless.
Conclusion: The 3 exam cycles did not encounter any technical problems as confirmed by the organizers, the examiners and the candidates. The tested technology proved to be reliable. For all user (organizers, examiners and candidates) the tool was easy, intuitive and effective to use.

3EE2 (1496)
A Qualitative Study Exploring Student Perceptions of Corralling before Objective Structured Clinical Examinations

Authors
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Presenter: Louise Cox Thomsen, University of Dundee, UK

Background: Universities across the world use OSCEs as a method of assessing clinical competence in medical students. OSCEs are time-consuming assessments and not all students can be assessed simultaneously, allowing for potential collusion between different cohorts of students. Security measures, like corralling, have been designed to prevent this. Some studies have investigated the impact of collusion on grades, but few the frequency of collusion and its impact on professional development.
Method: An explorative case study was done to investigate student perceptions of corralling and the impact collusion has on exam performance and professional development. The data was collected through semi-structured interviews of students who had been both corralled and not.
Results: The results revealed varying opinions of corralling ranging from appreciated to psychological torture. It was highlighted that corralling is stressful and unpleasant but ensures a level playing field. Collusion was perceived to be common and unprofessional, but shouldn't influence future behaviour. Despite it being perceived as unprofessional behaviour, the reasons behind it weren't regarded as such, with camaraderie and peace of mind being the main influencers.
Discussion: Students recognized that corralling was fair, and without it, some students were at a disadvantage. Despite this, the stress and anxiety was indicated to be severe enough to impact performance in the examination. Therefore, students proposed bringing back corralling more 'pleasantly'. There was a clear indication that collusion is common, but no clear answer as to whether it impacts grades positively or negatively. Most students considered collusion unprofessional, but did not think it promotes future unprofessionalism. The study emphasised areas for future research, and highlighted that a change in practice at Dundee Medical School, who do not corral their students, should be considered.
Conclusion: The corralling process is stressful and anxiety provoking and can affect performance negatively.
It is believed that sharing information before OSCEs is widespread, but it is not clear as to whether it impacts performance positively or negatively. Collusion is regarded

as unprofessional, but it is not believed by students to impact future professionalism.

3EE3 (1122)
Comparison of OSCE Checklist Items, Global Rating and Entrustable Scale during OSCE Assessments of the Pharmaceutical Profession

Authors
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Presenter: Chih-Ming Hsu, Chiayi Chang Gung Memorial Hospital, Taiwan

Background: Objective structured clinical examinations (OSCEs) are highly reliable and valid tools for assessing clinical skills. Entrustable professional activities (EPAs) are now used in supervisor-student relationships to evaluate how trustable a clinical event is for the particular student-to-practice transition. Scenario-based simulation and workplace-based simulation are currently high priority areas in pharmaceutical education. This study analysed OSCE scores to explore the relationships among the OSCE checklist items, global rating, and entrustable scale in pharmaceutical education.
Method: Fifteen pharmaceutical PGYs undertook the OSCE (n=84 stations) during 2016 to 2017. The exam comprised four major types of themes, and each theme includes four to six stations. The four major themes are: 1) patient evaluation and prescription; 2) patient education; 3) medication admission skills; and 4) responses to an abnormal event. Pearson's Correlation and regression were used to examine associations between OSCE checklist items, global rating, and entrustable scale .
Results: The following correlations among the three assessments (checklist / global rating /entrustable scale) were found: patient evaluation and prescription (checklist-global rating r=.491*/ checklist-entrustable scale r=.509*/global rating- entrustable scale r=.707**), patient education (r=.850**/.743**/.866**), medication admission skills (r=.920**/.864**/.961**), and response to an abnormal event (r=.725**/.740**/.904**).There were significant in the 4 types of questions.
Discussion: Our study suggests that the entrustable scale performs the same function as global ratings. In comparison with the pass criteria of the global rating, the pass criteria of entrustable scale can more fully reflect the trainees' performance and the teachers' expectations. The entrustable scale extends the function of global rating scores, comprehensively assessing examinees' entrustable competencies. It appears that examiners do not make assessments purely on test questions; they also pay attention professional competencies, attitudes, and other aspects. The entrustable scale provides clearer descriptions about the expected clinical performance, enabling examiners to focus on core competencies and clinical performance.
Conclusion: Entrustable scale are more suitable for pharmaceutical examinees in OSCE. Future research should examine its applicability for other healthcare professions.

3EE4 (2619)
Co-designing a smoking cessation station within a clinical examination with adolescent smokers

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Presenter: Ioannis Peppas, Whittington Health, London, UK

Background: Translational science relies on the dynamic interaction between researchers, clinicians, policy makers and patients to facilitate innovation that can improve the health of the population. The aim of medical education as translational science is to train doctors that can respond to the needs of their patients and tailor evidence-based methods to address crucial problems in health outcomes.It is well established that lifestyle factors such as smoking account for a significant proportion of premature deaths worldwide. Supporting patients to change their health-related behaviour, nonetheless, can be a challenging task for healthcare professionals. An optimal opportunity for intervention is found during adolescence, a period of intense neuropsychological plasticity that greatly shapes adult health patterns.
Method: Medical educators and adolescent smokers were brought together in a workshop to co-produce a smoking cessation station for the objective structured clinical examination (OSCE) that assessed the ability of medical students to practice motivational interviewing.Following ethical approval,the OSCE station was included in the summative assessment of 364 students in their penultimate at UCL medical school.12 examiners and six adolescent actors were recruited for this purpose.The students were fully informed about the study and given the opportunity to opt-out (none did).
Results: Most students (85%) were successful in building rapport with adolescents and in employing motivational interviewing techniques. However, only 181 (50%) students managed to gather sufficient information about the adolescent's personal circumstances.Qualitative data analysis showed that 86 (24%) students did not take a detailed smoking history and 68 (19%) did not enquire about associated health-related behaviours.In addition, 104 (29%) students failed to acknowledge precipitating factors associated with the adolescent's smoking habit. Active listening and a non-judgemental approach are of utmost importance in every patient consultation.To empower adolescents to modify their lifestyle choices, medical students must be equipped with specific communication skills in order to adaptively respond to how young people perceive risk, how their perceptions are influenced by their psychosocial circumstances and how they ultimately act upon lifestyle advice.
Conclusion: Medical education research must incorporate indispensable feedback loops between all stakeholders in

order to advance training and effectively change health outcomes at the population level.

3EE5 (123)
Utilize group OSCE to instruct and evaluate clinical skills and medical record writing in the fourth year medical students

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Presenter: Ching-Chung Lin, MacKay Memorial Hospital, Taipei, Taiwan

Background: Clinical skills and medical record writing are core competencies before internship, but it is difficult for all students to possess these abilities before clinical training. If these two subjects can be seamlessly integrated, it may minimize the fourth year students' academic stress.

Method: We utilized group objective structured clinical examination (GOSCE) to evaluate students' abilities vis-à-vis history taking, physical examination, and medical record writing. We also created a checklist for medical record writing and analyzed their competence. A questionnaire was employed to evaluate their satisfaction with the curriculum.

Results: Altogether 47 students, two teachers, and two standardized patients participated in the group OSCE. The average history taking score was 69(%), but medical record writing was only (53%). The lowest scores were for present illness (37%) and clinical reasoning (65%). The average physical examination score was (89%), and its record writing was (97%).

The fourth year medical students can learn history taking and physical examination during class, and we provided immediate feedback on GOSCE, allowing everyone to practice medical record writing. We evaluated and trained these students and intend to repeat this practice.

The questionnaire results indicated significant satisfaction towards standardized patient professions (4.7/5), class content (4.4/5), teamwork improvement (4.2/5), but not GOSCE grouping methods (3.9/5). It is important to integrate clinical skills training and medical record writing in group OSCE. We can utilize them to create simulations to train medical students repeatedly.

Conclusion: The students considered medical record writing and history taking more difficult than visiting; present illness and clinical reasoning scored the least. Group OSCE may be an excellent instrument to provide clinical skills and medical record writing capabilities.

3EE6 (2945)
A Method to Assess the Scoring Quality of The OSCE Examiners

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Presenter: Chuhsien Wang, Changhua Christian Hospital, Changhua, Taiwan

Background: The correct scoring of OSCE examiners is pivotal for the high-stake OSCE. How can we assure and monitor the scoring quality of our OSCE examiner? In 2015, we developed a method to monitor the scoring quality for our OSCE examiners.

Method: Since January 2016, we started to assess the OSCE examiners' scoring quality In Chang Christian Hospital (CCH). We assessed the scoring quality of the OSCE examiners among PGY OSCEs and UGY OSCEs. After completion of a PGY or UGY OSCE, we would choose which examiners to be monitored and assessed. If one OSCE examiner was the examiner to be assessed for scoring quality, we would randomly choose two candidates' video clips that the OSCE examiner scored. The station developer would rescore the video clips of two candidates. We regarded the marked checklist by the station developer as correct answer for the performance of the two candidates at that station. Then we compared the standard answer with the marked checklist by OSCE examiner to be assessed.

We set up two scoring system and arbitrary judgement rules:

(1) OSCE Examiners Scoring Quality Score: focus on scoring accuracy only

(2) OSCE Examiners Performance Score: focus on scoring accuracy and also on abiding by the OSCE general rules Since 2016, we have monitored and assessed up to 100 OSCE examiners.

Results: According to [the OSCE Examiner Performance Score]: 30 examiners (30%) as good to excellent; 52 examiners (52%) as average; 18 examiners (18%) as fair to poor. According to [the OSCE examiners scoring accuracy rate]: 32 examiners (32%) as good to excellent; 52 examiners (52%) as average;16 examiners (16%) as fair to poor.

Among our 100 monitored OSCE examiners, 30 examiners were judged as "Dove" and two examiner was judged as "Hawk".

Conclusion: Our method could assess the OSCE examiners' scoring quality and performance status, and furthermore the "hawks" and "doves" OSCE examiners could be picked out easily.

Take-home message: We designed a method to assess the scoring quality of OSCE examiners.

3EE7 (796)

Concurrences and Differences between Faculty Staff and Standardized Patients in the Assessment of Medical Students in the Post-Clinical Clerkship Objective Structured Clinical Examination

Authors

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Presenter: Ayako Makuuchi, Osaka City University Graduate School of Medicine, Osaka, Japan

Background: Variations in assessments of medical students by faculty staff and standardized patients (SPs) have not been clarified by previous studies in Japan. We examined the concurrences and differences between and among these evaluators for medical students sitting the Post-Clinical Clerkship Objective Structured Clinical Examination (Post-CC OSCE).
Method: The participants were 94 sixth-year Osaka City University Medical School students who participated in the Post-CC OSCE. They were each examined by three faculty staff and one or two SPs using a global assessment and six classified assessments. We analysed the global and classified assessment scores for all 94 students, the classified assessment scores for the students for whom differences exceeding 2 points between the global assessment scores by the faculty staff and those by the SPs were not found, and those for the students for whom such differences were found using the Mann-Whitney U test.
Results: No significant differences were found regarding the global and classified assessment scores between the faculty staff and SPs. However, for six students, a difference exceeding 2 points was found between the global assessments by the faculty staff and those by the SPs. Five of these six students received ratings from faculty staff that were more than 2 points higher than those given by the SPs. For these five students, five out of six classified assessment scores significantly differed between the faculty staff and the SPs.
Conclusion: No significant differences were found between the assessment scores by the faculty staff and those by the SPs for all 94 students. However, the SPs might have provided multilateral assessments from different standpoints than the faculty staff for a minority of the participating students. Further investigations are warranted to clarify the diversity of the faculty staff and the SPs.

3EE8 (1063)

Models as assessors at OSCE?

Authors

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Presenter: Matic Mihevc, Medical Faculty University of Maribor, Slovenia

Background: Objective Structured Clinical Examinations (OSCEs) have become a commonly used method for assessing clinical skills. Performance is evaluated using checklists, either alone or in combination with global rating scales (GRSs). The patient-doctor (model-student) interaction is vital for successful examination. Why do models only have a passive role in the examination?
Method: The study was carried out during OSCE in November 2017. Fifty-five 3rd year medical students, 10 assessors and 13 models from 4th to 6th year were included. Examination of the cardiovascular system was evaluated with checklist and GRSs simultaneously. GRSs were divided into four categories, graded on a numerical scale from 5 to 10.
Results: The difference in average global score between models and assessors was not significant (p=0.748). Models achieved better correlation between global and checklist score than assessors (r=0.607, p<0.001 vs. r=0.440, p=0.001). Models were prone to leniency effect after 10 students (p=0.042 vs. p=0.540). Both were prone to stringency effect when less than 3 students were assessed (p=0.005 vs. p=0.041).
The results showed that model's opinion should be taken into consideration when assessing OSCE. Their results correlated better with checklist scores compared to assessor's. Bias could be eliminated with prior simulated OSCE or video assessing with discussion of the most common mistakes, and lower number of assessed students per day.
Prior studies showed that models can grade reliably using OSCE checklists. In our study, it was proven that well-educated models can also provide a reliable and valid global score and should therefore be considered as scoring partners at OSCEs.
Conclusion: With the increasing use of OSCEs it is important to maintain and improve their quality. Model's global scores were shown to be a valuable contribution to the OSCE and could represent, in the right context, a gold standard for the evaluation of the model-student interaction.

3EE9 (189)

Objective Structured Assessment Of Technical Skills (OSATS) in Pathology For Medical Students: Design and Pilot Testing

Authors

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Presenter: Eduardo Alcaraz-Mateos, Department of Pathology, Morales Meseguer University Hospital, Murcia, Spain

Background: Objective Structured Assessment of Technical Skills (OSATS) is an examination for evaluating acquired medical skills and was firstly introduced in Toronto University in 1990. Despite the benefits of OSATS, there are no previous reported experiences in Pathology. The aim of this study was to design and test stations and their OSATS in two pathology procedures: gross dissection (GD) and fine needle aspiration (FNA).

Method: Training models in gross dissection (silicone handmade specimens) and fine needle aspiration skills (patented models WO2016185077 and WO2017109241), previously developed and tested by undergraduate students, were used. A 10-item 5-point Likert-like modified OSATS with a maximum score of 50 points, including not only technical skill tasks, but also other competences such as communication, clinical correlation, asepsis-antisepsis, patient safety, etc. was elaborated. Medical students (5) from 5 different universities and countries were scored by a practicing pathologist after individual workshops.

Results: Mean score of the students was 40.2 (range 35-43) for the GD training and 30.4 (range 23-43) for the FNA training. Average time for GD and FNA stations were 5'11 (range 4'06''-5'31'') and 10'47'' (range 8'03''-14'10''), respectively. Scalpel blade mounting, patient information, informed consent form filling out and compression after FNA procedure were the weakest points obtained.

Conclusion:

- Utilization of OSATS, one of the most widely used metrics for technical skills evaluation, is possible in Pathology (P-OSATS), making it feasible its adaptation to the new requirements in medical education, enhancing patient safety.

- Checklists provide trainees with structured formative feedback, although further studies are necessary to certify the improving learning curve of this methodology in simulation.

- P-OSATS, could represent a way to introduce pathologists´ tasks as stations of the Objective Structured Clinical Evaluation (OSCE) formats, expanding our visibility among medical students.

3EE10 (3341)

Simulation Based Testing in Taiwan Board Examination in Anesthesiology

Authors

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Background: In spite of conventional written and oral tests, simulation based testing (SBT) had now been incorporated into the board examination of Taiwan Society of Anesthesiology for several years. Here we report the process and preliminary results of SBT.

Method: A Medical Simulation Committee was set up by experts from accredited anesthesiologist training hospital. They involved in the process and development of SBT and testing.

1. Examination qualification: residences after 30 months training.
2. Designed structured scenario format.
3. Designed new scoring system, including performance checklist, global rating, non-technical skills. Each category and item were weighed according to the objectives of each scenario.
4. Enrolled raters, conducted train-the-rater workshop, set up, renewing and maintaining certification criteria.
5. Audit system for scenario and checklist validity and variability
6. Four simulation stations on each examination day
7. Scoring section: Determine the passing score after linear regression (borderline regression) of each scenario (sectional passing mark) and, keep at least 2 from 4 stations total score were above the passing mark

Results: The SBT was conducted 3 times per year since 2011. In the constructive stage, from 2011 to 2015, the SBT played the role of training and mock examination while the examinees were not familiar with the simulation. Since 2016, the Examinees must pass the SBT before becoming the written and oral testing.

For example, the pass rate ranged from 89%, 96%, 100% in 3 SBTs in 2017. According to the feedback questionnaire, most raters and participants found the SBT is reasonable for the board examination.

Conclusion: Medical simulation has taken a central role in the education and assessment. SBT should be performed by systematic approach related to the culture, requirements and resources including developing, scoring, and validating. The incorporation of SBT in the certification of anesthesiologists in Taiwan is a continuing process of evaluation and assessment. Further efforts are needed to improve newly checklist for SBT, training the raters, using mobile scoring system.

Take-home message: SBT could be one of several standardized tests to evaluate the preparedness of individuals for the practice of anesthesiology.

3EE11 (827)
Usability and feedback quality of Responso - a generic electronic platform for workplace-based assessments

Authors

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Presenter: Sabine Berger, Medical Faculty - University of Basel, Switzerland

Background: Workplace-based assessments (WPBA) are formative performance assessment tools implemented in postgraduate medical specialist-training in Switzerland in 2014 to improve feedback culture and optimize the attainment and quality of medical competencies of the trainees. The present paper-based format, however, has numerous limitations such as time consumption, low familiarity and guidance and very limited added value for progress evaluation.
Method: With Responso, we developed an easy-to-use electronic app for iOS, that not only addresses the above mentioned criticism, but provides structure and guidance for the execution with the help of operationalized custom-made checklists and synchronization of coach's and trainee's evaluation. It also allows archiving, retrieval, analysis and reporting of WPBA.
We investigated the usability of the app with an online questionnaire (Limesurvey®) and performed a prospective, cross-sectional randomized study in which supervising residents were compared on the basis of the direct observed clinical skills (DOCS) feedback scale concerning the quality of their feedback-giving with the paper- and app-based format after watching a standardized clinical video-scenario with a trainee.
Results: We present data of the overall good usability of the app. The feedback quality of the app had the same mean performance on the DOCS feedback scale compared to the paper-based format but with lower variance. Digital documentation and narrative feedback allow enhanced intra-individual follow-up and inter-individual comparison in mid- and long-term.
Conclusion: With Responso, we developed an easy-to-use app for WPBA and expect an improved applicability and acceptance in everyday clinical practice by a simplified assessment process, reduced administrative effort, and guidance on differentiated feedback.
Take-home message: The electronic app Responso could present a simplification for WPBA by reduced administrational effort and guidance on differentiated feedback.

3EE12 (283)
Placement Supervision Group Tool: add granularity to your trainer reports

Authors

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Presenter: Clare van Hamel, UKFPO, Bristol, UK

Background: Clinical supervisors are required to assess foundation doctors at the completion of each four month placement. Increasingly with shift work the contact between a trainee and their supervisor may be limited. The multisource feedback tool 'TAB' has been shown to be useful in identifying trainees needing additional support (1). However, supervisors indicated that colleagues were providing informal feedback about trainees but there was no consistent way to record any concerns raised.
Method: The Placement supervision group tool (PSG) was introduced into the UK Foundation Programme in 2012 allowing clinical supervisors to identify senior colleagues to provide feedback about a trainee. The tool is part of the e-portfolio options but is not mandated as core content. We explored utilisation of PSG for 2016/17 cohort and whether it had independently identified trainees needing support or just validated identified concerns. NES reviewed the PSG form completion for the cohort and compared which tools had identified concerns
Results: In total 6657 PSG forms had been completed, with 15 trainees having one or more area identified as being of major concern. 7 of these trainees also had at least one major concern raised within one, or more, of the following forms.
1. Educational supervisor report
2. Clinical supervisor report
3. TAB (Team Assessment of Behaviour)
However, 8 of the trainees with major concerns raised via PSG did not have major concerns raised via the other tools.
Discussion and Conclusion: The usage of the PSG tool has been variable across the UK we have demonstrated that it can independently identify trainees needing additional support. Encouragement of its wider use would help trainers to add granularity to the evidence they document in their reports. Use of the PSG should probably be encouraged for a greater number of trainees.
Conclusion: The PSG is a useful, independent tool in the identification of trainees needing additional support.
(1) *Team assessment of behaviour: a high stakes assessment with potential for poor implementation and impaired validity. Andrew Whitehouse, Laura Higginbotham, Kamal Nathavitharana, Baldev Singh and Andrew Hassell. Clinical Medicine 2015 Vol 15, No 1: 7–9*

3EE13 (346)
Medical students' and teachers' perceptions of the Mini-CEX in a paediatric rotation.

Authors
Tipaporn Thongmak
Mandy Moffat

Presenter: Tipaporn Thongmak, Hatyai Hospital, Songkhla, Thailand

Background: The Mini-CEX was implemented to assess the clinical performance of the 5th-year medical students in the paediatric rotation over the five years. The study aimed to determine how staff and students experienced its application and how its use can be optimised in the department.
Method: This was a qualitative study using individual interviews and focus groups to collect participants' experiences of forty-four staff and students. Paediatric staff, 6th-year students, and interns were invited to attend individual interviews. Fifth-year and 6th- year students were invited to take part in a focus group. The data was analysed by using the thematic analysis.
Results: Thirteen staff, two 6th-year students and seven interns participated in individual interviews. Nineteen 5th-year and five 6th-year students took part in three focus groups. All participants claimed to have a good understanding of why and how the Mini-CEX was applied to assess the students' clinical skills in the department. Staff and student participants felt that feedback given within the Mini-CEX helped to identify the learners' weaknesses and helped to improve subsequent clinical performance. Timing of the assessment and perceived differences in judgments between assessors were highlighted as negative aspects from some students. Participants (staff and students) suggested providing an induction session, ongoing staff training, a planned schedule of examination, and guidance on the outlines of the topic for improving the Mini-CEX.
Conclusion: Staff and students felt positive towards the use of the Mini-CEX in the department. The staff felt it was a suitable method for a formative assessment and that it has been successfully implemented in the paediatric department. However, several areas were identified to improve further the process within which the Mini-CEX is applied and to enhance feedback associated with the Mini-CEX.
Take-home messages:
- The Mini-CEX is a suitable method for assessing the students' clinical performance in a real-life setting.
- The feedback plays an important role to improve the students' performance in the assessment.
- The stakeholders' experience evaluation helps to improve the process and quality of the assessment method.

3EE14 (2594)
Impact of setting up check-items of mini-CEX to increase the specify of assessment

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Presenter: Yi-Chen Chen, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung City, Taiwan

Background: Mini-CEX is used to test learning effectiveness in the clinical environment. Differentconcepts of appraisal items between the appraisers and students will affect the test fairness. This study sets out the check-items of mini-CEX and discusses the effectiveness of learning.
Method: The original mini-CEX from ABIM version of the rating scale put forward was revised to add the details of each items for assessment. Take action video was created for rater training. The test is done during clinical practice by internship students of Department of Respiratory Therapy 4th grade. Content Validity Index value is 0.9; reliability test Cronbach alpha value is 0.8. The tests were done before and after teaching. The data was collected from July 13, 2013 until January 31, 2017. A total of 82 non check-items and 77 check-items were evaluated. Paired sample T test, one-way analysis of variance (ANOVA) and post-test (Scheffe) and other methods were used to analyze.
Results: The average was 3.31 before assessment and 5.56 after the test, and the difference was 2.45 between before and after testing which had statistical differences ($p < 0.001$). There were significant differences ($P < 0.001$, $p < 0.001$, $p < 0.001$, $p = 0.018$, $p < 0.001$, respectively) for the scores of face-care items such as medical consultations, medical examinations, physical exams, operative skills . Consultative health education and its check-items also have significant differences ($p < 0.001$).
Conclusion: The scores from assessment with check-items are higher then without check-items. Adding check-items to dimension of mini-CEX would help to increase the ability of identifying student`s real performance in clinical practice. Such change would also help students to know more about what they should focus in their learning.

3EE15 NOT PRESENTED

3EE16 (2382)
Using "Independence Ratios" to develop clinical competence under supervision

Authors
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Presenter: Karl-Heinz Merbold, University of Pretoria, South Africa

Background: Universities have a societal obligation to ensure that health professions graduates possess the necessary skill to render effective and safe treatment. Unfortunately the measurement of competence development remains largely undefined, especially at undergraduate level.

Summary of work: This study entails the design and implementation of a new workplace-based assessment system in the Module: Oro-facial Surgery, School of Dentistry, University of Pretoria. The system aims to develop independent clinical practice in undergraduate students under supervision. This study involves the assessment of 28280 tooth extractions completed by fourth and fifth year dental students (2014-2016). The system provided periodic task-level feedback to students on their ability to independently perform tooth extractions using "Independence ratios" (IR=extractions performed without assistance/total number of extractions) as key performance indicator. Level of difficulty (LOD) was controlled for using a customised index with the following interpretation scale: 2=more difficult than standard). Thirteen trained clinical supervisors performed the assessments under guidance of the primary researcher/assessor (gold standard). Students were exposed to virtually all supervisors throughout the year.

Summary of results: The 2014 BChD IV cohort (n=42) eventually achieved a mean IR of 85% (SD:6%) (Ranges: IR=73-95%; LODI=1.9-3.3; extraction count (EC)=57-232). The 2015 and 2016 BChD IV cohorts (n=51 and n=62), respectively achieved mean IRs of 85% (SD:5%) (Ranges: IR=71- 97%; LODI=1.8-3.1; EC=65-261) and 88% (SD:4%) (Ranges: IR=74-94%; LODI=1.6-3.9; EC=55-140). The 2014 BChD V cohort (n=58) eventually achieved a mean IR of 90% (SD:5%) (Ranges: IR=79-100%; LODI=2.2-4.4; EC=27-168). The 2015 and 2016 BChD V cohorts (n=37 and n=51), respectively achieved mean IRs of 92% (SD:4%) (Ranges: IR=78-98%; LODI=1.8-4.7; EC=65-219) and 94% (SD:3%) (Ranges: IR=86-100%; LODI=1.6-4.3; EC=65-150). Assessment differences between the supervisors and the gold standard were generally small and could mostly be explained by differences in operational circumstances.

Discussion & Conclusions: Gradients of increased independence (under supervision) could be illustrated over time. IR measurement was sensitive enough to distinguish between low and high performing students.

Take-home Messages: IR appears to be a useful performance indicator of clinical competence in a busy undergraduate training environment. These methods may be transferrable to other specific skills that are frequently assessed.

3FF: Posters: Simulation 1, including Standardised Patients

Location: Hall 4.1, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

3FF1 (2225)
Improving high fidelity simulation experience and performance by using low cost augmented reality technology

Authors
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Presenter: Edgar Israel Herrera Bastida, Facultad de Ciencias de la Salud - Universidad Anáhuac México, Mexico

Background: Augmented reality (AR) is a live direct or indirect view of a physical, real-world environment whose elements are "augmented" by computer-generated perceptual information across multiple sensory modalities, including visual and auditory, its primary value is that it brings components of the digital world into a person's perception of the real world.

Method/Results: High fidelity simulation for large groups of participants is difficult and unfortunately limited to short periods of time, in order to find alternatives to improve participants experience and performance during high fidelity scenarios, AR clinical scenarios were developed so students can access from their smartphones. We compare the performance and satisfaction survey over high-fidelity sim scenario with 125 medical students who use the AR tool (n:125) vs 137 medical students who don't use the AR tool (n:125). A free augmented reality development platform was used to develop clinical scenarios, the students had to scan a QR code in order to download the instructions and a PDF document with the QR codes required and the instructions to place them in a sim scenario they can build at their house or any place. They use their smartphones to access videos, sounds, quizzes, 360 views and other information when they scan QR codes over their "homemade scenario", so they can prepare the high-fidelity scenarios before the lesson. Students have to run this scenarios previous to sim practice, and after the sim practice they filled out a satisfaction survey of the sim experience. A logistic regression analysis was performed and a highly significant relationship between the better performance scores at sim scenarios using previous AR VS not using AR (p:0.01).

Conclusion: The satisfaction surveys show that AR exposed students find this methodology more exciting and It helped to understand better the scenarios before facing them. AR requires time for its programming and preparation of the participants, however it is a worthy alternative to help improve the performance and user experience in high fidelity simulation. AR is an inexpensive complementary and exciting tool to improve high-fidelity simulation scenarios experience with undergraduate students.

3FF2 (1297)
The Effectiveness of Simulation-Based Training in Management of Acute Asthmatic Attack for Internal Medicine Residents: 1-Year Follow-Up

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Presenter: Tirachat Sewatanon, Maharat Nakhonratchasima Hospital, Nakhonratchasima, Thailand

Background: Acute asthmatic attack is a common life-threatening problem. However, many residents under training program provide inaccuracy of assessment, treatment and discharge planning. Simulation-based training may increase the quality of training in managing emergency condition without risks and provide the opportunity for immediate feedback. The aim was to determine the effectiveness of simulation-based training for improvement and long-term retention of knowledge and skills in managing acute asthmatic attack compare with clinical training alone.

Method: Ten first-year residents in internal medicine participated in one-day simulation-based training in the management of acute asthmatic attack. The prospective evaluation was conducted by performance observation in the simulated situation. The first-year residents were evaluated with the identical simulated scenario before simulation-based training, immediately after the training and three months later. They were also re-evaluated with the different scenario of acute asthmatic attack in nine months later. Additionally, this evaluation was compared with fifteen third-year residents who had not been participated simulation-based training in the management of acute asthmatic attack

Results: The findings showed the median of pre-test, immediate post-test, 3-month post-test, and 1-year post-test scores were 17.31, 49.04, 54.81 and 63.75, respectively. The statistically significant improvement in performance scores was observed immediately after training compared with 1-year post-training ($p<0.05$) and the residents trained with simulation tended to have higher performance scores than the third-year medical residents at 1-year follow-up (63.75 vs 56.25, $p=0.066$)

Conclusion: Simulation-based training improves knowledge and clinical skills of the residents in managing the acute asthmatic attack. Furthermore, the potential effects of this training can maintain residents' performances in the long period of term. Their competency is equivalent to third-year residents, therefore simulation-based training is systematic learning method which accelerates residents to achieve their performance and assists them to transfer knowledge into practice

Take-home message: Simulation-based training in the management of acute asthmatic attack is the effective method to enhance internal medicine residents' knowledge and skills following one-year training added on the clinical training program.

3FF3 (742)
Foundation Year 1 Simulation Programme at Northwick Park: A 4 year review

Authors
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Presenter: Jasleen Arora, London North West Healthcare (LNWH) Trust, London, UK

Background: 211 doctors attended the programme between 2011 and 2015. Each was given an emergency scenario followed by a debrief.
Method: Learners completed pre-course (examining previous experience and course expectations) and post-course questionnaires (focused on perceived learning and impact on future practice) consisting of numerical scale and 'free-text' questions. 211 pre- and 209 post-course questionnaires were reviewed. Qualitative data were analysed using thematic analysis by two independent investigators.
Results: Pre-course expectation themes included improvement in overall confidence and competence in managing emergencies, to gain practical advice on crisis management, clinical prioritisation, and to improve knowledge, communication skills and confidence in clinical decision making.
Following the course, learners felt they had developed a more systematic approach to patient management and a perceived increase in knowledge of medical emergencies. The SBAR communication model was highly valued, particularly in "stressful scenarios". Knowing when to escalate and involve the "most appropriate" senior clinician was also appreciated. 75% of doctors rated the course as "very good", 23% "good" and 2% as "adequate". The majority felt that it enhanced clinical practice, in terms of patient care (99%) and safety (98%). 95% felt that the course improved their communication skills and enhanced "multidisciplinary working".
97% felt that the faculty's style of facilitating was "very good" or "good", but suggested standardising feedback methods. A faculty demonstration at the beginning of the day was also suggested, whilst scenarios could be made more "realistic" by using hospital-specific charts/guidelines.
Conclusion: High-fidelity simulation facilitates learning when certain features are incorporated (Issenberg, 2005). Our study is in keeping with this and includes many of the key conditions (feedback, clinical variance, controlled environment, individualised learning). The same BEME systematic review also calls for better research and scholarship in the study of medical simulation, and our retrospective evaluation adds weight in that its strength lies in the relatively large number of learners, studied over a 4-year period, longer than many other studies in this field.

3FF4 (2265)
Can paper-based simulation substitute resource intensive high-fidelity teaching?

Authors
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Presenter: Kathryn Biddle, Countess of Chester Hospital, Chester, UK

Background: The prospect of starting on-calls remains a source of anxiety for many final year medical students. Simulated sessions have been developed to increase preparedness and improve confidence surrounding on-call duties. Many of these programmes involve high-cost, resource-rich simulation mannequins. Whilst the use of high-fidelity simulation carries many advantages, its cost precludes its utilisation for many students. Paper-based simulation sessions have been developed as a cheaper alternative and studies have found them to be useful despite lacking the element of stress surrounding patient contact and assessment. Our study investigates whether low-cost, paper-based simulation represents an effective method to prepare medical students for on-call duties.
Method: All final year medical students undertaking a ward shadow rotation at the Countess of Chester Hospital from September 2017 are being invited to participate in the programme. Each week, two-hour sessions are facilitated by two doctors with two students participating simultaneously. The sessions start with a briefing and a mock handover of clinical tasks. Students subsequently undergo an hour "on-call" when they are bleeped about unwell patients in addition to routine jobs. All cases are paper-based and involve the interpretation of mock notes including observation charts, blood results and imaging studies. Participants are instructed to document a diagnosis and management plan and discuss this with a "nurse" (a facilitator). Students also have the opportunity to bleep a senior for advice. Following the hour on-call, students handover remaining tasks and are debriefed. Students complete questionnaires including a 5 point Likert scale assessment related to pre- and post- session confidence in six areas: the use of bleeps, the management of acutely unwell patients, clinical prescribing, the use of guidelines, handover with colleagues and prioritisation skills. Students also have the opportunity to give free text feedback.
Analysis of pre- and post-session confidence ratings will be presented at the conference in addition to student feedback.
Our results will demonstrate whether paper-based simulation provides an effective alternative to high-fidelity simulated on-call sessions.
Conclusion: Paper-based simulated sessions represent a low-cost form of teaching to prepare medical students for starting clinical on-call duties.

3FF5 (2143)
Simulation-based education for undergraduates: The effect of task complexity on learning

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Background: Simulated Clinical Immersion (SCI), which simulates real-life situations in a realistic clinical environment, seems safe and appropriate to gradually expose novices to complex problems. When learning complex tasks, novices can engage in strategies to prevent cognitive overload and thus continue to gain some learning benefits. However, the resulting learning outcomes may differ from the initial learning goals. Designing adapted SCI learning tasks for undergraduate students requires a thorough understanding of the effect of task complexity on learning.
Method: The purpose of this mixed-method study was to understand the effect of task complexity on undergraduate pharmacy students' cognitive load, performance, and perception of learning in SCI. One hundred-sixty-seven second-year pharmacy students experienced one simple and one complex learning task in SCI. Participants' cognitive load was measured after each task and debriefing. Task performance and time-on-task were also assessed. As part of a sequential explanatory design, semi-structured interviews were conducted with students showing maximal variations in intrinsic cognitive load to understand their perception of learning when dealing with complexity.
Results: The complex task generated significantly higher cognitive load than the simpler task, although performance was high for both tasks. Time-on-task was significantly higher for the complex task. Qualitative results revealed that a lack of clinical experience, an unfamiliar environment, and the educational setting of SCI seemed to affect many steps in the clinical reasoning process, from data interpretation to decision-making through tasks prioritization. Although simpler tasks helped students gain more self-confidence, complex tasks further encouraged reflective practice during the debriefings.
Conclusion: Although complex tasks in SCI were more cognitively demanding and took longer to execute, students indicated that they learned more from them. Complex tasks constitute an additional challenge in terms of clinical reasoning, thus providing a more valuable learning experience from students' perspective.

3FF6 (3628)
The use of simulation techniques in public health care procurement procedures

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Background: In current medical education medical doctors need to be trained in a wide range of skills. Participation in working groups for the evaluation and selection of health care goods and services for the health care provider they work for is one of them. Simulation techniques of competition processes can be used for medical doctors' training and evaluation purposes.
Method: A virtual training scenario simulating the public procurement process to purchase coronary artery stents was created. The simulation was based on virtual patient technology. Trainees followed a step-by-step workflow of a competition and had to choose from a network of 122 decisions that included both correct and incorrect ones. The scenario was based on the European Commission guidelines and directives and includes the most common mistakes in the procurement procedures.
A team of experts was asked to evaluate the tool's usability and efficacy. Trainees who run the scenario were able to handle a bidding process better than those who attended a traditional education seminar. Additionally, the interactivity and the personalized learning increased the trainees' engagement.
Results: The results from the use of the virtual training platform were very positive and encouraging. Experiencing the consequences of the wrong choices through the digitization of the procurement process seemed to be an effective way of learning. Moreover, most trainees did not encounter any difficulty in using the app and mentioned they enjoyed their learning experience.
Conclusion: Nowadays, medical professionals need to be trained in a wide range of clinical and non-clinical skills. The use of simulation techniques for the training of medical doctors in public procurement procedures seems to be an effective tool that can be integrated into lifelong learning programs.
Take-home message: The use of simulation techniques seems to enhance the training in public procurement, since trainees seem to better understand the procurement processes this way, while learning through others' mistakes is safer than learning through their own mistakes.

3FF7 (3446)

Exploring how to provide feedback for learning in virtual reality simulation for clinical decision-making

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Background: There has been an increased focus on the development of immersive virtual reality (VR) learning experiences, including VR simulations emphasizing clinical decision-making and crisis resource management. Recognizing the importance of feedback in face-to-face simulation education, this study aimed to understand the learner perspective on feedback for a VR-enabled simulation experience using a design-oriented approach.
Method: Fifteen participants, spanning different stages of medical school and foundation years training, took part in a VR-enabled emergency department simulation experience, developed by Oxford Medical Simulation. The simulation experience included prototyped "on-screen" pre-briefing, "on-screen" guided verbal self-reflection, "on-screen" action-oriented objective feedback based on decisions made in the VR simulator, and a score. All participants were invited to go through the simulation experience twice. Structured observations, 7-point Likert-scale ratings, and interviews were used to gather rich descriptions of the VR simulation experience focused on feedback components.
Results: Thematic analysis of interviews identified that participants, regardless of experience level, adapted the simulation to suit personal learning needs, including shifting focus between repeats of the simulation. Having a mixture of post-simulator self-reflection, action-oriented objective feedback, and a score was synergistic, providing multiple ways for the learner to evaluate what happened in the simulator and the flexibility to adapt simulation sessions to personal goals. Likert-scale ratings on the post-VR simulator components were generally positive.
The study found that the prototyped VR simulation experience as a whole, including mixed device delivery, has viability and was well-received. The self-reflection and feedback components in combination are able to help foster deliberate practice. However, the VR simulation can still be fine-tuned to differentiate between the needs of learners with different levels of experience with medical education practices.
Conclusion: Continued re-design of VR-enabled simulation should aim to fit the needs of the medical education community, which has established general best practices and features for simulation that inform learner expectations. Learners are capable of adapting feedback in different forms to suit the needs of their experience level; however, additional supports may be needed for learners who have not been fully initiated into all medical education practices.

3FF8 (2639)

Level of Acceptance of De La Salle Health Sciences Institute- College of Medicine Faculty in Simulation as a Teaching Learning Strategy

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Background: Simulation in healthcare in the Philippines is becoming a popular method as a new teaching learning activity. In the DLSHSI, the College Medicine has been using simulation for our Physical Diagnosis subject for second year medical students In the physical diagnosis activity basically the faculty will demonstrate the skills to be followed by return demonstration of a student. This has lead to low quality of learning and retention of skills performed by the students. The introduction of simulation as an additional teaching learning tool to be use by the faculty created resistance and conflicting responses. We have invited some faculty interested in doing simulation for workshop and eventually they themselves will conduct simulation session with our students.
Aside from doing simulation sessions for the students it is our aim to know the level of acceptance of faculty members that simulation is not just an alternative tool but an additional tool as a teaching learning strategy for first year medical students.
Method: After each skills laboratory/ simulation activity the faculty were asked to answer the skills effectiveness assessment tool and to make comment on how we can improve the activity.
Results: There were 31 respondents from the faculty. Majority of them agreed that conducting a simulation activity is an important, high yield, not an alternative but an additional tool for teaching learning activity of the students.
Conclusion: Most of the faculty participated in the activity realized that conducting simulation as early as in their first year in medical school will help the students understand the concepts and will have an actually "feel" of the future situation. It will also allows students to clinically correlate the knowledge they learn in the classroom and be more confident in doing procedures they learned during the activity.
Take-home messages: We recommend to train and teach more faculty in conducting simulation.
Provide more simulation sessions as this will contribute to their clinical competence and this will also prepare them to be more confident in seeing real patients during their clinical practice.

3FF9 (3375)
Can Simulation Do It All? A Critical Care Simulation Model For Senior Medical Students to Instruct Pathophysiology, Clinical Management and Teamwork/Communication Skills

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Background: Commonly, simulation experiences during medical school do not effectively provide students the autonomy, realism or feedback needed to optimize their learning. In addition, simulation sessions rarely integrate instruction of numerous EPAs (entrustable professional activities) and competencies used in clinical practice.
Method: Informed by cognitive theory, instructional design theory and nontechnical skills models, simulation protocols were developed to allow formative assessment of teamwork/communication skills (T/C), clinical management (CM), and pathophysiology (PP). Developed content addressed 4 out of 8 competency domains and 7 out of 13 EPAs.
Senior medical students on their critical care rotation participated in two video-recorded simulation cases. Sessions occurred within the critical care unit to improve realism and involved one student and two nurses to enhance student autonomy and interprofessional interactions. Each case was followed by video self-review with written reflection and structured faculty debrief. Debrief was guided by written reflection, structured faculty observations and detailed learning points. Simulation protocols defined: a) critical actions; b) essential behavior and communication; c) "adaptive" simulator responses that change complexity depending on student actions; and d) "adaptive" learning points ranging from basic to challenging. These "adaptive" elements scaffold learning and keep students in their zone of proximal development (ZPD).
Results: Based on post-simulation surveys (n = 31), T/C and CM were the "most important aspects of this exercise" with PP having the lowest importance (p<0.05). Additionally, 82-95% of participants reported the "right amount" of instruction involving T/C, CM, and PP and 78-95% rated instruction of these domains as "high quality". Lastly, 82% of participants felt the reflective self-review was "very" or "extremely" important for their learning. This project combines: i) cognitive and nontechnical skills principles, ii) protocols and learning points that are structured and adaptive to learners' ability, iii) reflective self-review and iv) structured debrief. By integrating these elements, a simulation model has been developed to instruct multiple domains and efficiently address numerous EPAs.

Conclusion: With thoughtful planning, a critical care simulation model can be developed that effectively instructs senior medical students on pathophysiology, clinical management and teamwork/communication skills in an integrated fashion.

3FF10 (3737)
A Microsurgical Simulation Course for Nurses

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Background: Microsurgical procedures can take considerable time and fatigue can set in. The importance of a good assistant and scrub nurse can make the surgery smoother and faster.
Method: Three microsurgical simulation courses were held for nurses in our institution. Each course was structured in the same manner, consisting of two lectures and two practical sessions. The lectures contained information about how to use the surgical microscope, as well as handling microsurgical instruments and sutures. The practical sessions allowed the nurses to practice microsurgical suturing on a glove and then on a non-living femoral artery of a chicken thigh. The course was evaluated with a post-course evaluation survey.
Results: A total of 30 operating theatre nurses attended the courses. The response rate was 96.7%. All the respondents felt that their knowledge of microsurgical instruments, sutures, microscope set up as well as microsurgery skills had improved after the course. More than 80% felt they could better predict what the surgeon would ask for during a microsurgical case and that they could handle instruments and sutures better after the course.
Conclusion: Our results show an improvement in the understanding of nurses in assisting microsurgical cases. With this understanding, they also report an improvement in their confidence in assisting microsurgical cases and an improvement in tolerance of the long operative requirements of certain microsurgical cases.
In our experience, a basic microsurgery course for nurses can play a significant role in developing a well-trained microsurgical scrub nurse.

3FF11 (2098)
Simulated ward rounds: A useful tool in building medical students' confidence

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Background: Medical students in the U.K. receive very little formal teaching focused on ward rounds. This can lead to medical students feeling isolated and unprepared during ward rounds and therefore it can be a struggle for students to actively engage and learn.
Method: 90 minute sessions for third year medical students were created focused on accurately simulating a three patient ward round. Two junior doctors acted as the consultant and registrar and a more senior medical student acted as the patient in each case.
The students were tasked with writing ward round entries for each patient seen including a plan as described by the consultant. Nineteen students took part in five sessions. A tutorial took place between the second and third case that focused on good practice in medical documentation as described in the General Medical Council's (GMC) guidance. The quality of their ward-round entries was assessed against the five key points listed in the GMC's guidance. Pre- and post-session questionnaires regarding their confidence in writing ward round entries and constructing jobs lists were requested.
Results: The sessions were highly rated by the participants with an overall evaluation score of 4.89 out of 5. Analysis of the students' pre- and post-course feedback forms demonstrated that confidence in note writing during a ward round increased by 22.2% ($p<0.0001$) and confidence in constructing a jobs list increased by 34.8% ($p<0.0001$). Finally comparison of the students ward round entries before and after the tutorial showed an improvement of 50% ($p<0.0001$) when scored against a GMC guideline mark scheme.
Conclusion: The data collected from these teaching sessions suggests that medical students benefit greatly from formal teaching regarding ward rounds. There was a statistically significant improvement in their confidence and the objective quality of their entries. The teaching sessions were well received and in particular the students commented on its great relevance to their clinical placements.
Take-home message: Simulated ward round sessions can increase students' confidence in writing in the patient notes and objectively increase the quality of their entries.

3FF12 (1083)
Use of Video and Simulation to Enhance Students' Confidence to Participate in Resuscitation Room

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Background: Nursing students often experience incompetency due to lack of clinical exposure and unfamiliar areas during clinical attachment (Jamshidi, Molazem, Sharif & Kalyani, 2016). Lack of staffs' guidance hinders their learning as students have to cope by themselves. As a result, students are concern of harming a patient and are not confident to participate in nursing skills (Lakshmi, 2016). Aim of this study is to evaluate if conducting a simulation prior to resuscitation room attachment can enhance student's confidence to participate.
Method: A total of 100 final year nursing students completed their specialized one-week clinical attachment to Emergency Department over a period of two months. They attended a simulation prior to resuscitation room attachment. A video was developed to orientate them to the layout of the resuscitation room followed by a simulation. A survey was conducted pre and post-simulation and after their resuscitation room attachment.
Results: 75% of them are diploma students and 25% are degree undergraduates. Only 7% of them are aware of what they can participate in resuscitation room as students prior to simulation. Post simulation survey showed 95% gave positive feedback that they were able to identify skills that a student can participate. 76% rated Strongly Agree that the video was effective in orientating them and understand the roles of the resuscitation nurse. 93% reported feeling more confident in what they can participate when assigned to resuscitation room.
Conclusion: Conducting simulation in combination with the use of media was found to be effective in engaging students for reinforcement of skills, retaining knowledge and building on confidence. Through simulation, students were able to relate to the realistic environment and bridge the theory-practice gap. Hence, students were able to adapt faster in the resuscitation area and participate more actively during their one-day attachment.
Use of video and simulation prior to student's resuscitation attachment has a positive impact on their confidence to participate on the actual day. It is an effective way for them to comprehend the real clinical area especially when time and level of guidance is a challenge.

3FF13 (1047)
Pre-briefing in Simulation - How much is enough?

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Background: Pre-briefing is considered a cardinal feature of effective simulation learning, and is described as the communication between faculty and learners preceding a simulation course.
Dieckmann posits that pre-briefing should prepare learners for an upcoming session by clarifying expectations, logistics and learning objectives. Fanning and Gaba add that facilitators can use pre-briefing to create a supportive learning environment.
Method: We reviewed a cohort of 18 final year medical students partaking in simulated scenarios, managing acute patients. We aimed to explore student's engagement with pre-briefing material.
Prior to the simulation, we emailed students the learning objectives, recommended reading and clinical guidelines for half of the scenarios.
We explored student's engagement with the pre-briefing material via a survey and group discussion following the session.
Results: The survey revealed that 61% (11) of students did not read the pre-briefing material and 66% (12) did not prepare in any way for the simulation. 10 (55%) students reported that they preferred simulation to be a 'complete surprise'. Discussion with students reinforced these findings, and learners commented that they preferred to be 'unprepared' for scenarios because it better replicated clinical practice.
Many educationalists advocate pre-briefing because it can empower students to optimise their simulation learning experience.
It was therefore interesting to discover that the majority of our students did not engage with pre-briefing material and preferred to be 'surprised' by simulation content. Perhaps our findings are due to the seniority of medical student, it is possible that learners were not threatened by the 'unknown' and instead required high-fidelity experiences to prepare them for clinical practice. Alternatively, perhaps our students are not motivated to take full responsibility for their learning and instead want to be 'spoon-fed'. Some learners may feel that attendance at simulation sessions is sufficient to achieve the learning objectives.
Conclusion: In sum, we suggest that facilitators consider student perceptions prior to forming presumptions for pre-briefing material. Clearly there is no 'one-size fits all' approach for pre-briefing in simulation.
Take-home message: Facilitators should seek student opinion prior to providing pre-briefing material.

3FF14 (2914)
Graphic feedback summaries after large simulation events – a possibility to deepen the learning experience?

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Background: Simulation-based education is a common technique used in medical education. Research shows that the learning outcome of simulations mainly depends on the debriefing and feedback.
Method: After intense simulations, lots of aspects could be discussed, but participants can only process a limited amount of feedback. We therefore designed a graphic summary to complement the verbal debriefing and deepen the simulations' effect. Recipients were asked if and how they benefited from this summary. The feedback summary followed an 8-hour simulation for final year medical students (7 teams of 5 students, completing 6 cases). It included the following components:
- Performance scores (quality of anamnesis, diagnostic & treatment) & comparison of these with participants' confidence (bar/line charts)
- Comparison of each team's performance to the other teams' performances (traffic-light system)
- Feedback from simulated patients (SP)
- Impulses to improve (non-)technical skills

With these components we aimed at improving participants' self-assessments and guiding them towards learning opportunities. Participants were asked to complete a short questionnaire on the features of the summary (e.g. comprehensibility).
Results: 28 participants received a feedback summary. Preliminary results showed, they found the feedback generally helpful and easy to understand (Mean_help=1.3, Mean_understand=1.5.; scale from -3 to +3; N=8). Especially the feedback of SP was mentioned positively. Participants were undecided whether they benefited from the comparison of their confidence and performance and whether the summary helped them to compare themselves to other students (both Mean=0.3).
Although students generally request more feedback, the literature shows inconclusive results about the benefits of graphic feedback, e.g. in progress testing. Similarly, our participants rated parts of the summary to be helpful, while other parts elicited mixed responses. The amount of time needed to design such a complex summary is another limiting factor.
Conclusion: Graphic feedback can positively influence the learning experience of simulation scenarios – its components need to be selected carefully, though. In this study, detailed reflections of participants' own performances, like verbatim SP quotes, were valued the most whereas the recipients reported, the summary has not helped them to gauge their skills in relation to others.

3FF15 NOT PRESENTED

3FF16 (2596)
Defining curricular content for simulation–based training in gynecology and obstetrics: A national general needs assessment

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Background: Gynecology and obstetrics has been using simulation-based education, providing trainees with the necessary skills amidst today's challenges including limited training opportunities, very rare events in obstetrics and increased focus on patient safety. Unfortunately, simulation-based programs are most often developed based on available resources or coincidences rather than a systematic plan. The development of a curriculum should start with a general needs assessment to ensure that training programs are relevant to current training needs. The objective of the study was to perform a needs assessment to identify technical procedures that should be included in a simulation-based curriculum.
Method: We performed a needs assessment using the Delphi method by engaging 165 participants identified according to their role and responsibility in the education of residents. Round 1 was brainstorming to identify technical procedures that a new specialist should learn. Round 2 determined need for simulation training by using a needs assessment formula exploring 1. Frequency of procedures, 2. Number of physicians that should be able to perform procedure, 3. Risk and/or discomfort when performed by an inexperienced physician and 4. Feasibility for simulation training. Round 3 included elimination and re-prioritization of procedures.
Results: The response rates were 61%, 50%, and 53%, respectively. After qualitative analysis in the first round, the technical procedures were: gynecology (n=51), obstetrics (n=40) and general procedures (n=10). The final round resulted in a prioritized list where gynecology procedures (n=17) is led by basic laparoscopy, vaginal ultrasound, laparoscopy with tubotomy and salphingectomy, open surgery including instrument handling and use of vaginal and abdominal ultrasound

equipment; obstetrics procedures (n=16) is led by basic resuscitation of newborn, vacuum extraction, management of shoulder dystocia, management of postpartum bleeding and management of vaginal birth; and general procedure (n=1) consisted of basic resuscitation of adult.
Conclusion: The Delphi process resulted in a prioritized list of technical procedures that are highly suitable for simulation. This helps to guide decisions and development of simulation-based training programs for residents in gynecology and obstetrics.
Development and effective integration of simulation-based curricular content should start with a structured needs assessment.

3FF17 (3538)
Simulated hospital round for history-taking and problem-solving

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Background: History-taking and problem-solving are crucial for making accurate diagnoses. Gathering, organizing, and interpreting information, followed by decision-making are functions of problem solving. These can be affected by factors like time-constrain and unfamiliarity of context. Creating an authentic context to allow practice on such skills for medical students is a challenge.
Method: Simulated rounds constituted of teams of 4 to 5 students, who stopped for 20 minutes by each patient. It included mixed-realty encounter where students watched a 90-seconds 360o video with a Virtual-Reality goggle then met the patients' father, two beds had simulated patients, and a fourth was a video-based scenario.
Results: 16 of 38 students (42%) responded to the e-survey. 87.5% rated this method of training as good or excellent, and 12.5% as fair. Finally 100% found the experience to be engaging. Students received instant feedback from SPs and clinical tutors on their clinical reasoning, communication, empathy, and team-work.
The complexity of clinical encounters makes them difficult to simulate. History-taking should not be taught in isolation from reasoning or problem-solving, empathy, and team-dynamics. Authentic environments supported by feedback may warrant better transfer of skills into real practice. Starting early in the curriculum provides an opportunity of spaced-practice and remediation.
Simulated rounds are liked very much by the students. Having students commit to specific objectives or questions to address after each patient encounter can keep them focused. Timed patient encounters seem to add an element of stress and has a value in creating an authentic context.
Conclusion: Simulated hospital rounds can be a golden opportunity if planned well. Ensure that students receive feedback instantly. Train and allow simulated patients to provide feedback especially on aspects like communication and empathy.

3FF18 (728)
To explore the competency requirements for standardized patient training in the National Objective Structured Clinical Examination (OSCE)

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Background: The Objective Structured Clinical Examination (OSCE) has been adopted as the prerequisite for the two-step Taiwan Medical Licensing Examination (TMLE) since 2013. However, there were no formal norms and requirements announced by the authority. In view of the time-limit for SP training on the day of National-OSCE execution and the high consistency should be attained among all National-OSCE centers, we aimed to investigate the pivotal contents required by SP training course in the National-OSCE.
Method: We use semi-structured questionnaires to assess the current status of implementation in SP training course for National-OSCE in Taiwan. Besides, data obtained from focus group interview for SPs and SP trainers were analyzed by encoding and classifying. The results of above investigations help to identify the quality dimensions in SP training course and to define the main competency requirements of SPs.
Results: The current study elucidates two major demands to guarantee high quality SP performance. First, set up national selection criteria when recruiting the SP before the National-OSCE. Second, develop a multiplex education system in National-OSCE SP training course could ensure the standardization and enhance the professional performance of SPs.
SP recruited for National-OSCE should have the characteristics of punctuality, responsibility, adaptability, high compliance and performance consistency. Therefore, the selection criteria and the elimination mechanism are major steps forward to achieve a fairer and transparent OSCE process. Diverse training methods and practical two-way feedback also facilitates SP to learn.
We will continue to review and revise the National-OSCE SP training program according to the result of current study by using specific instructional recruiting and training protocol. After accumulating plentiful experiences, a systematic and localized standardized training modules will ensures the fairness and justice in TMLE.
Conclusion: The results of this study should increase awareness about and stimulate interest in using qualified SP training strategy to advance the state-of-the-art of TMLE.
Clarifying the competency requirements of the SPs to improve the SP training course can be a win-win-win solution for SP, medical students who attending National-OSCE, and SP training sites.

3FF19 (3130)
Simulated patients (SP) training other SP – a successful "Train the trainer" approach at Charité Berlin

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Background: The German Association for Medical Education (GMA) is currently discussing qualifications that are needed to become a successful SP trainer. At the Charité Berlin, we developed an approach to expand our regular staff of trainers by educating a selected group of SPs in giving training courses themselves. The goal of this report is to demonstrate how a "Train the trainer"-approach can be a time- and cost-efficient way to educate high qualitative trainers.
Method: In three seminars consisting of 9 hours in total, we trained four SPs in instructing other SPs. We selected the future trainers on the basis of three criteria: (1) He/she has been an SP for several years; (2) the SP meets the Charité's quality standards of portraying patients and giving feedback; (3) the SP is experienced in coaching.
To evaluate the quality of the role training courses given afterwards, the trained SPs filled out a survey and rated the perceived quality of the training after each training session.
Results: Evaluation data showed no significant differences between training courses given by permanent employees (N_{pe} = 107) and those given by the "trained trainers" (N_{tt} = 62).
Satisfaction with the new trainers was overall very high on a five-point Likert scale. Examples for items we used are:
1. "I feel sufficiently prepared for my upcoming interactions in this role." (M_{pe}=4.83; M_{tt}=4.88)
2. "The practical preparation for the role was helpful." (M_{pe}=4.74; M_{tt}=4.72)
3. "The role-specific feedback for the interactions has been sufficiently trained." (M_{pe}=4.60; M_{tt}=4.66)
Germany is discussing qualitative criteria necessary for becoming an efficient SP trainer. We were able to show that SPs who meet the criteria we selected can give training courses of high quality after attending just three short seminars.
A minor downside of this approach would be that more administrative efforts are necessary to coordinate the "trained trainers" because they are not involved in organisational tasks.

Conclusion: Our data indicate, educating SPs in training other SPs can be a successful and efficient approach to support the regular trainer staff of an SP program.

3FF20 (3494)
What are the perceptions of medical students regarding the usefulness of GTA (Gynaecology Teaching Associate) sessions?

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Background: GTAs (Gynaecology Teaching Associates) enable medical students to perform pelvic and/ or speculum examinations on them and provide feedback regarding communication and examination skills. Whilst being used since around 2013 there is limited evidence regarding students' perceptions on their usefulness.
The few existing studies report positively, however this study uniquely provides data from 2013 from two research methodologies (questionnaires and a focus group).
Method: Feedback from students was obtained regarding: content, style, developing confidence in examination skills, developing confidence in communication skills, advantages and disadvantages of learning from GTAs. Data was analysed using inductive thematic analysis to find relevant codes and themes relating to the students' perceptions of these sessions.
Results: Students reported positively regarding content and style of sessions. Students felt GTA sessions increased confidence in carrying out pelvic examinations and taking a cervical smear, as well as developing communication skills. Advantages of these sessions related to the session itself, such as providing practical experience, and to the GTAs themselves, for example learning in a non-- threatening atmosphere. Disadvantages were very rarely reported and included feeling embarrassed during the session.
Understandably students may have feelings of fear or embarrassment when carrying out intimate examinations in clinical practice. This study has clearly showed that GTA sessions improve confidence in both examination and clinical skills in Gynaecology which form a necessary part of undergraduate education and competence required as a junior doctor.
Conclusion: GTA-led sessions are a valuable educational experience for undergraduate medical students in increasing confidence and clinical skills in Gynaecology placements.

3FF21 (2006)
Development of an Educational Intervention to Teach and Assess Interprofessional Conflict Management Using Standardized Professionals

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Background: Teamwork and the ability to resolve conflict professionally is a crucial skill for practicing physicians as evidenced by medical school Entrustable Professional Activities (EPAs) and resident milestones that focus on functioning as part of an interprofessional team. The objective of our study was to develop a meaningful educational experience including a simulated conflict management situation and to develop and validate a competency-based assessment to measure interprofessional conflict management.
Method: Students participated in an educational intervention on conflict management using skills adapted from TeamSTEPPS and the DESC script. Using role-play, the students completed clinical conflict scenarios with a standardized "professional" and completed a post-encounter survey. Six investigators (2 physicians, 2 medical educators, and 2 allied health professionals) then individually scored the videotaped encounters using the Brody Interprofessional Conflict Assessment (BICA) tool.
Results: Ten students participated in the pilot study. According to post survey data, all students perceived the session to be a valuable experience. The investigators who developed the behavioral anchors demonstrated moderate interrater reliability (K=.54) likely due to a shared mental model of expectations. Kappa scores were found to be low (average K=0.03) across raters with minimal training. The highest level of agreement was in the students' description of the conflict and lowest level of agreement was in the overall assessment of the conflict. While the students appreciated learning evidence-based methods for conflict resolution and an opportunity to practice in a low stakes environment, it is difficult to reliably score their performance in a standardized encounter. Possible explanations include difficulty identifying the distinguishing? behavioral anchors, lack of standardized training, a small sample size, lack of a shared mental model of a gold-standard performance, and the rater's own varying conflict management styles.
Conclusion: Teaching and assessment of conflict resolution is an essential skill for health professionals. Simulation with standardized professionals is an effective

method for students to practice this skill in a safe environment. Developing a reliable tool to assess performance is a challenging, but necessary, step to entrust learners with this important interpersonal skill.

3FF22 (1520)
Perceptions of participants in simulation training in psychiatry

Authors
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Presenter: Tanja Svirskis, University of Helsinki, Department of Psychiatry, Helsinki, Finland

Background: Simulation is a useful and practical way to learn communication skills and clinical skills in medicine. This pilot study looked at how simulation training is perceived among participants at the University of Helsinki where simulation training in psychiatry had not been used previously.
Method: Several workshops that consisted of clinical scenarios in psychiatry with a standardized patient were organized with trainees in psychiatry (N=23) as a part of their specialist training and with physicians working in general practice and occupational medicine (n=87) as continuing professional development (CPD).
Results: Few participants had previous experience with simulation training with a standardized patient. Simulation was well-accepted as a learning method, even when organized in bigger groups. The standardized patient (an actor) was perceived as real as a real patient, and the usefulness of the feedback from the patient was rated especially high. In general, the possibility to received feedback was appreciated, especially among trainees in psychiatry. Participants reported they learnt clinical skills that are needed in their work. Trainees in psychiatry strongly expressed the wish that more simulation training would be organized in the future.
Conclusion: Simulation training in psychiatry offers a possibility to learn and receive feedback on clinical situations. It seems a well-accepted method of learning in both specialist training and continuing professional development in psychiatry.
Take-home message: Simulation is a useful and well-accepted method of learning in psychiatry in both specialist training and CPD.

3GG: Posters: Postgraduate Specialist Training

Location: Hall 4.1, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

3GG1 (2311)
Development of a national near-peer Core Surgical Training interview course with emphasis on group feedback to improve confidence in the interview process

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Background: Application to Core Surgical Training in the UK is competitive and requires rigorous preparation. Feedback is a crucial component of this process, identifying strengths, improvements and the steps needed to meet ideal standards.
Method: We developed a national Core Surgical Training interview course with emphasis on group feedback to address knowledge gaps, aid confidence and develop experience for the final interview. 27 candidates attended. They received a talk on the interview and the domains assessed (clinical, management and portfolio), then rotated through sessions on each domain in groups of 3. These involved individual 10-minute simulations by 2 near-peer tutors in surgical training with recent interview experience, while the remaining 2 candidates observed. A 15-minute group feedback session followed, enabling social group learning. The Pendleton feedback model was used with scoring for additional guidance. Candidates completed questionnaires before and after the sessions to explore levels of confidence and knowledge and to evaluate the course.
Results: There was a 38.4% increase in candidates' knowledge of the interview process and a 27.4% increase in their confidence in gaining a place. There was a 37.5%, 36.5% and 41.3% increase in confidence in the clinical, portfolio and management stations respectively. All results were statistically significant (p<0.0001). Out of a maximum score of 5 being above average, candidates rated the course 4.72 for organisation, 4.64 for usefulness and 4.8 for fairness of feedback.
We found that emphasis on group feedback enhanced candidates' confidence and knowledge in all domains. This was further supported by near-peer teaching, which offered a relevant and consistent perspective into the process. The course was evaluated as organised, useful and fair, highlighting that it was well received, allowing candidates to maintain interest and align their expectations for the interview.
Conclusion: Core training interviews remain very competitive and courses are a useful way to improve confidence in candidates. The use of near-peer and social teaching ensures that the course remains relevant and fully engaging. There are high levels of satisfaction for this format of interview preparation.

3GG2 (1552)
A Sustainable Ophthalmology Training Program in the Pacific: Methodology and Key Factors for Success

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Background: The Pacific region has been dependent on visiting eye care teams to provide eye care to its population of nine million. The key to sustainable eye care is the training of local eye care professionals. The Pacific Eye Institute (PEI) was established in Suva, Fiji, in 2006 to achieve this.
Method: 1. Planning and engagement: Analysis identified the stakeholders: ministries of health, non- government organisations, education institutions, hospitals and eye care personnel including ophthalmologists; all of whom were engaged - along with the support of the New Zealand and Australian governments - and invited to contribute in relevant areas, including provision of funding. A dedicated training facility, with teaching resources and a fully equipped eye clinic/ operating theatre was built.
2. Curriculum development: Needs analysis conducted, based on eye disease prevalence surveys.
A Delphi technique was used to agree content, (which included tailoring an internationally benchmarked ophthalmology syllabus) and assessment (exams, workplace-based and surgical). Participants included ophthalmologists and educators from the Pacific and Australasia. Outcomes were peer reviewed.
3. Program establishment: Master of Medicine over four years, conferred by the University of the South Pacific. Full-time local faculty appointed, supported and augmented with a structured, rotating program of sub-specialty teaching provided by visiting lecturers from the Royal Australian and New Zealand College of Ophthalmologists (RANZCO). The sub-specialty teaching is designed to augment generalist teaching.
Training is workplace based, both at the PEI and through a program of remote surgical outreach.
13 graduated specialist ophthalmologists, with 12 currently enrolled.

7 countries self-sufficient in ophthalmologists, others projected to be so by 2026.

Number of cataract procedures performed in Solomon Islands increased from ~ 1000 per year in 2013/14 to ~5000 in 2015, with sustained performance.

Conclusion: A systematic and flexible approach to specialist training, at the macro, meso and micro levels, has demonstrated a successful and sustainable outcome in the Pacific. This model has demonstrated a measurable societal and economic impact from improved education. Although complex and presenting challenges, this model could be replicable in other developing health system contexts.

3GG3 (1727)
Assessment for Medical Radiation Technologist Core Competency Training in Taiwan

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Presenter: HSIN-YI Chiu, JCT, New Taipei City, Taiwan

Background: Since 2007, Taiwan established 2-year post-graduate program of 14 medical professionals, and then developed Medical Radiation in 2013, both of them are by means of core competency, developing relative training evaluation of effect, evaluating skills and appraisal standards. With the aim of whether the trainees can achieve the efficiency of core competency by utilizing systematic and structural methods.

Results: By collecting 25 Department of Radiology teaching hospitals, which including 79 trainees from 2013 to 2017, the result shows that DOPS average pre-test score is 6.19 (P<0.001,95%CI[±2.169])、 post-test score is 8.74(P<0.001,95%CI[±0.962])、 mini-CEX average pre-test score is 4.75(P<0.001,95%CI[±2.078])、 post-test score is 8.17(P<0.001,95%CI[±0.852]) have significant differences after training. Therefore, trainees' core competency has significant increased by providing them with stage training.

Conclusion: Through 2-year post-graduate training for fore and post analyzed research, we concluded that this program is definitely beneficial to new trainees. We will continuously assess the effect of program as a reference for the adjustment of training program.

Take-home messages:
1. This course intensifies the establishment of core competency as a reference for adjusting training time.
2. In comparison with the methods which senior medical staff trained trainees, the course provides systematic and structural evaluation works.

3GG4 (1874)
Important lessons learnt from a qualitative study exploring the F3 generation

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Background: The number of doctors directly entering UK specialty training after their Foundation year 2 (F2) has steadily declined from 83% in 2010, to just 50.4% in 2016. This year following F2, outside the UK training pathway, is informally termed an 'F3' year. There is a paucity of qualitative research exploring why increasingly doctors are taking F3s. Our study illuminates some of these reasons and offers possible suggestions to support these doctors.

Method: This is a cross sectional qualitative research study using an explorative narrative bounded case study design. Fourteen participants were interviewed from one foundation school, using a narrative enquiry approach. Participants include 5 doctors who commenced their F3 in 2016, 5 who started their F3 year in 2015 and finally 4 recently starting this in 2017. Thematic analysis was conducted using process tracing and cross-case analysis.

Results: A major theme arising was the feeling of lack of control, including over work/life balance. There was also a spectrum of exhaustion with some doctors feeling undervalued and unsupported. Many participants used their time away from formalised training to develop their skills and experience, noting this helped them to become better doctors whilst exploring career possibilities. The timing of specialty applications was felt to be too early for many junior doctors to a) decide what to apply for b) obtain sufficient CV material to be competitive at specialty applications. The advantage of time away from training allowed these doctors to improve their specialty application, enhancing choice over future career and training location. When doctors returned to NHS posts they bought valuable experience.

Conclusion: This study provides evidence to help educators, trusts and postgraduate deans in addressing the challenge of retaining and supporting junior doctors. This may include developing new F3 opportunities and providing career support to assist in reintegrating them with training programmes. Health Education England is exploring mechanisms to appropriately recognise the experience and training gained during time out of specialty training.

More and more doctors are taking F3s and we should adapt to support them and ease subsequent re-entry into training.

3GG5 (619)

Which are changes of medical professionalism after one year in internal medicine residency training?

Authors

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Background: Medical professionalism is one important aspect during residency training and also medical practice. This skill may develop over time of clinical practice and training. This study aimed to evaluate the changes of medical professionalism in internal medicine residents after one year of training.

Method: We enrolled residents in 2017 internal medicine residency program, Khon Kaen University, Thailand. Self reported questionnaire (33 items) was used to evalute the medical professionalism at the beginning and at one year after training. Each item had a score from 0-10; 10 is the highest score. There were two types of residents; normal residents and special track resident. The special track residents are those entering the residency training right after receiving a medical degree.

Results: In 2017, there were 22 residents in internal medicine and categorized as 10 normal residents and 12 special track residents. The special track resident group had younger age (25 vs 27 years) and more residents with GPA over 3.50 (100% vs 40%) than the normal residents. The overall professionalism level of all residents after one year of training was slightly increased from 7.27 to 7.36. There were two significant items after one year. The special track residents reported that the ideal medical professionalism on the encouraging the patients to ask questions significantly after one year of training (7.17 to 9.25; p value < 0.01). The normal residents had significant lower score on the same item above (8.50 to 6.80; p value 0.01).

After one year of training in internal medicine, there was no significant change in medical professionalism. The item on encouraging the patients to ask questions was a significant item in subgroup analysis by type of residents. An evaluation at the end of training or third year residents may be required because medical professionalism may take times to develop.

Conclusion: Residency training in internal medicine may have little effects on medical professionalism after one year of training. Types of resident may have different outcomes.

3GG6   WITHDRAWN

3GG7 (1427)

A 2-day point-of-care post-graduate ultrasound course (PoCUS-Braga) achieves knowledge and self-confidence gains on participating physicians

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Presenter: José Diogo Martins, School of Medicine, University of Minho, Braga, Portugal

Background: The benefits of Point-of-care ultrasonography (PoCUS) for patient care has led to the development of POCUS post-graduate training courses worldwide. It is important to understand the impact of such courses for improvement and dissemination purposes.

Method: This study evaluated the impact of the 2-day course PoCUS-Braga on participants' self-confidence in using PoCUS and on immediate and long-term knowledge retention. PoCUS-Braga includes didactic lectures and expert-led hands-on training in simulated and real settings. Knowledge (two MCQ tests on lung, cardiac and abdominal ultrasound) and self-confidence were assessed at the start and after the simulation components. The test results were calibrated using Rasch Calibration Model. One month upon return to their workplaces, participants took a survey about self-confidence and actual use of ultrasound in their practice. Survey results, knowledge and confidence assessments were analyzed with ANOVA, Pearson's correlation, and t-tests.

Results: There were 61 participants in 3 editions. Mean test scores were $78.3 \pm 14.6\%$ (at start), $93.1 \pm 5.90\%$ (after hands-on simulation) and to $89.1 \pm 6.45\%$ (after real-settings practice). Self-confidence increased significantly from the start of the course to the standardized-patients practice ($p < 0.001$). Upon return, participants reported the use of PoCUS in 4 patients (median), below the pre-course prevision of 10 patients. The accesibility to an ecographer in their workplaces was rated 5.82 on a scale of 1-10, and was considered the main constraint for more use.

Conclusion: PoCUS-Braga impacted positively on knowledge and confidence. Knowledge gains with didactic and simulation were sustained after training in real settings. The use of ultrasound upon return to practice

was below initial expectations. Insufficient availability of equipment was the main barrier for US usage reported by participants.

Short post-graduate PoCUS courses such as PoCUS-Braga may increase doctors knowledge and confidence. Barriers inherent to workplace circumstances may condition the application of PoCUS upon return.

3GG8 (1399)
Experience of a blended learning paradigm in teaching benign paroxysmal positional vertigo (BPPV) - a randomized controlled trial

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Background: Benign paroxysmal positional vertigo (BPPV) is a common emergency presentation that requires specific knowledge and skills for the emergency physician. The traditional face-to-face (F2F) teaching of BPPV often entails significant time for both the teachers and learners. Blended learning (BL) has become a common teaching approach in graduate medical education with its advantages of reduced time and comparable efficacy but has not been tested in the context of BPPV teaching to Emergency Medicine Residents (EMR). The primary aim of this study was to assess whether a BL approach would prove more effective than a F2F approach in the EMR education on the management of BPPV. The secondary aim was to gauge the resident opinion of each educational approach.

Method: 38 EMRs residents were randomly allocated to either F2F or BL approach. They were all assessed before and after implementation of BPPV education. Skills acquisition was measured through the performance of Dix-Hallpike maneuver (DH) and Canalith repositioning maneuver (CR), rated 0 (worst) through 5 (perfect) by raters blinded to the study groups. Medical knowledge was assessed through a written examination comprising 20 multiple-choice questions (MCQs). A validated electronic questionnaire was sent to all study participants to assess their perceptions and self-perceived competence of BPPV with each educational approach.

Results: The characteristics of the residents in the two study groups were similar. In both the F2F and the BL groups, there was a clear improvement in the post-intervention scores in BPPV skills and medical knowledge. The DH and CR evaluations of BPPV skills showed a median difference of 0 (95% CI, -1 to 1). For MCQ, the mean improvement seen in F2F group was 0.1 higher than BL but the 95% CI (-1.2 to 1.4) crossed the null value. More residents preferred F2F approach over BL approach for teachings of BPPV.

Conclusion: The results showed significant improvements in the medical knowledge and skills acquisition of BPPV

with both F2F and BL education approaches. Although the improvements were virtually identical, more residents favored the F2F approach over BL approach for learning BPPV.

3GG9 (550)
Sustainable Improvements in ABIM Pass Rates for Struggling Residency Programs

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Presenter: Sonia Lin, Keck School of Medicine, University of Southern California, Los Angeles, USA

Background: From 2010 – 2014, the rolling ABIM pass rate was 77.8%, below the ACGME requirement of 80%. Prior attempts to improve the board pass rate included hospitalist-led small group lectures, reading packets, monthly mock exams, subspecialist teaching on general medicine rounds, lectures guided by deficiencies on the annual In-Training Exam, board-focused review lectures by Department of Medicine faculty, and sending all our PGY3s to a week-long, third-party preparatory course. Our program aimed to improve and sustain our pass rate to above 90%.

Method: We anonymously surveyed residents of the class of 2015 during their PGY2 year to determine their motivations behind passing the boards and adjusted our educational approach based on the results.

Results: 49 of 55 residents responded. All 49 residents reported that their primary motivator was "personal embarrassment over not passing" with 41 respondents stating that "letting down the program director" was the next greatest motivator. We then designed a longitudinal year-long board review course for all PGY3s given by the program director, capped by a week-long course given by our assistant and associate program directors. Consequently, our board pass rate rose to 96% in 2015 and has been sustained across the past 3 years for a rolling rate of 97%.

We restructured our approach to board review to capitalize on the second most common motivator by placing program leaders at the forefront of board review. We felt that if the residents could see that the program leadership was making a conscious effort to invest in their success, it would promote the sense of accountability and encourage more preparation for the exam.

Conclusion: Programs striving to improve their board pass rate should consider surveying trainees to assess their reasons for passing the boards. With that information, programs can customize their educational approach to

utilize the most common motivators to raise and maintain their pass rate.

Take-home message: For programs struggling with low board pass rates, surveying the residents to determine their motivations behind passing the boards may allow the program to tailor its educational approach to achieve a higher board pass rate.

3GG10 (2691)
Learning evidence-based medicine skills in postgraduate medical education: effects of deliberate practice

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Background: Postgraduate education in evidence-based medicine (EBM) is usually delivered through standalone courses. These can improve knowledge and skills, but likely have little impact on EBM attitude and behaviour in the workplace. The theory of deliberate practice advocates acquisition of complex skills through systematic practice and feedback. Viewing competence in EBM as a complex skill we hypothesised that, compared to only attending standalone courses, learning EBM through deliberate practice results in a more positive attitude towards EBM, and leads to changes in clinicians' behaviour.

Method: A group of paediatric registrars and consultants, who learned EBM through deliberate practice, were compared to peers who only attended a mandatory standalone EBM course. The deliberate practice group comprised those who had received deliberate training in search, appraisal and application of research evidence, either by working in a paediatric EBM department (Isala, Zwolle) for 1-2 years, or by completing a PhD. Participants completed a 10-item multiple-choice questionnaire, assessing EBM knowledge, and the evidence-based practice inventory (EBPi), which assesses five dimensions of self-reported EBM attitude and behaviour.

Results: 50/62 (81%) of eligible participants completed the questionnaires. Compared to controls (n=20), the deliberate practice group (n=30) scored significantly higher on the EBPi dimensions 'perceived behavioural control' (p=0.000) and 'decision making' (p=0.047). Compared to non-PhDs (n=32), participants who had completed a PhD (n=18) scored significantly higher on the EBPi subscales 'subjective norm' (p=0.039), 'perceived behavioural control' (p=0.000) and 'decision making'

(p=0.000), and tended towards better EBM knowledge (p=0.059) and a more positive attitude (p=0.060). The deliberate practice group reported more self-confidence in applying EBM skills in daily practice, and higher priority given to using EBM principles in medical decision making. These differences seem largely attributable to the subgroup of PhDs, possibly because they spent more time on deliberate, supervised practice.

Conclusion: Learning EBM through deliberate practice might improve attitude towards EBM and lead to more EBM behaviour in the workplace.

Teaching EBM to specialist registrars through deliberate practice might achieve deeper learning effects in terms of improving attitude and behaviour, compared to only attending a standalone course.

3GG11 NOT PRESENTED

3GG12 (1786)
Reasons for prolonged residency in Switzerland

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Background: Swiss doctors reach the average age of 34 years before obtaining a specialist title, even though, the duration of residency is 5 to 6 years by regulation. We wanted to analyse the reasons why residents have a prolonged residency at our University hospital in Lausanne, Switzerland.

Method: In 2016, we conducted a short telephonic survey with all doctors in our hospital who were working as residents in their 9th year or more (77 respondents, response rate 77%) with one open ended question: "Why you have been working as a resident for nine years or more?".

Results: Three principal reasons were identified: the choice of a second speciality (39% respondents), years of residency spent in a field not recognised for the chosen specialty (30%) and breaks during residency for reasons related to family or research activities (30%).

Internal and external reasons that prolong residency were distributed into three main domains of which only one is under hospital control. Hospitals have to improve the structure of residency tracks to prevent residents working in fields not relevant to their specialty.

Swiss residents compose their residency track themselves according to available job openings. They may work in disciplines unrelated to their chosen specialty while waiting for a desired job opening, change their mind about the desired specialty, choose to obtain several specialties or interrupt residency for family or professional reasons.

Conclusion: The Swiss system of postgraduate training gives residents a large autonomy in organizing their residency. This is an advantage for residents desiring to combine residency with other activities. However, it

results in a long duration of residency as well as lack of coherent structure of residency programs.

3GG13 (3344)
Respiratory therapy technology: The continuous teaching and training courses based on Miller's pyramid

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Presenter: Tsai-Chen Yu, Taipei Medical University Shuang-Ho Hospital Division of Chest Medicine, New Taipei City, Taiwan

Background: In the past, our PGY training program for respiratory therapists is non-coherent and lacking decision-making training, resulting in incompetent clinical performance. However, therapeutic technology training courses focus on hang-on technical operations and applications. We design the new training courses based on Miller's pyramid as a clinical assessment. Throughout the consistent training, trainers could assess the competency of learners.
Method: In the past, we only have lectures and the final assessment. We noted that the outcome is not satisfied and we re-design the training course based on Miller's learning pyramid. There are four stages in our revolutionized training course. 1. Knows: We use the "Flipped Classroom" to build the knowledge. 2. Knows how: The "teach-back" method would confirm the competence of trainees. 3. Shows how: We design clinical scenario to assess the clinical decision-making of trainees. 4. Does: Trainers use "direct observation of procedural skills (DOPS)" to observe trainees and give bilateral feedback.
Results: Before the program, 7 trainees' average score is 58 out of 100. After the first stage of training, their score increases significantly to 89. In the second stage, the accuracy of assembling devices raises from 71% to 100%. In the third stage, trainees could handle 71.4% of troubleshooting, pass 100% of the clinical assessment, and achieve 71.4% of their clinical decision-making. In the last stage, the score of DOPS raises from an average of 3 to 4.7 (total 6.0) and trainees satisfaction marked 4.8 (total 5.0).
Conclusion: We apply Miller's pyramid principle in our design. Through our data showed that this course combines the different strategy of training and assessment to progressively build the concept of integrative learning. As a result, trainees gain significant learning outcome and satisfaction.
The training program should build on Miller's framework and progressively form the concept of integrative learning

to bridge the gap between medical education and clinical application.

3GG14 (3154)
Evaluation of Student Self-perceived Progress and Competence after the Self-directed Medical Simulation Based Trauma Life Support Course

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Presenter: Rita Gudaityte, Department of Surgery, Lithuanian University of Health Sciences, Kaunas, Lithuania

Background: HybridLab is a fusion of distance learning and self-directed medical simulation that allows learners to train 24/7 at their work place without direct presence of the instructor and/or technician. In 2014 original trauma course was developed on the new HybridLab learning platform. The aim of this study was to assess the satisfaction of participants and the course utility.
Method: The curriculum focused on strengthening basic trauma management skills, setting ABCDE priorities for the early management of critically injured trauma patients and strengthening non-technical skills. Twenty-seven surgical residents of Lithuanian University of Health Sciences were enrolled. Progress of the student was assessed immediately and 6 months after the course. Post-course survey was performed and the feedback of the participants and the estimation of self-perceived ability to carry out the crucial clinical tasks and skills was evaluated.
Results: During the post-course survey 92% of the participants stated that they found the acquired knowledge and skills clinically relevant and applicable (60% said it was very useful, 32% - useful). After the course 88% of the respondents were confident that they were capable of safely applying the acquired skills in the clinical setting (43% stated that they felt proficient, 45% - skilled). During the post-course survey, we asked the participants to estimate their self-perceived ability to carry out the crucial clinical tasks and skills, including the primary and secondary survey of the patient, management of the airways, immobilization and control of external bleeding. Overall, 94% of the course participants acknowledged that the course has increased their competence to provide advanced care for the severely injured patient and 56% of the respondents stated the change was significant and encouraged them to review their daily clinical practice.
Conclusion: Evaluations of students' opinion and acceptance can be seen as first step when establishing a

new learning program. Our study revealed a high approval of the participants for the offered blended (hybrid) learning environment and contents.

Broad acceptance is crucial for successful programme implementation, but it is also important to evaluate its influence on participants' gain of practical skills.

3GG15 (426)

Group Reflective Learning Sessions improve Anaesthesiology Residents' engagement and confidence in conducting a Personal Reflective Practice

Authors

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Presenter: Caroline Ong, Tan Tock Seng Hospital, Singapore

Background: Reflection is an advanced meta-cognitive process of analysing, questioning and re-framing experiences, to develop greater understanding of one's thoughts, feelings and behaviours. Reflecting on one's practice is vital for lifelong learning and improvement. In our context, Anaesthesiologists practise within multi-disciplinary teams, but with little interaction with fellow Anaesthesiologists during working hours. Many cases of learning value get discussed informally as "tea-room talk" between colleagues.

Method: Compulsory written reflective pieces tend to be unpopular with trainees and may generate resentment or apathy. We sought to develop an effective and enjoyable peer reflective activity simulating conversations between friends. This weekly activity began in July 2017 with an introduction to the concept and objectives of reflection. Residents were encouraged to use question prompts (AMEE Guide no.44, Appendix) to guide their reflections. Residents were free to select any case with learning value in one or more of the ACGME Core Competencies. Each resident's reflection was enhanced by peer-to-peer formative feedback (facilitated by a core faculty member), followed by development of a personal improvement plan. Confidentiality of patients, staff involved and residents' thoughts/ emotions was emphasized, to maintain a safe and non-judgmental environment for learning.

29/33 (87.8%) of residents responded to a survey conducted after 6 months.

Self-Reflection and Insight Scale (Roberts, 2008) was used to assess for differences in (1) Engagement in self-reflection, (2) Need for self-reflection, and (3) Insight, before and after introduction of these sessions.

Improvement was noted in scores for components (1) and (2), especially for residents who had presented >/= 2 times, or attended >/= 7 sessions.

Results: 80% understood the importance and goals of reflective practice and were familiar with the process of reflection, while 66% were confident of independently conducting a personal reflective practice.

Vast majority were comfortable with the group format.

Conclusion: As medical landscapes rapidly evolve, self-regulated learning and reflection has surpassed knowledge acquisition in importance. Group sessions are an effective and non-threatening way of fostering reflective practice in residents.

Take-home message: Participation in group reflective learning sessions positively influences residents' engagement and confidence in conducting a personal reflective practice.

3GG16 (454)

Transition to Practice: Evaluating the need for formal training in supervision and assessment among senior emergency medicine residents and new-to-practice emergency physicians

Authors

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Presenter: Sarah Kilbertus, University of Toronto, Canada

Background: Emergency medicine residents may be transitioning to practice with minimal training on how to effectively supervise and assess trainees. It remains unclear how comfortable senior residents and new attending physicians are with these competencies. Our study sought to examine physician comfort with supervision and assessment; whether there was a perceived need for formal training in these areas; what the current gaps were in training; and what barriers or enablers exist in implementing it.

Method: Qualitative data were collected in two phases during September 2016-November 2017 through one-on-one interviews of PGY5 and CCFP-EM emergency residents, and attending physicians within their first 3 years of practice, at the University of Toronto and McMaster University. A semi-structured interview guide was developed in consultation with a qualitative researcher, and then refined after the first phase of interviews, to ensure that all potential areas of thematic generation were touched upon. Transcripts were coded, analyzed, and collapsed into themes using NVivo software. Data analysis was guided by a constructivist grounded theory based in a relativist paradigm, which assumes that ones' reality is constructed inter-subjectively through understandings that are developed socially and experientially.

Results: Thematic analysis revealed five themes: Residents and staff described acquiring the skills of supervision and assessment passively through modeling the behaviours of others; the training that is available in these areas is variably used, creating a diversity of physician comfort levels; the many competing priorities in the emergency department represent significant barriers to improving supervision and assessment; providing negative feedback is universally difficult and often avoided; the move towards competency by design (CBD) will act as an impetus for more formal curriculum being required in these areas.

Conclusion: There appears to be a lack of standardization in how supervision and assessment are taught, and gaps in physician comfort, particularly in how to identify failing trainees and approach negative feedback.

As programs transition to a CBD model, there will be a greater need for formal training in supervision and assessment to achieve a standard level of comfort and competence among senior residents and new-to-practice physicians.

3GG17 (3703)
Partnering with Industry to develop a multidisciplinary Professional Development Programme for a Paediatric quaternary centre

Authors

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Presenter: Justin Poisson, Great Ormond Street Hospital for Children, London, UK

Background: Morgan Stanley's relationship with Great Ormond Street Hospital (GOSH) began in 2007. As a corporate sponsor, they have donated much needed facilities for staff and patients. In addition, Morgan Stanley employees volunteer their time to work with young people and staff, providing support and mentoring. The Postgraduate Medical Education team at GOSH utilised this relationship with industry to develop a Professional Development Programme (PDP) for GOSH Staff.
Method: The PDP was designed to address the professional development needs of doctors, nurses, allied health professionals (AHPs) and admin staff at various bands in the hospital structure. The programme was structured on three levels, catering to varied experience. Level 1 for junior members of staff, Level 2 middle grade and Level for the senior members of the organisation. Level 1 gave an introduction to professionalism in the National Health Service (NHS). More advanced levels focused on building NHS wisdom, covering areas such as leadership, self-awareness, quality improvement and finances.
The Morgan Stanley team offered their expertise delivering sessions on topics including financial administration techniques, business case writing and team management.
Results: On average, 16 delegates attended each course. All professional areas were represented, from various clinical specialties. The face-to-face sessions were a mixture of lectures, learning games, flipped classrooms, action learning sets and reflective practice. 100% provided feedback and all agreed, or strongly agree, the course was relevant, well facilitated and it would influence their future practice.
Conclusion: Leadership and professional development are important in upskilling the workforce and staff retention. Having a multi professional audience provided a great dynamic to the sessions; participants gained a respect for

the work their colleagues do on the front line or the back office. Participants valued the sessions, finding them relatable despite the stark contrast in the organisations. There is much benefit in working with other industries. The private sector has a focus on resource efficiencies, something the public sector needs. Setting the sessions off-site gave participants an opportunity to remove themselves from the clinical setting, allowing them to immerse themselves into the educational offering.

3GG18 (580)
Educational needs of neonatologists on end of life care in a tertiary hospital

Authors

Wing Yee Tong
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Presenter: Komal Tewani, KK Women and Children's Hospital, Singapore

Background: The topic of neonatal palliative care is often a difficult one to address for physicians and parents alike, and there are many challenges faced in providing optimal care for terminally ill babies. This study aims to assess the perspective of neonatologists towards palliative care services and end of life issues, and determine how terminally ill babies and their families can be better supported.
Method: We conducted a survey amongst the neonatologists in KK Women and Children's Hospital, which has a tertiary level neonatal care facility. An online survey was sent to the physicians in the department, with the objective of assessing the challenges they faced in the care of terminally ill babies, as well as their understanding of the services provided the hospital's palliative care team for neonates.
Results: There were 17 respondents to the survey, mainly senior medical staff with experience in caring for terminally ill neonates. A common challenge cited by neonatologists was initiating discussion on the topic of end of life care with families, and a large majority (70.6%) did not feel that the palliative care team was usually involved in such conversations. All the respondents were aware of the Advanced Care Planning programme (ACP), and a large majority (94.1%) agreed that the ACP helps to align the goals of care for terminally ill neonates. Only 47.1% of respondents felt that families were adequately involved in decision making about their terminally ill children, and 35.9% felt that parents did not have adequate support and resources. General understanding of community palliative services available was also limited. Majority of the respondents (70.6%) strongly agreed they would benefit from further teaching about end of life care, including initiating conversations with families on the topic.
Conclusion: This survey has demonstrated some of the challenges faced by neonatologists in the care of the terminally ill babies, as well a lack of understanding of the resources available for families of patients, especially in the community setting. These results can guide the design and implementation of training sessions for staff to

overcome these specific barriers, and improve care for these neonates.

3GG19 (2264)
Assessing the Quality of Educational Supervisor Reports and Supervised Learning Events

Authors
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Presenter: Mumtaz Patel, Health Education England North West, Manchester, UK

Background: Our previous research has shown that Educational Supervisor Reports (ESR) and Team Assessment of Behavior are strongly predictive of doctors in difficulty (1). However, quality of ESRs and Supervised Learning Events (SLEs) are variable and this study evaluates whether this can be improved using a structured form and targeted feedback to trainers.

Method: A one page framework was used to assess the quality of each ESR (n=15) by the Renal Medicine Annual Review of Competency Progression (ARCP) panel at Health Education England North West (HEE NW) in 2014. Formative feedback was sent to each educational supervisor (ES) and their comments were invited and individually discussed. The successive ESRs (n=15) were then assessed by the Renal ARCP panel in 2015 and 2016 to see if there had been any improvement in quality. A similar framework was used to assess the quality of SLEs (sample of 3-4 per ES) by the Renal ARCP panel (n=21) in 2016. The ES and trainee feedback was assessed qualitatively using a thematic analysis.

Results: Successive ESRs showed:
- Significant improvement in quality with increase in excellent grading from 13.3-80% (P<0.0001).
- Detailed free-text comments referenced to multiple sources of evidence
- More constructive feedback with specific learning objectives incorporated into the personal development plan.
- Good evidence of learning from clinical incidents.

The SLE quality was:
- Variable with 2/3 being acceptable.
- Minimal free-text limited to clinical skills.
- Few comments on generic skills including communication skills and professionalism.
- Feedback was poor and non-specific

The ES and trainee feedback was:
- Overwhelmingly positive; trainees felt valued for being asked

Conclusion: A simple structured form to assess ESR and SLE quality during ARCPS can provide useful formative feedback to ES and this significantly improves quality of successive ESRs. The ESR quality work has now been rolled out regionally at HEE NW and nationally through the Joint Royal Colleges of Physicians Training Board.
(1) Patel M, Agius S, Wilkinson J, Patel L, Baker P. Value of Supervised Learning Events in Predicting Doctors in Difficulty. Medical Education, 2016, 50: 746-756.

3GG20 (359)
Report: Development Trial of an Abdominal Emergency Medical Training Course

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Presenter: Hiroshi Mihara, University of Toyama, Toyama, Japan

Background: Abdominal pain is a frequent complaint of ambulance outpatient (5%). The Japanese Society for Abdominal Emergency Medicine in collaboration with four other medical societies published the Practice Guidelines of Acute Abdomen in 2015. The Japanese Society of Internal Medicine has held the Japanese Medical Emergency Care Course(JMECC) since 2009, but the abdominal emergency scenario has not been included in the course.

Method: We developed a training course specified for abdominal medical care (Hokuriku branch of Fellow of the Japanese Society of Internal Medicine). We identified 23 core competencies and core ultrasound skills for abdominal medical care. Total score for these core competencies significantly increased during the careers of clinical resident and gastroenterologist.

The goals of the course are as a physician to obtain the ability to quickly respond to patients complaining of abdominal symptoms (emergency medical care, interview, physical and ultrasound examinations, clinical reasoning, presentation and patient attention). Eleven courses for five hours were held from 2011 with over 200 participants. The course contains preparation and questionnaire, abdominal physical and ultrasound examinations and simulated medical care, followed by formative evaluations and lectures according to results of the questionnaire until the seventh course.

Results: Of the trainees, 75.3 per cent answered very helpful for future learning and 64.9 per cent were satisfied (The recovery rate was 95.1 per cent). The total score for abdominal core competencies were significantly lower in medical students and higher in gastroenterologists than the other groups (clinical residents, other specialized physician and general medicine). The biggest difference between gastroenterologists and the other was abdominal ultrasound competence.

Conclusion: There are learning needs for abdominal medical care, especially performing abdominal ultrasound. Keeping the quality and quantity of the instructors and simulated patients are the most difficult. Introduction of abdominal ultrasound phantom might be considered instead of simulated patients. It is important to provide opportunities of ultrasound to the beginners. In order to standardize abdominal medical care, development and holding of standardized course is required. We have

developed the five-hours Abdominal Emergency Medical Training Course. The use of abdominal ultrasound is the key component.

3HH: Posters: Interprofessional Education - Postgraduate

Location: Hall 4.u, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

3HH1 (1662)
Understanding context in collaborative decision making at interprofessional team meetings (IPTM) using the Cynefin framework

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Presenter: Keng Teng Tan, Tan Tock Seng Hospital, Singapore

Background: Leading an interprofessional team is a complex task which healthcare professionals seldom receive training in. IPTMs provides an important platform for the interprofessional team to come together to discuss patients with multifaceted needs and formulate a shared care plan. The Cynefin framework helps leaders determine the prevailing context to facilitate decision-making in different situations. We aim to evaluate the discursive strategies used in the IPTM of geriatric medicine teams and how collaborative decision making is carried out can be enhanced using the Cynefin framework.
Method: Tape-recorded observations of IPTM chaired by 6 different senior doctors were transcribed and analysed to identify what discursive strategies were used in patient case discussions, the complexity of the prevailing context, and the effectiveness of collaborative decision was reached.
Results: Using the Cynefin framework, patient case context was categorized into 4 categories: simple, complicated, complex or chaotic. Team members and leader adopted discursive strategies such as structured sequence narrative, story –telling and questioning. Team leaders who were better able to adapt discursive strategies to manage the prevailing context were more effective in collaborative decision-making. For complex and chaotic cases, repeated IPTM discussions over 2 or more weeks were necessary to sort out the complex medical, functional or social issues.
Collaborative decision-making in interprofessional teams occur within varying complexities of patient context. Without structured training, physicians and other healthcare professionals are often tasked to lead discussions and decision making which will impact significantly on patient's care. The Cynefin framework provides a feasible model for team leaders to appraise the prevailing context in IPTMs so that discursive strategies can be tailored to improve team decision-making.
Conclusion: A keen understanding of context while deliberating care decisions during IPTMs can enable interprofessional teams to adopt discursive strategies for effective collaborative decision-making. Our findings corroborate the importance of equipping interprofessional

team leaders with conceptual frameworks that promote contextual awareness, so as to enhance interprofessional communication and decision-making during team meetings.

3HH2 (1625)
Enhancing Interdisciplinary Patient Care via Patient-Centered Interprofessional Collaboration Computerized Platform

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Presenter: Yen-Ling Ko, Chimei Medical Center, Tainan, Taiwan

Background: Interprofessional collaboration among healthcare workers improves outcomes of medical care provided to the patient and is also an important element of continued medical education and professional development. Multidisciplinary meetings can be conducted for having a holistic patient-based discussion. However, these timed discussions may not be conducted frequently enough to serve the purpose of "real-time" patient care. To truly provide continuous interdisciplinary care, a patient-centered communication platform is helpful. Chimei Medical Center organized a project to develop a patient-centered computerized platform to fulfill interprofessional collaboration needs for hospitalized patients. The computerized platform features a spiral-shaped integrated care area which provides updated information on patient progress and a communication area that allows instant communication, virtually putting all the different professionals on the same page. Besides providing the means for timely communication, more importantly, this platform can also provide learning and teaching resources.
Method/Results: A five-scaled online survey with convenience sampling by referring to Technology Acceptance Model (TAM) was used to get feedback from pilot users of this computerized platform. In total, there were 108 valid copies of the questionnaire obtained from 35 respiratory therapists, 22 nurses, 21 nurse practitioners, 10 doctors, 8 rehabilitation therapists, 6 pharmacists, 3 nutritionists, 2 quality managers, and 1 administrative personnel. The responses, with respect to the platform, show high approval for perceived usefulness and perceived ease of use (mean > 4.0) as well as high behavioral intention to use (mean > 4.2).
Conclusion: Multidisciplinary teamwork can achieve greater efficiency and provide better quality in patient care. But scheduled multidisciplinary discussions at set intervals are inadequate and more frequent meetings can add on clinical burden. Thus, a dynamic, integrated and updated information platform that also allows multidirectional communication facilitates simple and

efficient interprofessional communication and collaboration.

Medical professionals need to be equipped with the ability to work in interdisciplinary teams to provide the best quality patient care. By using this newly developed computerized information and communication platform, members of the health care professions can come together at all times to give professional advice for optimal patient care.

3HH3 (1350)
Knowledge and Attitude towards Interprofessional Collaboration among Postgraduate Medical Students of Bangladesh

Authors
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Presenter: S M Tajdit Rahman, National Institute of Diseases of the Chest & Hospital, Dhaka, Bangladesh

Background: Interdisciplinary healthcare teams are central to improve patient outcomes. Strong interprofessional education (IPE) is fundamental for effective team performance. IPE is also essential for a good healthcare system. But, in Bangladesh, there is lack of knowledge and process to develop a positive attitude towards Interprofessional education and collaboration.
Method: A cross sectional type of descriptive study was conducted to assess the knowledge and attitude of postgraduate students of BSMMU, Dhaka towards interprofessional collaboration. 300 students were purposely selected for study. Data were collected by face to face interview from the respondents through semi-structured questionnaire.
Results: Majority of the students showed lack of knowledge (70.33%) about interprofessional collaboration. Most of the Students did not know the importance (79.33%) of interprofessional collaboration and education. Very few students enjoy team work (24.67%). Majority of them do not know how to implement (69 %) interprofessional collaboration.
Poor knowledge of postgraduate trainees is a sequel of lack of introduction in undergraduate level. Without proper knowledge and application of IPE a good healthcare system would not be possible. Measures like classes from under graduation, campaigning, review of curriculum, collaboration with other countries, student exchange etc. should be taken.
Conclusion: It can be concluded that knowledge and attitude about interprofessional collaboration of postgraduate medical students of third world country like Bangladesh is very poor. For future doctors it could be difficult to take part in the era of interprofessional collaboration which is very important for patient care.
Take-home message: Poor knowledge and attitude about interprofessional collaboration between postgraduate medical trainees of Bangladesh.

3HH4 (980)
Unmet needs in communication between residents and nurses in internal medicine wards: at a university teaching hospital in Korea

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Background: Inter-professional communications between the healthcare practitioners is an important issue for patient safety. Residents and nurses in our hospital also perceived that inter-professional conflict has been increased after introduction of new regulation on resident duty hours. The purpose of this study was to assess unmet needs in communication between residents and nurses, which may cause interprofessional conflict.
Method: Residents and nurses in the internal medicine wards at the Korea University Anam hospital (Seoul, Korea) were invited to participate in the survey. A questionnaire asking perception towards competencies in interpersonal/teamwork skills of each counterpart, frequency/main causes/resolving methods of conflicts, and the actual vs. preferred tools of communication was developed.
Results: Twenty-four residents and 213 nurses voluntarily participated in the survey. The mean score of satisfaction level of inter-profession communication in nurses was 4.1 out of 10, but it was 5.1 out of 10 in residents. About 70.1% of the nurses reported stressful conflicts and the mean number was 8.75 over the last 12 months. About 54% of the residents experienced conflict with nurses and the mean was 4.9 over 12 months. Most of the nurses regarded residents' disrespectful attitude (75%) and unwanted way of communication (23%) as causes of conflicts. More than 50% of residents claimed that clinical competency of nurses was unsatisfactory. In addition, residents were not satisfactory about nurses' choice of communication tools; inappropriate considering medical urgency. Currently, cellphone was the most popular communication tools (85%), followed by mailbox (10%), face-to-face (5%). However, 60% of nurses wanted to communicate using intranet messenger, followed by face-to-face (27%), cellphone (13%). On the other hand, residents wanted to use cellphone in 50%, followed by intranet messenger (40%), face-to-face (10%).
There was considerable amount of inter-professional conflicts due to discrepancies in communication methods according to medical urgency. We also found that intranet messenger and discussion about appropriate use of communication methods are urgently needed to foster inter-professional collaboration.
Conclusion: Various strategies and investment are needed to improve inter-professional communication. Smart application of technology-based communication tools might contribute to decrease unnecessary conflicts in clinical field.

3HH5 (1820)
Analysis of Learning Behavior and Learning Performance in Blended Learning of IPP/IPE to Clinical Nurse

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Presenter: Li-Chen Lin, Tri-service General Hospital, Taipei city, Taiwan

Background: Our hospital used Blended Learning to provide interprofessional education. Health care teams with basic knowledge of case demographics, health care matrix and the integrated medical care notification on the intranet teaching platform. The day of the seminar will be conducted by simulation and video recording to model appropriate interprofessional teamwork. Nurse can watching and learning online after the seminar.
Method: Nursing department has been using both the course satisfaction and test scores, only know the reaction and learning situation in Kirkpatrick Model. We start used Interdisciplinary Education Perception Scale (IEPS) to monitor changes in attitudes and perceptions of nurse. The analysis was conducted in March to October 2017, after nurse participating in seminar, in addition to online satisfaction, completing the quiz and study sheet, need to write the IEPS. The original 4 subscales version of the IEPS was published by Luecht et al. (1990, Journal of Allied Health, 181-91). that can be used to assess the effect of interprofessional education experiences on Nurse.
Results: Total of 789 Nurse completed the learning, only 640 completed the questionnaire. The proportion of satisfaction was 91.9. The IEPS 4 sub-scale: competency and autonomy was 5.45 ± 0.70, perceived need for cooperation was 5.44 ± 0.68, perception of actual cooperation was 5.50 ± 0.76 and understanding others' roles was 5.35 ± 0.64.
Further analysis of the sub-questions 「Individuals in my profession have a higher status than individuals in other professsions」 show a lower degree of feedback(5.15 ± 1.02).
Using of Blended Learning to provide interprofessional education care team, the content of the course and the video on the process of testing and discussion on the network, the scene by the all health professions use and learn from others to solve problem, the core knowledge, skills and attitudes converted to the contextualized-KAS. That means Clinical nurses have less affirmation of their own professional, but also look forward to their performance in the interprofessional care team.
Conclusion: Clinical nurse in addition to by the education and training courses, nursing division intensified recognition of care team, we should also organize and summarize Nursing professional knowledge and skills to demonstrate the uniqueness of the nursing profession in the clinical care process and teamwork.

3HH6 (2090)
Physicians and nurses in simulation: Perceptions of interprofessional Collaboration in Trauma-team Simulations

Authors
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Leila Niemi-Murola

Presenter: Leila Niemi-Murola, Helsinki University, Espoo, Finland

Background: There is a wealth of simulation studies on learning knowledge and technical skills in a single profession. However, there are fewer studies about non-technical skills in interprofessional clinical simulation; and studies about perceptions of interprofessional teamwork are rare. This phenomenographical study focuses on work-based, high-fidelity simulations of interprofessional trauma-teams; and aims to explore how the participants of these simulations percieve teamwork in interprofessional healthcare teams.
Method: Our data consist of semi-structured interviews of ten healthcare professionals at Töölö Hospital in Helsinki. Participants were selected using purposive sampling aiming at a variation between professions, and their working-life experiences. Four residents, three experienced nurses, and three experienced clinicians who have participated in trauma-team simulations were recruited for the study. Data were transcribed word for word and analysed using phenomenographic research methodology, which explores differences between participants' perception of a phenomenon.
Results: The analysis of the data revealed an interesting dichotomy related to the professional experience of the physicians. The more experienced physicians focused on medical and logistical problems which made teamwork more difficult. Senior physicians expressed that the teamwork itself worked well, while residents and nurses indicated several flaws in the collaboration. Interprofessional tension, lacking communication, and lacking leadership was frequently brought forth as examples of suboptimal teamwork. As participants gave examples of problematic teamwork, blame was usually assigned to a member of another profession. However, participants sometimes also expressed flaws inside their own profession. The experienced nurses described their role in the simulation as being co-instructors; to actively support junior physicians' learning.
Conclusion: This study recognised divergent views about interprofessional teamwork between residents, senior physicians, and nurses. These observations are valuable for the future, especially when designing interprofessional simulation exercises, when planning how to choose participants, and when conducting the debriefing of an exercise.
The junior physicians, senior physicians, and experienced nurses had differing perceptions of collaboration. Senior physicians focused on factors outside the teamwork which made interprofessional collaboration challenging, while the junior physicians and the nurses focused on analysing the teamwork.

3HH7 (2351)
Interprofessional collaboration education initiatives: what works for whom, how and under what circumstances

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Presenter: Isabelle Gaboury, Université de Sherbrooke, Longueuil, Canada

Background: An optimal collaborative practice is rooted in the exposition of future healthcare professional to interprofessional education (IPE). IPE initiatives are defined as "occasions when two or more professions learn with, from and about each other to improve collaboration and the quality of care". However, few research have studied the facilitating or impeding factors and the underlying mechanisms to this apprenticeship.
Method: This project aims to achieve a realist review of the literature to understand context and underlying mechanisms related to successful and unsuccessful IPE initiatives for medical and health sciences trainees. This presentation focuses on the Context-Mechanism-Outcome (CMO) configurations developed through this research project. This review was built on an initial framework combining theories about the development of prejudice, the intergroup contact, self-efficacy belief, and self-development. From the 6178 articles identified through a search of Medline, CINAHL, PsychInfo, and Google Scholar (1997 to 2017), 367 were considered for directed content analysis.
Results: The review included trainees from various disciplines including medicine, nursing, rehabilitation sciences, social work and psychology. The analysis shed light on CMO chains allowing for a better understanding of the successes and failures of various IPE learning situations. Notably, a clear learning context (e.g. explicit goals of the IPE initiative, roles and expectations of the participants, multidisciplinary representation of the participants, and qualified educators) and concrete examples from the trainees' hands-on practice led to openness (or not) to learning IP, attitudinal change, and self-reflexivity; which in turn resulted in improved (perceived or measured) collaborative skills, teamwork, and understanding of one's role.
Conclusion: This study is the first one to highlight CMO chains that apply to an IPE context within an academic setting. It emphasizes the need to carefully plan IPE initiative set-up in order to maximize the outcomes of the intervention.

From this review, medical and health sciences programs will be able to develop better initiatives and workshops allowing for more effective IPE initiatives through, for example, the clarification of the activity terms or by leveraging the challenges encountered by the trainees.

3HH8 (167)
The interprofessional collaborative care in primary healthcare setting in Indonesia: a mixed method study

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Presenter: Ardi Findyartini, Department of Medical Education & Medical Education Center Indonesia Medical Education and Research Institute Faculty of Medicine Universitas Indonesia, Jakarta, Indonesia

Background: Interprofessional collaborative practice (IPCP) is important for high quality health care. The dynamics of IPCP depends on the setting in which it operates. This study aims to explore the perceptions of health professionals on IPCP in a primary health care setting in Indonesia.
Method: A mixed method design was conducted. A validated Collaborative Practice Assessment Tool (CPAT) was administered. FGDs involving health professionals were completed afterwards. Comparative analyses among groups based on demographic characteristics were conducted. Verbatim transcriptions and thematic analyses were completed.
Results: A total of 303 health professionals (61.8% response rate) from 35 primary health centers in Depok-Indonesia participated. A total of 9 FGDs involving 74 informants were completed. The CPAT score of the health professionals is at 74-77% of total score 265. Of 8 subscales, there were differences of leadership and vision-mission-aims subscales between medical doctors and other health professional groups. There were also differences of the score in decision making subscale based on the length of work experience, and in patient involvement subscale based on the age group. Five themes and 36 subthemes were identified from the FGD data. The five themes were: forms, supporting factors, inhibiting factors, perceived benefits and challenges of IPCP.

Conclusion: The CPAT result indicates that the perceptions of health professionals on the collaborative practice was good. Given burden on the individual based and community based health care, IPCP is considered a must. The forms are flexible according to the needs. Role of professions are blurry in the community based and are clearer in the individual based health care. Sociocultural issues such as power differentials among health professions, the need of clear standard operational procedures, and the art of communications between groups are evident in this study. These issues can become strong supporting or inhibiting factors of IPCP. Exploration of IPCP requires understanding of specific characteristics of the healthcare settings and sociocultural factors at the organization, group and individual levels. Studies on IPCP are very important for health professionals in improving the collaborative competences continuously and constructive for the development of IPE.

3HH9 NOT PRESENTED

3HH10 (2913)
KAS thinking template improves hospital interprofessional practice and education

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Presenter: Feng-Cheng Liu, Tri-Service General Hospital, Taipei, Taiwan

Background: The ultimate goal of today's medical care is to improve the quality of holistic health care. By exploring interprofessional practice and education, we can learn how professionals in diverse fields interact and collaborate with each other in a mutually respectful and task-oriented manner to learn the knowledge and skills necessary for effective teamwork. In addition, we can understand how to approach patients in ways that meet their needs and when to call for timely assistance. The health care system can also be strengthened in order to provide patient-centered medical services that improve prognoses.
This study examines a case of spontaneous intracerebral hemorrhage where the KAS (Knowledge, Attitude, Skill) thinking template is incorporated into the cooperative health care and teaching methods. Through cross-disciplinary case discussion, new trainees are able to learn about professional expertise in other disciplines, thereby gaining valuable knowledge about the different roles the members of an interdisciplinary team play in the health care process.

Method/Results: Among the 226 participants in IPP during this neurosurgery transdisciplinary curriculum, 95 of them (42 %) are clinical doctors; 45 of them (20 %) are clinical nurses; 41 of them (18 %) are the intern doctor; 45 of them (20 %) are medical personnel. Most of the participants (224 participants, 99%) were satisfied with the course. The effectiveness of these lectures is compared before (60.42 %) and after (82.33 %) the class, with an average of 22 % of the participants' progress.
Our results show that integration of KAS model with IPP/IPE role playing can be an effective innovation in transdisciplinary teamwork, guarantees that our patients receive the best level of care. This cultivates respect for the specialties of various professions, enables the sharing of expertise and experience, and initiates a shared decision-making process that places patients at the center, whereby their health problems are solved in a cooperative manner.

Conclusion: This KAS model can be routinely applied to clinical healthcare to help promote continuous learning of team members at work and enhance their ability to care for patients.

3HH11 (2575)
Conscious Competence in IPL in Healthcare Education

Authors
Annwyne Houldsworth

Presenter: Annwyne Houldsworth, HECL, Plymouth, UK

Background: The delivery of effective, high-quality patient care is a highly complex activity, demanding health and social care professionals to collaborate in an effective manner. IPL (IPL) is professionally relevant, intellectually stimulating and evidence based. The evolution of healthcare professional cultures has developed, as the individual professions have developed, and are influenced by gender and social class issues. New learning paradigms for healthcare professionals explore new ways to combine expertise, delivering IPL programmes where patient safety and quality of care can be improved (WHO 2010). Intervening early in the health professional's career with collaborative activities with IPL is now considered important in healthcare training. Development of multidisciplinary student centred ideas hopefully results in the enhancement of patient-centred care. Conscious competence in understanding human factors and the benefits of IPL is needed to recognise those that are naïve to IPL and competent professionals who are able to design new curricular and deliver training to address unconscious incompetence to IPL. Considering the values and ethics associated with IPL involves participants gaining mutual respect for each other and their roles and responsibilities but also in shared values and concern for their patients. Being clear about the respective roles that each professional plays, in responsively addressing the needs of the patients, is an important factor in understanding respective responsibilities. are many diverse theories applied to IPL where theory is observation of practice, confirmed by practice. Much development and consolidation of IPL theory is needed.

Take-home message: No one healthcare profession can give complete healthcare single-handed.
'Whenever people listen to one another humbly and openly, their shared values and aspirations become all the more apparent. Diversity is no longer seen as a threat, but as a source of enrichment.' Pope Francis

3HH12 (2751)
Learning Effect Analysis of Implementing Inter-Professional Education (IPE) Teaching Template

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Presenter: Wei-Fang Wang, National Cheng-Kung University Hospital, Tainan, Taiwan

Background: The purpose of Inter-professional Education (IPE) is to educate students or trainees on how to enhance their ability toward Inter-professional Practice (IPP), of which the ultimate goal to enhance Holistic Health Care quality. At Domestic, currently the most common way to Carried IPE out is participating combined conferences, however it is easy to become "learning together with different professions" (Multi-professional Education, MPE) rather than emphasizing "interactions between different professions".
Method: In order to avoid IPE turn to MPE in Inter-professional combined conferences, this study is designed the "IPE Teaching Template" for Inter-professional Education using. By a good "teaching" and "learning" interaction between clinical teachers and students, the students effectively learn operations of Inter-professional Practice, and due knowledge, skills, and attitudes. For understanding the effectiveness, advantages and disadvantages of the "IPE Teaching Template", we regard clinical cases in combined conferences as course contents, and collect learners' course satisfaction, quantitative and qualitative feedback. This study applies reaction level, learning level, behavior level of Kirkpatrick model to evaluate learning effectiveness.
Results:
1. 695 trainees responded.
2. Reaction level: Response of participating IPE help to understand Inter-professional Practice operating is 4.75 and to improve service quality is 4.74 (in 5-point scale).
3. Learning level: The learners have significant improvement in knowledge (80.1%), skill (79.4%) and attitude (77.5%) with the application of IPE Teaching Template.
In addition to the current quantitative evaluation and Kirkpatrick level III outcomes, we will analysis qualitative evaluation to understand phenomena to explore the impact of our IPE Teaching Template on the learner outcome.
Conclusion: The results of this study are review bases and improved references, which will be helpful in the future development of the teaching strategy. And also look forward to this teaching strategy experience could be a domestic medical education implementation Inter-professional education reference.
Take-home messages:
1. IPE & IPP enhance Holistic Health Care quality.
2. IPE Teaching Template has positive results.

3HH13 (3491)
Development of a toolbox for multisource evaluation of Interprofessional Education and Interprofessional Collaboration in Switzerland

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Background: There is no standardized toolbox to evaluate outcomes of Interprofessional education (IPE) and Interprofessional Collaboration (IPC) from the perspectives of different stakeholders (multisource) which is validated for the context of the Swiss health care system. Based on an assignment by the Swiss Federal Office Of Public Health, we aim to provide such a toolbox, the Swiss InterProfessional Evaluation Instruments (SIPEI).
Method: We scrutinized theoretical models in the literature which depict the chain of causes and effects present in the sequence of IPE -> IPC -> health-related outcomes, and identified conceptual weaknesses that seem to hinder meaningful evaluations of Interprofessional activities. We created an adjusted model which stresses the multi-causality of IPC by adding the domain of organizational factors (IPO), i.e. management decisions and supporting institutional frameworks which also must be present in an institution for IPC to happen. Using this model and observing project specifications about cost efficiency, we defined final purposes, objects and methods of evaluations using SIPEI: SIPEI is a toolbox of questionnaires designed to enable multisource evaluation of the entire chain of causes and effects in the field of IPE/IPO/IPC with the purpose of formative use on a local institutional scale and the summative purpose of gaining knowledge about outcomes of Interprofessional initiatives on a federal scale.
Results: We present a preliminary concept for SIPEI which stipulates five questionnaires for different stakeholders, i.e. health professions as learners in educational settings (asking about IPE), directors of educational programs (asking about IPE), patients (about perceived IPC), health professions in clinical settings (about IPE, IPO, IPC at their workplace), and leaders of clinical units (about IPE, IPO, IPC).

Conclusion: Formative evaluation of IPE, IPO and IPC is expected to improve health-related clinical outcomes. Summative evaluation at multiple institutions may consolidate evidence for the usefulness of Interprofessional initiatives. SIPEI promises to facilitate both. SIPEI next will be validated by a panel of experts. When finalized, SIPEI will enable multisource evaluations of output and outcomes of IPE, IPO and IPC in educational institutions for health professions and in health care institutions in Switzerland.

3HH14 (1696)
Verifying the reliability and validity of the Japanese version of Interdisciplinary Education Perception Scale (IEPS)

Authors

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Presenter: Hyuga Suzuki, Nagoya University School of Medicine, Nagoya, Japan

Background: In recent years, the necessity of Interprofessional Education (IPE) for undergraduate healthcare professions students has been increasing worldwide. Interdisciplinary Education Perception Scale (IEPS), one of the global evaluation scales measuring the effect of IPE, was originally reported by Luecht RM et al. in 1990. In Japan, Itakura et al. translated into Japanese and created the Japanese version of IEPS in 2012, but it was not sufficiently considered about reliability and validity. Therefore, we analyzed its reliability and validity along with its sub-scales.

Method: Subjects were 186 health care professions students which were composed of 99 medical students (5th year), 21 nursing students (4th year), and 66 pharmacy students (5th year) who participated in one-day IPE session conducted as a part of clinical training at Nagoya University Medical School from April 2017 to November 2017. We asked them to answer the Japanese version of IEPS before and after this IPE. This scale is composed of 18 items, scoring on a 6-point Likert scale which ranged from 1 (strongly disagree) to 6 (strongly agree). Statistical software (IBM SPSS 24.0 Statistics) was used for factor analysis and factor reliability was verified (Cronbach α). After that, content validity was verified by several experts familiar with IPE.

Results: From the factor analysis, three factors were extracted from 15 items excluding 3 items. The value of Cronbach α was the following: factor 1 was 0.861, factor 2 was 0.882, and factor 3 was 0.785. Three factors ware named "self-respect for own professions", "cooperation with other professionals", "fundamental ability of own professions" respectively. The content was validated by several experts.

Since the each value of Cronbach α was more than 0.7, the three factors proved to be reliable. We expect that the Japanese version of IEPS will be widely used as a measure of the educational effects of IPE, especially three sub-scales: "self-respect for own professions", "cooperation with other professionals", and "fundamental ability of own professions".

Conclusion: This Japanese version of IEPS will lead to the dawn of international collaborative research related to IPE.

3HH15 (2294)
Interprofessional high-fidelity simulation: a pilot project

Authors

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Background: Simulation in health professions education is an important tool for development of technical and non-technical skills. Patient care requires good teamwork and coordination between different healthcare professionals. Experiential learning strategies, e.g. high-fidelity simulation (HFS), could provide opportunity for undergraduate students of different health professions to improve effective interprofessional (IP) collaboration and teamwork.

Method: This pilot project was a cooperation between three faculties from two institutions. It included medical, nursing, psychologist, and pharmacy last year undergraduate students, and faculties from all four healthcare areas. An IP HFS scenario was created, and faculty-facilitated debriefing was conducted after each simulation. Objectives of the pilot-project included: the feasibility of an IP HFS, and if the students could demonstrate through a simulated scenario their relational skills with the patients, family members and other health professionals.

Results: Four HFS sessions were conducted with four students each (medical, psychologist, nurse, and pharmacist), debriefings were performed after the sessions. Open questions about HFS´ pros and cons were

evaluated, as interactions between team members. Faculty discussion was also completed after the sessions. All participants referred that the simulation was a good method for training their specific professional competencies and their relation with others health professionals. They would like to include HFS in their undergraduate curriculum.

Conclusion: It´s important for all healthcare professionals to interact and know better the role of each other in the patient care to establish better interactions and improve individual and team performance. Some difficulties observed about the HFS were: time constrain, restricted physical space, and limited access to clinical information. All participants gave positive remarks about the simulation, valued the importance in their individual area and interaction with other health professionals. Interprofessional HFS appears to be feasible and positively accepted by students from different healthcare areas.

3HH16 (2313)
Interprofessional Training, is not just Education, but Collaboration

Authors

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Presenter: Joseph House, University of Michigan Medical School, Ann Arbor, USA

Background: There is an increased emphasis on including Interprofessional Education (IPE) in all healthcare training. However, IPE is not enough as shown by the WHO Framework for action on IPE and Interprofessional Collaborative (IPC) practice. It is the job of schools to create opportunities for students to work together, not just learn together.

The College of Pharmacy already had an IPE course which involved 8 classroom sessions which discussed the Social Ecological Model of Health along with 20-hours of community service. All students participated in the IPE classroom sessions. A group of Interprofessional faculty modified one community service site, Ypsilanti Meals on Wheels (YMOW), and intentionally create interprofessional collaborative teams. All students reflected on "What insights have you gained about how different professionals think about the factors in the social ecological model of health?" A comparison of reflections from students who participated in the intentionally created IPC with a random sample of all other sites was completed, and themes in the reflections were identified, quantified, and compared.

Method: There were 72 students enrolled in the course. Thirteen students were assigned to YMOW. During the YMOW service house, students completed nutritional assessments during at least six sessions with students of their same profession and six sessions as part of intentional IPC teams. Their reflections were qualitatively

analyzed by 3 members of the research team. Twelve themes were identified. The reflections from the 13 IPC and 12 non-IPC students were analyzed.

Results: Roles/Responsibilities was reflected on by 13/13 (100%) of IPC and 5/12 (42%) non-IPC and learning about another health professional was reflected on by 9/13 IPC (70%) and 1/12 (8%) non-IPC, both are significant. There were no other significantly difference in themes.

Conclusion: Intentionally creating IPC teams in an IPE course, significantly affected what and how students learned about each other and learning the roles and responsibilities of other health professionals. Educating students needs to include collaboration (IPC) as well as education (IPE).

Take-home message: When developing IPE session, creating an accompanying IPC experience should be considered.

3HH17 (3019)
An Outcome Measure of Inter-Professional Education Experiences: One Method to Consider

Authors

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Background: An Inter-Professional Education (IPE) collaborative was started within the College of Health and Human Services amongst the faculty from each academic unit. The purpose of the collaborative was to create and encourage IPE experiences for the students.

Method: The initial structure focused IPE planning around four types of experiences; simulation, journal club, case study, and grand rounds. An outcome measure was added to assess the effectiveness of the experiences. The outcome measure was based upon the work of Lockeman (Lockeman et al, 2016) who identified 16 variables to measures two domains of IPE; professional interaction and values.

The questionnaire was created in an online survey platform for ease of distribution to the many cohorts of students from across multiple departments that would be involved in IPE experiences. A pre- and post-experience measurement methodology was adopted to determine if the students reported a change in their opinions of professional interaction and values. A series of open-ended questions were added to the post-experience questionnaire. Instructors incorporated one of the four types of experiences into their coursework, students were given a link to the questionnaires via an online course management tool.

Results: Data collection is ongoing, to date over 100 students (male = 27, female = 63, average age = 27 ± 6.82 years) have completed the pre- and post-experience questionnaires. An analysis of variance indicates significant changes (p = .04) with reported improvements in

students' opinions of interaction and values. Review of the open-ended questions indicates that the students enjoyed the various experiences and discovered many new aspects of the various other professions involved.

Conclusion: While our results are preliminary, it is clear that our efforts to encourage IPE are proving to be successful. Our assessment method has indicated significant positive changes from pre- to post-experience for the students.

Planning for IPE experiences can be challenging from a planning standpoint. Determining the effectiveness of that planning is incumbent upon the instructors. We have shared one method for measuring the impact of the IPE experiences.

3HH18 (2214)
How the presence of social work students influences multi-disciplinary decision making in IPE

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Background: In super-aged societies, the patient-centeredness in care provision as well as home health care and/or regional health care will be of prime importance. Common interprofessional education (IPE) programs, however, invite students of care-providing professions such as medical, nursing, and dental students and not care-coordinating professions. We therefore investigated if and how the addition of social work students helps improve multi-disciplinary decision making in our IPE program.

Method: A total of 367 final-year students from eight health professions, including 106 medical students, participated in a two-day IPE program which included a mixed-small-group case study. Among the total of 48 groups, 31 had a social work student. After the completion of the case study, participants answered a questionnaire concerning "how the presence of social work students helped multi-disciplinary decision making". Of the 367 attendees, 350 students completed questionnaire. The results were analyzed quantitatively, and the comments from 105 medical students were analyzed qualitatively.

Results: Seventy percent of students answered affirmatively that the presence of social work students helped group's decision making. Affirmative answers were more common among students whose group had social work students (73.6%) than those whose group did not have them (60.4%, P=0.009). Also, the percentage of students answering affirmatively was the highest among

medical students (76.2%) and the lowest among social work students (45.2%). Qualitative analyses revealed that the knowledge of the social welfare system increased the use of various services available for home health care. Discussion with social work students broadened the perspectives, added the focus on cost and financial resources, and brought more patient-centered conclusions.

Conclusion: In the previous study, our IPE program helped students understand the roles and responsibilities of other healthcare professions (Yamaguchi et al., AMEE 2014), and the importance of patient-centeredness (Yamaguchi et al., AMEE 2017). In this study, the addition of social work students brought more patient-centered conclusions. Mixed-small-group IPE programs with multiple healthcare professionals better prepare students for coordinated and collaborative care needed in aging societies. In addition, the addition of social work students to IPE programs may improve patient-centered decision making.

3HH19 (529)
The Impact of Interprofessional Education in the Community

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Presenter: Enoch Ng, School of Pharmacy, The Chinese University of Hong Kong, Hong Kong

Background: Developed in 2013, CU CHAMPION is a joint school outreach team of the Faculty of Medicine, The Chinese University of Hong Kong (CUHK). Interprofessional collaboration and service learning are integral parts of CU CHAMPION's outreach program every year. It aims to offer students of different healthcare disciplines the opportunities to work together as an interprofessional team and engage them in raising health promotion in the community.

Method: In 2017, CU CHAMPION conducted a large-scale community outreach program in Hong Kong, which focused on improving the public's awareness on disease prevention and medication safety. Enrolled student volunteers had to attend training workshops to learn about the outreach logistic, and participate in case discussion. They were also enrolled in an e-learning course called CATALYST 2017, which provided a cross-disciplinary platform in health sciences education. During the outreach services, student volunteers were assigned to carry out various duties such as conducting health questionnaire,

providing basic health check, giving health and medication safety education to the service participants.

Results: Totally 480 students and professional volunteers participated in the outreach program. The team successfully reached out to 4235 Hong Kong citizens, most of them were elderly. Evaluation surveys among CUHK student volunteers showed significant improvement in medical knowledge, skills, confidence, and program satisfaction. There was an 11.6% increase in medication safety knowledge, 17.1% increase in dementia understanding, 29% increase in atrial fibrillation knowledge, and a 19% increase in geriatric care knowledge.

Conclusion: CU CHAMPION successfully demonstrated interprofessional service learning to improve students' attitudes toward geriatric medicines, elderly care, and enhancing their awareness of health needs in the community.

Interprofessional outreach program is a significant and useful addition to undergraduate medical education. The increase in students' understanding for community patients can highly enhance their empathy toward their future patients. Students can also exchange their medical knowledge and specialty with peers of other disciplines. In short, such collaboration will induce positive influence on interprofessional team work in healthcare frontline, and a very positive impact on patient care in the long run.

3HH20 (2263)
Clinical Reasoning for Inter-Professional Pregnancy Care – Everyone on the Same Page!

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Presenter: Michelle Schlipalius, Monash Health, Melbourne, Australia

Background: Inter-professional collaboration is crucial to provide women with safe and effective team-based pregnancy care. However, it can be challenging for all team members to develop shared mental models and the required clinical reasoning and thinking steps. This paper reports on the development of an inter-professional workshop aimed at facilitating the development of shared understanding regarding clinical reasoning.

Method: The workshop comprised a one hour, face to face, interactive session using typical case studies. A common framework and set of thinking steps necessary for formulating a pregnancy care plan was presented. Four thinking steps were developed to "make thinking visible".

1. Issue identification - What medical, psychological and social issues are relevant to this woman's pregnancy and birth?
2. Issue management - How will we manage each issue, integrating clinical guidelines and the woman's preferences?
3. Evaluation of care type - Does this woman require low, medium or high-risk care?
4. Communication / Documentation - Clearly and concisely communicate with the woman. Document the issues, management plan and care type.

Results: 103 midwifery and medical learners attended a workshop. The majority (94%) agreed or strongly agreed to better recognising the need, acquiring the skills and being more confident to develop a pregnancy care plan. Learners liked the structure provided by the thinking steps, realistic case studies, relevance to their work, opportunity to ask questions and interactive approach. Apart from the opportunity to complete more case studies, no areas for improvement were noted.

Conclusion: Although pregnancy care is provided by an inter-professional team, there is often a presumption that inter-professional collaboration will automatically occur. This workshop suggests deliberate practice enables learners to apply their own clinical reasoning to pregnancy care and also consider that of their colleagues. The workshop made visible the 'practices' of a community, with discussions at inter-professional meetings providing ongoing feedback to staff. Overall, clinicians were very positive about the workshop.

Take-home messages: Clinicians value explicit education on clinical reasoning. This assists them to provide pregnancy care to women and ensures all members of the inter-professional team are on the same page!

3II: Posters: Transitions in Education/Professionalism

Location: Hall 4.u, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

3II1 (3436)
Student Assistantship Programme in Family Medicine

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Presenter: Wern Ee Tang, Lee Kong Chian School of Medicine, Singapore

Background: Student assistantships during which final year medical students undertake responsibilities of a postgraduate year 1 (PGY1) doctor under supervision aims to provide experiential learning to improve the transition of medical students to doctors. At the Lee Kong Chian School of Medicine, Nanyang Technological University, has developed a student assistantship programme that includes a 3 week Family Medicine posting in primary care in addition to a7 week hospital posting (general medicine and general surgery/ orthopaedic surgery). This is the first time that a student assistantship programme in Family Medicine (FM SAP) has been developed in Singapore. The differences in organizational structure , patient population and learning opportunities between tertiary care and primary care presents different opportunities and challenges in the affordance of a safe learning environment that will optimise students' preparedness to start work
In this work, we describe the Student Assistantship Programme in Family Medicine, its development process, and the learner and teacher experiences from the inaugural cohort of students completing the FM SAP. Critiques and comparisons will be made following a narrative review of relevant literature in student assistantships and clerkships.
Results: Early results suggest that adequate resourcing to ensure supervision with progressive independence and a varied patient mix is valued by students. More detailed exploration is ongoing.
Conclusion: A student assistantship programme in Family Medicine provides experiential learning opportunities that help the transition of medical students to doctors. Supervision with progressive independence and a varied patient mix are valued by students. Further work is necessary to understand how students' preparedness to start work can be optimized.
Take-home message: Student Assistantship Programme in Family Medicine provides experiential learning opportunities that prepare students for work.

3II2 (3659)
Easing the transition into clinical years: the role of student-led introductory sessions

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Presenter: Hesham Khalid, St George's, University of London, UK

Background: The transition between pre-clinical and clinical years is a major step during medical school, with many students initially struggling to adapt. The use of senior medical students is a potential solution that has been proven to have many benefits such as increasing student engagement. Student input is widely used in other aspects of the curriculum including clinical skills and anatomy. This study aims to assess whether there is a role for senior student involvement in easing the transition of students into clinical years.
Method: Currently, introductory lectures organised by this UK-based medical school are faculty-led. For this study, 4 senior medical students delivered a talk at the start of the first clinical year. The talk covered how to approach placement, problem based learning, written exams and OSCEs. Post-lecture, attendees were invited to complete an cross-sectional questionnaire of 8 questions. Modified Likert scales, Yes/No questions and free text responses were used. Questions covered: (1) quality of the event; (2) content of introductory lectures delivered by the medical school; (3) potential for integrating student experience into introductory lectures.
Results: Eighty-two students responded to our questionnaire. Regarding event quality, 96% rated the talk 'excellent' or 'very good', 99% said the talk met their needs and expectations and 99% students were 'very satisfied' or 'satisfied' with the content. Only 14% were 'satisfied' with their faculty-led introductory lectures. Eighty-eight percent felt that the current introductory module would benefit from previous students' input. If student input was to be added, 51% of students preferred a prepared lecture format.
Conclusion: This is the first study examining the role of student engagement in easing the transition of preclinical medical students into clinical years. This peer-led introductory session was well received. The results can be explained by the theories of social and cognitive congruence. Peers often share similar demographics and personal experiences, facilitating an open exchange of ideas.
Take-home message: Student-led introductory sessions are well received and therefore student involvement in introductory modules may be a useful supplement to enrich the medical school curriculum.

3II3 (2919)
Adaptation to Early Clinical Rotation: Roles of Transition Period

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Presenter: Rulliana Agustin, Faculty of Medicine, University of Indonesia, Jakarta, Indonesia

Background: Early clinical rotation is a period in which usually students feel hesitate and need lots of learning strategies to cope with the change from pre-clinical to clinical stage in their education. For preparing them into clinical practice, there is a transition period, usually one semester before the clinical rotation. Transition is a dynamic process, in which the individual moves from one set of situations to another. Students also cope with new challenges, opportunities, and different emotions. Also, there are evidences of the relation between transitions and the level of stress and negative emotions. In the other hand, transition periods may also present individuals with opportunities to personal development.
Method: This research is part of evaluation process which conducted by Medical Education Unit. It is important for us to explore how students adapt with the clinical rotations and what are the roles of transition period.
Focus group discussions were performed to four different clinical rotations. Each group has finished their major clinical rotation in semester 8: internal medicine, pediatric, obstetrics and gynecology, and surgery. Data analysed then clustered into different themes.
Results: Five important themes were clustered:
1. Different emotions happened when going through first clinical rotations.
2. Characteristics of clinical learning.
3. Challenges students faced in the transition period.
4. Strategy to adapt.
5. Factors determine the adaptation into transition period.
Conclusion: It is important to provide an improved transition between pre-clinical and clinical periods. In our curriculum, seventh semester represents a transition period from pre-clinical to clinical learning.
Students need to understand the characteristics of clinical learning. In transition period, it is important to prepare students for clinical learning, such as using different learning strategies.
Faculty members need to prepare students and put some changes into the transition period if needed.
Take-home messages:
a. Staff should prepare students about adaptations.
b. Peer mentoring can be used to provide understanding that clinical practice is full of uncertainty.
c. Students are encouraged to make reflections.
d. Academic counselors need to monitor and helping students identify their strengths and weaknesses.

3II4 (747)
New Beginnings: A Resident Orientation Program

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Background: Starting residency is a challenging transition for every young doctor. Junior residents have to understand hospital policies at their new institution, learn about medical liability and malpractice, find their ways around and get familiar with their new position, responsibilities, and team of colleagues. To help incoming residents at the University of Istanbul, Cerrahpasa Medical School (CMS) to settle in to their new positions and their new institution, all are required to attend a resident orientation program since 2010. We continuously evaluate and monitor residents' acceptance and satisfaction with the program. Goal of the program is to meet their needs and to ease the start into a new phase of their medical career.
Method: The 15-hour residency orientation program consists of lectures, discussion sessions and skills instructions. Lectures include medical ethics, scientific research, databases, communication skills, hospital management structure, payment system, history of CMS, infection control policies, and hospital laboratories work flow and requirements. Discussion session include medical liability and malpractice laws and regulations. An ACLS course is provided as well.
At the end of the program we asked residents to complete a program evaluation questionnaire.
Results: Eighty junior residents attended the last program, 33% of the participating residents graduated from CMS, 67% graduated from other Medical Schools nationwide. The total satisfaction score was 7.36 ± 1.94 (11-point scale from 0 to 10). Residents perceived the content and the faculty contact time as the strengths of the program. Discussion session on medical liability and malpractice, ACLS skills instructions and scientific methods sessions were overall highest rated. Residents who graduated from other Medical Schools especially appreciated the laboratories workflow session.
Conclusion: Overall, the orientation program was very well received. Based on the distinct evaluations of local versus national Medical School graduates, we plan to tailor the program specifically to the needs of each group in the next years.
A resident orientation program will surely facilitate starting the residency. This serves not only the well-being and performance of the residents, but also adds the institutional benefits due to increased resident knowledge of local specifics and general skills.

3II5 (3243)

A foundation year one led teaching programme for medical students: a review of student feedback

Authors

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Background: The greatest challenge of working as a newly qualified foundation year one (FY1) doctor is the sudden progression in responsibility and independence compared to as a medical student. We designed a three month bedside teaching programme for a small group of 3rd year undergraduate medical students at Queen Mary, University of London which focused on tackling key problems dealt by FY1 doctors. At the end of each teaching assessment feedback was provided for the tutors. Student feedback was submitted through an online feedback form which was collated by the lead teaching organisers. The questions included were 1) What was the topic? 2) How would you rate this teaching session overall? 3) What was particularly good about this session? 4) What, if anything, could be done better? 5) Do you feel more confident examining patients after this session? 6) Would you recommend this session to other students?
Method: Positive feedback were identified from reviewing student feedback which mainly focused on two areas 1) informality and how interactive the session were and 2) ability of students to discuss and brainstorm amongst themselves. Areas of improvement mainly focused on scheduling conflicts. Overall, the teaching session was rated as 'good' and the students 'somewhat felt confident' in examining patients after the session.
In our teaching session we discussed and brainstormed typical case presentations encountered and how this would be tackled as an FY1 doctor. The feedback primarily focused on how the student felt comfortable in an informal and interactive environment. History and examination were discussed amongst the group wherein ideas and thoughts were shared and at times debated amongst students.
Results: This teaching programme overall was received well by the students and the same students would recommend the session to others. We aim to extend this programme again for the next three months by making slight changes to our teaching plan.
Conclusion: The inclusion of a FY1 led teaching program especially for final year medical students is beneficial in helping them progress from medical student to graduating doctor.

3II6 (684)

The impact of a peer-led revision programme on the self-perceived preparedness of final year medical students for examinations and work as an FY1 doctor

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Background: Countdown-2-Finals (C2F) is a peer-led revision programme developed by Foundation Year 1 (FY1) doctors for final year medical students to serve as an adjunct to formal medical and hospital-based curricula for the transition into life as a doctor. The course was developed and co-ordinated by five FY1 doctors, and was delivered weekly by 30 different FY1s, each presenting a different topic from the final year curriculum over eight months (30x1-hour sessions). The underlying premise was that as the tutors were recently qualified, they would be more familiar with both academic and personal concerns of final year students, whilst simultaneously creating a more relaxed and approachable learning environment due to their "junior" status. It was anticipated that this would facilitate open discussion and promote group interaction, compared with the more formal, didactic teaching usually delivered to the students.
Method: All final year medical undergraduates were invited to attend; participants (n=120) were asked to assess the programme through self-completed questionnaires to provide quantitative/qualitative data on: knowledge-improvement; confidence; sense of preparedness for final year exams/FY1; preference for peer-led revision; and areas for further improvement. Participants were also asked for up to three reasons for their decision to attend the course.
Results: Preliminary evaluations suggested that participants valued the content, accessibility and approachability of the tutors, and felt better prepared for final year examinations. Ongoing analysis of the results also indicated that participants preferred peer-led sessions which promoted interactive case-based discussions. Reasons for attendance varied, but included concern about previous results, lack of confidence and desire to extent their knowledge-base.
Conclusion: The peer-led revision course appeared to satisfy its original aims, insofar as participants valued the contemporaneous nature of the tutors, their familiarity and understanding of participants' concerns, and the more relaxed atmosphere of the sessions compared with formal, consultant-led teaching. Future data collection will focus on whether academic and clinical performance was improved by course attendance.
Take-Home Messages:
- preparation for finals/first year of work may be more effective if provided by peers;

- interactive, rather than didactic, teaching is more conducive to learning in final year students

3I7 (1006)
Ready... Steady... Learn! Utilizing Student and Faculty Feedback to Enhance Transitioning to Clinical Clerkship and Residency

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Background: Medical students frequently experience difficulties transitioning to clinical learning. To increase student preparedness for clinical learning and subsequent transitioning into stages of medical training, Dalhousie unrolled a program of learning experiences, named PIERs (Positioning, Integration, Evaluation, Research and Review) in September 2013. PIERs 1 and 2 are delivered at crucial periods in the 3rd year of training; PIERs 3 and 4 are delivered in the 4th year.
Method: PIER 1 is delivered prior to students entering their clinical training and PIER 2 is delivered after they complete one quarter of that training. PIER 3 is delivered prior to students beginning 4th year electives while PIER 4 prior to residency. The PIERs curriculum is designed to develop students' skills in clinical procedures, skills interpreting diagnostic tests, critical thinking and communication skills, and professional behaviors and attitudes. Each PIER is evaluated through surveys administered at the conclusion of sessions.
Results: Five years of PIER session evaluations show them to be well received and effective at enhancing preparedness for clinical learning. The procedural skills sessions have consistently been the best reviewed and are regarded as the most useful. Results also show students consistently identified certain skills requiring more guidance than others over multiple years. For example, students felt prepared to perform communication related tasks with minimal guidance while unprepared to interpret imaging and lab results. Pre-post survey results show students feel better prepared for residency following PIER 4.
Conclusion: The feedback has led to significant improvements to PIERs and the overall curriculum. The establishment of PIERs also led to the creation of a PIER unit head/curriculum lead who modifies sessions annually after reviewing unit feedback. Also, longitudinal curriculum leads in radiology and pharmacology have been established to aid in the curriculum planning and review for PIERs.
Students continue to find the transition to clinical learning difficult. Curriculum enhancements can ease that transition if responsive to student feedback while incorporating the input of faculty. The continuing strength of our curriculum relies on solid multi-year feedback and a truly collaborative faculty effort invested in curriculum improvement.

3I8 (3677)
'Life, death and taxes, what I wish I had known' – A Near-Peer Led Transition Course for New Doctors Focusing on Non-Technical Skills

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Background: The transition from student to doctor in the clinical setting is well-known to be stressful. In 2012, induction training for new Foundation doctors was made mandatory in the UK. Research show these preparation courses typically bias toward technical work rather than non-technical skills (NTS), personal confidence and self-insight. Yet others have shown that task management, team working and communication difficulties are leading sources of stress for new doctors. Our novel transition course focuses upon these non-technical aspects of work as a doctor, often not covered within medical school.
Method: We developed a 3-day regional transition course for medical graduates. The course was delivered by out-going Foundation doctors focusing upon NTS through a mixture of interactive cases, workshops and tutorials. Practical aspects of common Foundation doctor jobs and 'top-tips' were also covered. Participants completed pre-course and post-course questionnaires of free-text responses and a 5-point-likert scale on self-rated confidence and proficiency (1 Strongly Disagree-5 Strongly Agree).
Results: Thirty-two participants attended this course from 2016 to 2017. Both perceived confidence and preparedness for starting work rose significantly after the course (3.04vs4.00 and 3.15vs4.00 respectively, p<0.001). There was also significant (p<0.001) increase in self-rated confidence in: prioritising clinical jobs (2.96vs3.66), escalation (3.26vs4.19), making referrals (2.78vs3.47), working out-of-hours (2.37vs3.47), stress management (3.08vs4.09) and career planning (2.74vs4.06). Qualitative feedback highlighted participant appreciation for personalised career planning advice, increased work-life-balance awareness and feeling more 'orientated to start work'.
Near-peer led skills-specific teaching is effective in raising confidence in non-technical aspects of work and improve perceived preparedness for clinical practice amongst graduates. Hospital, rotation and situation-specific advice may be contributory reasons for the effectiveness of this course.
Conclusion: This course aims to prepare medical graduates for life as a junior doctor through developing transferable NTS. Local educational boards and medical schools should consider holistic transition courses to enhance preparedness and reduce stress for graduates.

Take-home message: Transition courses focusing upon NTS improve confidence and perceived preparedness amongst new junior doctors.

3II9 (2121)
The Dutch transition to graduate medical training: How clinical experience between graduation and residency affects career choice

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Background: Medical trainees need to make an important career choice when they face the transition to residency. For Dutch medical trainees' residency does not necessarily directly follow graduation. Many trainees build clinical experience after graduation as a physician-not-in-training (PNIT) before they make a career choice. The aim of our study was to explore what influences trainee's career preference during the final study year and the period after graduation.
For medical students, experience with clinical responsibilities is acquired through the program in the final year of Dutch medical school curricula, when during extended rotations students work with a high level of clinical responsibility under strict supervision.
Method: The authors conducted a longitudinal interview study with medical students. A first interview was at the start of the final curriculum year, a second at graduation and a third one year after graduation.
The interviews focused how trainees establish career preferences and how preferences evolve over time. Transcripts were thematically analyzed by three researchers using open and axial coding, to identify data patterns and interrelationships, all researchers met over several meetings to discuss the developing analysis.
Results: In the first interview round 24 medical students participated, 22 of them in the second, and 20 in the third round.
Clinical responsibility appeared to be a dominant factor for career preference. Subjects frequently mentioned what it is like to work in a clinical context: being a doctor, making decisions, having one's own patients and responsibility for them. Some subjects mentioned changing their career preference because of this experience.
Conclusion: By experiencing clinical responsibilities, a medical student's or PNIT's perception of a specialty changes. One is forced to reflect, (re)consider and possibly adjust personal career preferences. The underlying process of career choice is stimulated by these iterative reflections, and we conclude career choice is partly made based on experiencing to work independently as a doctor. This implies that Dutch medical trainees benefit from the advantage of working as a PNIT.
Take-home message: Experiencing a high level of clinical responsibility is critical for the development of preferences and choice for residency.

3II10 (2185)
Training students to be doctors: the use of ward round simulations

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Background: A junior doctor is integral to an efficient ward round. In our current undergraduate curriculum, students have informal ward round training through hands-on experience during clinical placements. However, this is not sufficient to prepare junior doctors. The Royal College of Physicians (1) advises all new staff should be trained in ward rounds to improve practice. Current evidence suggests simulation is a valuable method of training (2).
Method: We conducted a study in the interpretive paradigm evaluating the effect of ward round simulation on self-rated preparedness for becoming junior doctors, and for developing required skills for ward rounds. Final year students in our local hospital were invited to participate. Students roleplayed junior doctors engaging in typical ward round duties. Four faculty members supervised the simulation and acted as consultants, patients and allied healthcare professionals. This was followed by a focused debrief to highlight areas for development and key learning points for action.
Students completed a pre- and post-session questionnaire to evaluate the effect of the session. They were also assessed on their technical and non-technical skills by two faculty observers and provided with verbal feedback. We applied for and received ethics approval for the study from the College ethics committee.
Results: Five students volunteered to enrol in the study. A convergent parallel mixed-methods approach was chosen to collect and analyse the data. Quantitative (Likert-scale) responses were obtained from the feedback forms, while qualitative feedback was obtained from open-ended questions and verbal feedback. We will use an inductive approach to analyse qualitative data. Full results will be available in March.
Conclusion: We posit that ward round simulations are useful in undergraduate teaching to improve both confidence and skills, and crucially, prepare for transition to practice.
Structured training and formative assessment in ward rounds should be included in undergraduate medical curricula to improve student confidence and skills.

1. *Royal College of Physicians (2012) Ward rounds in medicine: principles for best practice.*
2. *Harvey, R. et. al (2015) Developing non-technical ward-round skills The clinical teacher 12(5), 336-40.*

3II11 (1944)
Can assessment drive behaviour change? The use of the conscientiousness index in an internal medicine residency programme

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Background: Professionalism is a difficult concept to define and assess, and many tools in use are confined to clinical contexts. Conscientiousness with administrative duties is a component that is often not assessed when evaluating professionalism, although lack of compliance with administrative tasks has been shown to be correlated with poorer outcomes in examinations. Our programme was inspired by the work of Maclachlan et al on the conscientiousness index (CI) that provides a scalar measure of conscientiousness with administrative tasks, and started to use a modified version of this in July 2013. We were interested to see if the use of the CI had changed how conscientious our residents are.
Method: Our version of the CI includes
1. Attendance at teaching activities
2. Submission of administrative data
3. Submission of evaluations done with faculty
4. Uncategorised events such as absence without leave and failure to register for mandatory examinations
Residents gained points for completing tasks punctually, to a maximum of 17 points. They could lose points for uncategorised events. The CI was calculated every 3 months. Residents were briefed about the components of the CI at orientation and updated semi-annually on their performance. The CI formed a minor component of the total assessment for professionalism.
Results: When the CI was first administered, the average score across our programme of about 130 residents was 7.1. This rose to 9.7 by the end of the first academic year and steadily increased to 12.5 by July 2015 and is currently hovering at 14.1-14.7.
Conclusion: The CI is a useful tool that allowed us to measure conscientiousness with administrative tasks, and also send a message to learners about the importance of their responsibilities as learners. We were pleasantly surprised that there was a sustained increase in the CI of the programme as a whole which suggested an element of culture change.
Take-home message: Assessment may drive not just learning but also behaviour change.

3II12 (890)
Understanding of medical professionalism among Polish medical teachers

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Background: The concept of medical professionalism is culture and context specific: without a precise understanding of what this means it remains an empty slogan. Indeed, the lack of agreed definitions in this domain generates differing perspectives within medical institutions in Poland. The objective of the proposed study was to explore the meaning of the term "medical professionalism", for Polish medical teachers working in one Department of Medical Education.
Method: A qualitative study, using semi-structured interviews, was performed between October 2016 and June 2017. The ten participants recruited had different clinical backgrounds and varied in their work arrangements (such as the proportion of clinical workload and teaching responsibilities). Analysis involved a process of coding and categorisation resulting in the development of a descriptive thematic scheme. Due to the nature of the inquiry, the interviews and initial analysis were carried out in Polish before being discussed in English with the academic supervisor.
Results: Participants' understanding of professionalism in Poland is complex, reflecting the historical development of medicine and, at least to some extent, changes in the Polish political situation. More recently Polish understanding of professionalism in many aspects has become similar to the Western frameworks. However, there are some features, which are unique for the Polish perspective. Medical professionalism can be understood as an inter and intrapersonal, construct, experienced in an organizational context, and emerging from a cultural (including linguistic) and historical context.
Conclusion: Changing curricula respect to professionalism along 'western' lines without acknowledging cultural context is a risky endeavour. Acknowledgement of historical aspects of professionalism may help to avoid an educational trap, which may lead to the perception of professionalism as an imposed external construct. Knowledge about culturally specific features in understanding of professionalism could serve as guidance during planning of the teaching or any curricular reform.

3II13 (2052)

Mistreatment, abuse, unprofessionalism and unproductive behaviour: A comparative qualitative analysis of how medical learners and educators define negative behaviour in the clinical workplace

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Background: Nearly half of graduating medical students in Canada and the USA report experiencing mistreatment and abuse via anonymous surveys. Existing definitions of mistreatment and abuse tend to refer to violations of legislation and human rights codes, without addressing the less defined "grey areas" that learners may perceive as abuse (e.g. incivility, neglect, aggression, deception). Drawing upon an understanding of professional behaviour as dynamic and contextual, this research examines medical learner and educator understandings of what constitutes mistreatment and abuse in the clinical workplace. Different understandings of what constitutes abusive treatment may contribute to the challenge in identifying appropriate courses of action to report, address, or remediate mistreatment and abuse.

Method: Using constructivist grounded theory, we conducted interviews with 32 Canadian medical learners and educators at varying points in their career. Using a semi-structured interview guide, we solicited the personal experiences of participants with mistreatment, abuse, and unprofessional behaviour. Participant stories became the prompts for exploration of what they considered to be abusive behaviour as compared to behaviour that was rude, erosive or unprofessional, but did not constitute mistreatment or abuse.

Results: Participants offered many examples of "grey area" behaviours they weren't sure whether to characterize as mistreatment or abuse. They describe how intent, context, relationship dynamic and outcome are integral to sense-making about their personal experiences, offering instances in which nearly identical behaviours were interpreted differently due to these modulating factors. Through this analysis, we offer a framework to help contextualize different forms of negative interpersonal interactions.

Conclusion: This data highlights the challenge in articulating what constitutes mistreatment or abuse. Understanding how learners respond to highly structured, hierarchical, quickly changing environments contributes one piece of information to the complex puzzle of why mistreatment and abuse is so infrequently reported and so challenging to remediate.

A more nuanced understanding of what constitutes mistreatment and abuse could be used in learner orientation and faculty development to help orient expectations of acceptable vs. unacceptable behaviour, highlight different perspectives, and assist clinicians in knowing when to "tread carefully", and when to seek assistance or support.

3II14 (3267)

Rating the severity of medical student professionalism issues and the quality of insight demonstrated in students' response to professionalism remediation

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Background: The Undergraduate MD Program in the Michael G. DeGroote School of Medicine at McMaster University (Hamilton, Canada) is currently engaged in a data management project that will afford statistical determinations of the predictive value of student admission data as it pertains to their performance within the program. As part of this endeavour, information regarding students' in-training professionalism issues will be reflected through inclusion of their appearances before the Academic Progress Committee (APC), which provides disciplinary oversight, support, and remediation to struggling students. However given considerable variation across professionalism violations, there is a desire to further characterize these data with ratings of the severity of professionalism offenses as well as the degree of insight demonstrated by the students in response to the remediation process.

Method: Prior to operationalizing a rating scale for severity and insight inherent to any retrospective or prospective APC file, it was necessary to first establish that we could assign scores for these constructs in a reliable manner. Accordingly, we randomly sampled 39 APC files from the Program records and invited 6 individuals with formal relationships to the APC to review these files and rate both constructs on independent 7-point, anchored Likert scales. These ratings were then subjected to two-way, consistency-type, average measures, random-effects inter-rater reliability analysis in order to determine the consistency of rater perceptions across files.

Results: The results of these analyses revealed intra-class coefficients for severity (0.924) and insight (0.864) that indicate high inter-rater reliability for these measures. These findings highlight that reliable judgements of the severity of professionalism issues demonstrated by students can be levied via review of their interactions with the Academic Progress Committee. Also, via the same

review, reliable ratings of the quality of insight demonstrated by students through the remedial process can also be levied.

Conclusion: Data indicating that a student has registered a professional issue in training will be indexed in the data management project via APC appearances. These data will be further described with appended ratings of the offenses' severity and the quality of students' subsequent insight.

3II15 (1027)

The Development, Over 12 Years, of our "White Coat Ceremony" for Cultivating Professionalism in Medical Students in Japan

Authors

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Background: Professionalism is an essential core competency for medical students and physicians, but a valid methodology for teaching this important proficiency has not been established due to its abstract concept. To welcome our students into the profession and introduce them to their responsibilities to patients, White Coat Ceremonies (WCC) have been performed prior to commencing clinical clerkships in our school since 2006.
Method: To demonstrate, reinforce, and nurture medical professionalism, we have developed an original WCC that consists of two major components; (1) formal addresses quoting aphorisms from Osler, et al. delivered by our Dean and guest speakers who are leading experts in medical professionalism and ethics, and (2) a project designed to create a student-authored-oath (SAO). The messages suggesting principles of medical ethics and valuing the honorable tradition of the "Caring Doctor" have encouraged humanistic qualities in our 4th-year-students and were published in book form. In the SAO project, students have conducted a survey on students' perceptions of a "Good Doctor" and discussed key issues regarding compassionate and ethical care, and interviewed health professionals and patients about society's need for excellent physicians, recorded on video, before declaring their own oath in front of their relatives, peers, and senior doctors.
Results: Our students learned the meaning of the responsibility that comes with wearing a white coat that symbolizes trust, shared their experiences and ideas on the important attributes of good doctors, and reaffirmed their dedication to the competent and ethical care of patients.
Conclusion: We found that our students were highly motivated by the WCC and further developed their aspiration and commitment to the ethical principles of beneficence, respect for patients' autonomy, and justice. The WCC is a valuable opportunity for medical learners to

reaffirm their dedication to the compassionate and ethical care of patients and encourages humanism and professionalism in clinical medicine.
Take-home message: The WCC has emphasized the professional behavior of our medical students and developed their aspirations and commitment to Medical Professionalism.

3II16 (3452)

A qualitative analysis of students' perceptions on professionalism in hidden curriculum: a pilot study in internal medicine rotation

Authors

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Background: Professionalism is a core competency in internal medicine as in all clinical practice. In hidden curriculum, medical students develop professional competency from various processes in the current educational environment. This pilot study aim to explore students' perceptions of what and how they learn about professionalism in hidden curriculum.
Method: Using a thematic analysis of 8 stories from writing narratives of medical students with opened end question about what events that thought them about professionalism during practice in internal medicine rotation at Sunpasitthiprasong Hospital, Ubon Ratchathani, Thailand, October through December 2017.
Results: Majority of the students' stories were coded as positive elements. Other 20% of the stories were hybrid that included both positive and negative element. Most of the experiences are in inpatients setting. The senior medical students, resident and attending staff are the main models in the stories. Two main domains are identified as a student or doctor-patient communication and student or doctor-patient ethical decision making about end of life issues. For instance, student interact with a relative who did not want the patient know his diagnosis of end stage liver cancer. Most of participants indicates that they learned about professionalism from positive role models.
Conclusion: The pilot study firmly suggest that students' narratives are a rich source of information to explore students' perceptions on professionalism in hidden curriculum. This findings suggest that role modelling is the active learning process to transmit professional values throughout the hidden curriculum. The particular experiential learning shape the student to be a competent doctor. Due to small numbers of participants, this study can not identify different educational needs in different year of study. Furthermore, the identified themes might be used to develop professional education in hidden curriculum.

3II17 (3554)
Self-development activities and Reflection, to promote Medical Professionalism

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Background: Professionalism is one of the challenging parts for medical education. The goal of self-development program is to educate medical students to be medical professionals with an understanding of humane.
Method: A group of 4th medical students were assigned to participate with self-development program (Enneagram). Three days activities consist of Ice-breaking activities, lecture, narrative, reflection and panel interview were done. After 1 year, medical students were followed up. Data was collected by in-depth interview.
Results: Most medical students agree that activities promote them to more understand themselves and other persons. They could recognized their intra-psychic conflicts including their resolving skills. They reflected that program teach and support them to be more compassion for others along with themselves.
Conclusion: This activity is one of teaching technique and tools to encourage medical professionalism. Enneagram is the one useful method to promote self-awareness and reconstructs professional identity for medical students. medical students should be encouraged to participate in extracurricular activities to promote their development of professionalism.

3II18 (2648)
Professionalism and Cinemeducation

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Background: Medical Schools are required to teach professionalism outwith the clinical environment (GMC 2013). Without the context of real life situations classes can often lack authenticity and students are often disengaged. The challenge therefore is to offer students a more stimulating and rewarding learning experience.
Method: I conducted a literature review to investigate how to make classroom professionalism teaching more stimulating and rewarding for students. Relevant empirical research and theoretical literature were identified through a number of medical education, social science and media search engines. After an initial search we used snowballing techniques to look for recurring references within reference sources.
Results: There is a dearth of literature in this area however I found that there is some evidence that role play and the use of media scenarios taken from television hospital dramas are perceived well by students. I found a few examples of teaching professionalism in the classroom which were perceived by students as both meaningful and entertaining. This included role play and using video clips from Television hospital drama. These examples were seen as of educational value by the students who participated.
Conclusion: As evidence reveals that students learn better when they enjoy the learning experience and teaching professionalism in the classroom can be perceived as non contextual and dull it was pleasing to find examples of teaching practices which increased the students enthusiasm for professionalism teaching in the classroom. There are some good examples of engaging students in professionalism teaching. Due to a dearth of literature in this area further work is required to explore how we can make professionalism teaching more stimulating and rewarding for students.
Take-home messages: Cinemaeducation
- Makes Learning fun, bringing dry concepts to life by captivating emotions and encouraging creative thinking (Lumlertgul et al. 2009)
- Can promote empathy, discussion and reflection (Blasco et al. 2006)
- Provides the opportunity to experience highly emotive scenarios in a place of educational safety (Shevell et al. 2014)
- Engages students with humanities using a medium which is easily accessible and time efficient (Alexander et al. 2012)

3II19 (2360)
Investigating professionalism experts' opinion: toward developing an undergraduate medical professionalism curriculum

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Background: There is no doubt that professionalism is one of the main capabilities for general practitioners and its importance is growing every day. The literature suggests that professionalism is a notion that can be learnt. So, this study investigated medical professionalism experts' perspectives toward teaching and learning professionalism during undergraduate medical education as a step to help developing an outcome based medical professionalism curriculum.
Method: This study was a qualitative content analysis research . Data were collected from 10 semi structured interviews with medical professionalism experts in Iran between June and September 2016. All sessions were audio-recorded, transcribed and subjected to inductive content analysis. Data analysis included open coding, creating categories and abstraction.
Results: Participants expressed their views about professionalism and its features. They discussed about professionalism, teaching and assessment methods, the learning environment and provided helpful tips to develop a medical professionalism curriculum. During content analysis, four categories, 17 subcategories and 110 codes were emerged. Learning outcomes of medical professionalism, teaching and learning medical professionalism, evaluation of medical professionalism and context were identified as main categories.
Conclusion: The results of this study emphasized the importance of professionalism and provided the needed information for integration of a longitudinal strand during undergraduate medical education curriculum for developing professionalism in medical students. Deploying the effective learning and assessment methods by means of qualified teachers and staff in a supportive learning environment provides students with needed experiences and facilitate the process of educating professionalism. To address the development of professionalism in medical students designing a formal medical professionalism curriculum would be necessary and the notion of professionalism must be intricate with all phases of it.

3II20 (1151)
Vulnerability and disillusionment as a threat to residents' professional identity development

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Mathieu Nendaz, University of Geneva, Geneva, Switzerland

Presenter: Naike Bochatay, University of Geneva, Switzerland

Background: The healthcare environment is prone to conflicts between professionals. These conflicts have negative consequences on physicians-in-training and may affect their professional identity development. This is concerning given the importance of professional identity in role performance. Our aim was to identify professional identity aspects involved in conflicts experienced by physicians and to suggest solutions to support professional identity development.
Method: We conducted semi-structured interviews on conflict experiences with 43 residents and fellows at the Geneva University Hospitals, Switzerland. During interviews, we noticed that professional identity was involved in a number of conflict stories. To explore this, we iteratively analyzed de-identified interview transcripts and regularly met to discuss emerging themes related to professional identity, following constructivist grounded theory. Themes that we identified either represented sources of conflicts involving professional identity or were resulting consequences.
Results: Sixteen (nine residents, seven fellows) of 43 participants reported conflicts that involved identity aspects. Conflicts involving professional identity took place early on in residency, portraying it as a vulnerable period of a physician's career. Sources of conflict included participants' characteristics, feelings such as exhaustion or frustration, issues of professionalism, or power differentials between residents and their hierarchy. Conflicts led residents to lose their self-confidence and doubt their professional practice. They also led to residents' disillusionment with their professional ideals and to the development of negative perceptions of other groups.
Conclusion: Our results can be explained by social identity theory, which posits that members of a group view themselves positively, whereas they view individuals who do not belong to their group negatively. Social identity theory suggests that residents would benefit from developing a stronger group identity that would be acknowledged by their hierarchy and other healthcare professionals.
Take-home message: Physicians-in-training are vulnerable to conflicts with co-workers. These conflicts may affect their professional identity development and can lead to disillusionment and to negative perceptions of others. Support to residents and adaptation of the working environment are needed to ease the transition into residency.

3JJ: Posters: Clinical Teaching 1

Location: Hall 4.u, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

3JJ1 (1559)
Implementing FAST-sonography for German 4th year medical students

Authors
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Sabine Schneidewind, Hannover Medical School, Hannover, Germany
Christina Quandt, Hannover Medical School, Hannover, Germany
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Presenter: Philip Bintaro, Hannover Medical School, Hannover, Germany

Background: The FAST algorithm (= Focussed Assessment with Sonography in Trauma) is defined as a screening examination to detect free fluid in the abdomen and the pericardium after trauma. The extended FAST examination additionally includes the examination of the lung to rule out a pneumo-/hematothorax and/or pleural effusion. A detailed evaluation of the organs is explicitly not part of the algorithm. The goal of detecting free fluid is quite easy to achieve, whereas the learning objectives in conventional sonography courses (e. g. measurement of organs) usually take more time. Furthermore, the German Catalogue of Learning Objectives (NKLM) recommends teaching FAST-sonography as a diagnostic porcedure for all medical graduates.
Method: An interdisciplinary team of anaesthetists and internists developed a three-hour course for small groups with a ratio of five participants to one teacher. A flipped-classroom concept with provision of mandatory online learning material about the theoretical background was established to maximize hands-on training time during the course. The course starts with a simulator-based section in which the FAST examination points are demonstrated, followed by the participants performing the examination on the training mannequin with simulated physiological and pathological findings. Afterwards, the participants examine each other according to the FAST algorithm. This course concept was introduced to 5th year medical students in May/June 2017 on a voluntary basis. A refined version was then implemented into the curriculum for 4th year medical students beginning in October 2017.
Results: Preliminary data suggest that students had a significant increase in their ability to identify free fluid. Furthermore, students reported that the FAST algorithm (although intended for patients with trauma in the first place) was overall easy to learn and gave them confidence to conduct the FAST examination also on patients without trauma, since the identification of free fluid is crucial for all patients.
Conclusion: Teaching FAST sonography is feasible. Constant recruitment of new teachers helps to distribute the workload of small group education.

Our concept might be a useful addition to conventional sonography classes in the context of limited time resources and financial constraints.

3JJ2 (1768)
Problem oriented and simulation for teaching mechanical ventilators in medical students

Authors
Yada Siriphannon
Rungnapa Pengprakhon
Narin Chindavech
Surasak Aumkaew
Thanatpong Thienwuttiwong

Presenter: Yada Siriphannon, Buriram Medical Education Center, Buriram, Thailand

Background: According to the feedback of our young graduated doctors after practicing in the rural hospitals, one of the most difficult problems is managing patients with mechanical ventilator. The preset of ventilators in acute respiratory failure patients are complexity and need experience in real situations. Actually, the medical students learned in medicine and anesthesia rotation with limit time to practice. Furthermore, many cases using mechanical ventilator admitted in intensive care unit which difficult to assess. Currently, patient simulation is increasing used in education of medical healthcare providers. Therefore we incorporated teaching modules using simulated ventilator setting in anesthesia curriculum to enhance learning experience in medical students.
To determined the learning outcomes between two methods of teaching of principles of mechanical ventilators: patient simulated ventilators (group1: PSV) versus bedside demonstrated ventilators teaching (group2; BD).
Method: Thirty three of 5th year medical students were instructed with narrated online PowerPoint presentation, then group 1 assigned to learning with problem oriented with clinical scenario using simulated ventilators; whereas group 2 to bedside demonstrated for mechanical ventilators. Measurement outcomes included in CRQ and OSCE knowledge questions and 10-items satisfaction scores.
Results: Both groups had significant improvement in knowledge scores including in initial setting, waveform analysis, basic troubleshooting (89.8(SD 9.5) versus 71.4 (SD 2.7), $p<0.05$). Student satisfaction with their learning methods was significantly in PSV group (8.7 versus 7.8, $p<0.05$). Students also were enthusiastic to participate in simulated ventilators after the study completion with good learning atmosphere.
Conclusion: Incorporating teaching with simulated ventilatory program improved knowledge and satisfaction and preferred to online and bedside demonstrated teaching. We planned for evaluate retention of knowledge in long term and feedback when visited post-graduated doctors, subsequently.
Take-home message: Simulation for teaching mechanical ventilators enhanced the confidence and learning outcomes in medical students.

3JJ3 (1534)
Assessing the effectiveness and perceptions of Fundoscopy teaching in core medical trainees

Authors
Ruth Chen, Nottingham University Hospitals NHS Trust, Nottingham, UK
Shawn S Joseph, Royal Derby Hospital, Derby, UK

Presenter: Ruth Chen, Nottingham University Hospitals NHS Trust, Nottingham, UK

Background: In the UK, fundoscopy is an essential skill for undergraduate students, foundation year doctors and core medical trainees (CMT). Despite this, its importance has been diluted in the expanding medical curriculum and this has led to its demise. Clinicians often struggle, lacking the confidence to perform it reliably.
This study evaluates the perceptions of core medical trainees towards fundoscopy. It also assesses the effectiveness of a 45-minute fundoscopy teaching session to this cohort.
Method: Pre- and post-intervention questionnaires using a 5-point Likert scale assessed the confidence in performing fundoscopy and the perceived competency. Candidates received a 15-minute demonstration of the technique, followed by 10 minutes of practice to locate the optic disc, and 20 minutes practising on a digital eye retinopathy trainer model (Adam Rouilly®). The data normality was checked by Shapiro-Wilk test and tested for significance.
Results: 16 candidates were enrolled. 56% reported not having used the ophthalmoscope since medical school. 67% of candidates attributed this to lack of availability of an ophthalmoscope. 67% found ophthalmoscopy a diagnostic challenge whilst 11% found it technically challenging. 33% felt ophthalmoscopy should be performed by a specialist, and 33% perceived it to be obsolete. All the candidates had no fundoscopy teaching during CMT training.
The mean confidence level before intervention was 2.125 (median=2, SD=1.02), increasing to 3.65 (median=3.5, SD= 0.62) post intervention. The mean rated competency level before and after intervention was 1.9 (median=2, SD=0.92) and 3.5 (median=3, SD=0.63) respectively. This non-parametric data showed significant improvement by Wilcoxon rank test (p ≤ 0.05). Before intervention, 50% of trainees could not locate the optic disc, which improved to 100% afterwards.
Conclusion: Despite barriers to fundoscopy, it remains important in physical examination. It forms part of the CMT training, however our study confirms that trainees lack confidence in performing this skill, likely attributed to the lack of emphasis during training. We conclude from our results that a 45-minute targeted and structured approach with hands-on experience on human subjects and a simulator significantly improved the candidates' confidence and competence.
Take-home message: Hands-on fundoscopy training bypassing didactic teaching significantly improves confidence and competency.

3JJ4 NOT PRESENTED

3JJ5 (1756)
Basic Obstetrics and Gynecology procedures of 6th year Medical Students in Roi-et Hospital, Thailand

Authors
Sirikanya Somsri

Presenter: Sirikanya Somsri, Roi-et Hospital Medical Education Center, Roi-et, Thailand

Background: While the training of clinical skills is a requirement for medical study, it is necessary to evaluate whether a student receives enough learning experience, then go on to new idea with assess the clinical experience of student is the evaluation of the number of patients whom the medical student had taken, which is recorded in a logbook.
Method: In this study, the Department of Obstetrics and Gynecology, Roi-et Hospital aimed to analyze the number of studied cases with the basic obstetrics and gynecology procedures as shown in the students' logbook. The data of number of patients were collected from 15 logbooks of 6th year medical students that were handed in to the department after the 6-week training session in 2017.
Results: The numbers of cases of basic obstetrics and gynecology procedures that were collected from the students' logbook were normal labor 88 cases, episiotomy and repair 79 cases, amniotomy 26 cases, Pap smear 24 cases, marsupialization 11 cases, cervical biopsy 4 cases, cervical polypectomy 3 cases and vaginal packing 1 case. The average number of cases that were done by 6th year medical student per case were normal labor 3-12 cases, episiotomy and repair 3-12 cases, amniotomy 0-5 case, Pap smear 0-2 cases, marsupialization 0-3 cases, cervical biopsy 0-4 cases, cervical polypectomy 0-1 cases and vaginal packing 0-1 case.
Conclusion: These data revealed that the students should practice the clinical skills from enough number of patients. Therefore, the criteria for checking the student's logbook should be evaluated and adjusted for better assessment of clinical training in the department.
It would be our recommendation that all medical students have the opportunity to practice these skills under clinical supervision in order to fulfill the requirements of the Medical Council of Thailand.Furthermore,we need our students to learn about any obstetrics and gynecologic complication and practice pre-counselling before performing any clinical procedures.

3JJ6 (2065)

Comparison of Teaching Basic Orthopedic Procedural Skills by Peer Assisted Learning (PAL) Tutoring and by A Teacher's Teaching in Undergraduate Medical Students

Authors

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Orawan Chaiyamahapurk, Buddhachinaraj Medical Education Center, Phitsanulok, Thailand

Presenter: Meena Permthai, Buddhachinaraj Medical Education Center, Phitsanulok, Thailand

Background: Thailand medical curriculum is assigned for medical students to study orthopaedics less than the past. Studying basic orthopaedic procedural skills under limited time and teachers cannot help students study more details in every skill. PAL developed and implemented as vehicles helps students learn tutoring in defined learning standards.

Method: This is a retrospective cohort study with all sixth-year medical students. Collecting data was in two academic years: twelve-hour PAL (2016,N=61) and twelve-hour teacher's teaching (2017,N=49). We collected data of teaching processes and a number of practical basic orthopaedic procedural skills and compared OSCE results of concerning skills.

Results: The results of study are PAL tutoring helps students practise all basic orthopaedic procedural skills (100%) while teacher's teaching helped each student practise only 33.3-41.7% of all skills. When comparing OSCE scores of Short Arm Cast, Short Leg Slab, Figure of Eight and Interlocking Arm Sling, the results shows Means of PAL tutoring are 7.06, 7.98, 8.62, and 8.62 respectively. Results of teacher's teaching are 6.79, 8.46, 9.02, and 8.98 respectively. Variances of two groups are equal. Means of them in each skill are equal.

Only one teacher's teaching under limited time cannot help students practise all basic orthopaedic procedural skills. Therefore, teacher chooses to give details in only 4 fields of the skills (assigned in exams), but lacking details in other skills, not in exams. PAL tutoring has processes, frameworks, learning standards, follow-up methods, and correct suggestions; consequently, students can achieve practicable skills in spite of outside studying time.

OSCE shows Short Arm Cast has the highest difficulty level. Therefore, there should be more practices and feedbacks in order to increase students' basic orthopaedic procedural skills.

PAL tutoring can be parts of studying basic orthopaedic procedural skills, but there should be correct teaching processes, and teachers with suggestions and continued follow-ups are still important in achievement of studying purposes.

Conclusion: Nowadays there are a lot of medical equipment and instruments assisting how to teach and study, but we must consider their advantages and disadvantages. Moreover, we must improve procedures, standards, and continued evaluations of medical courses.

3JJ7 WITHDRAWN

3JJ8 NOT PRESENTED

3JJ9 (160)
Physical examination contests effectively improve learning outcomes

Authors

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Chien-Ching Hung, National Taiwan University College of Medicine, Taipei, Taiwan
Po-Yuan Chang, National Taiwan University College of Medicine, Taipei, Taiwan
Chien-Hung Chen, National Taiwan University College of Medicine, Taipei, Taiwan
Fen-Yu Tseng, National Taiwan University College of Medicine, Taipei, Taiwan

Presenter: Fen-Yu Tseng, National Taiwan University College of Medicine, Taipei, Taiwan

Background: The physical examination training course was started at the preclinical year (M4). Students were divided into 12 small groups. Each group had one physician assigned as their tutor. Students learned skills of physical examination through lectures, videos, mutual practice, and patients. Variations of tutors' teaching styles and students' learning outcomes were concerned.

Method: Tutors listed 12 important clinical conditions with significant signs. The group and the order of presentations were decided by draw. The contest was held at the last class of the semester. Each group had 10 minutes to present the physiologic meaning, the skill, the sensitivity, the specificity, and the confounding factors of the related signs. Group presentation scores were decided by all the tutors and students. Awards were given to the top three groups.

Results: The 12 clinical conditions/signs were aortic regurgitation, asterixis, stroke, Castell sign, appendicitis, hypocalcemia, deep tendon reflex, respiratory pattern, percussion for pleural effusion, meningeal signs, ascites, and Murphy's sign. Students present the signs intelligently and creatively. Understandings and skills of physical examinations were improved effectively through the contest. The contest was videotaped, uploaded to our teaching platform, and reserved as teaching materials. Physical examination contest provided a chance for students to learn from different groups. The contest successfully fulfilled the aims of improving students' interest and abilities of physical examinations.

Conclusion: Physical examination contests enhance students' interest, understanding, and skills of physical examination. New designs to curriculums may improve students' leaning outcome.

3JJ10 (1421)
Improving physicians' ward round communication through simulation-based training

Authors
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Presenter: Marc Grünewald, Chair of Medical Education, TUM Medical Education Center, Munich, Germany

Background: Ward rounds are an essential part of medical doctors' everyday work. They are a central opportunity for patient and doctor to interact with each other (Weber & Langewitz 2011). To perform ward rounds well, doctors need non-technical-skills, especially communication, to establish a shared understanding with the patient. Currently, the scarcity of training in ward round communication in undergraduate medical education is likely to cause insufficient competence in conducting ward rounds (Nikendei et al. 2008). Hence, developing interventions and understanding what makes them effective are relevant goals for research.
Method: Few training programs aimed at ward round communication are documented in the literature (Nikendei et al. 2007; Thomas 2015). Drawing upon these, we developed a simulation-based half-day workshop dedicated to advanced medical students including a theoretical and a practical part. During the theoretical part, trainees were familiarized with the procedure of surgical ward rounds based on the "Basler Visitenstandard" (Weber & Langewitz 2011). The practical part consisted of simulated ward rounds with standardized patient scenarios and actors as patients. The aim of the present study was to investigate the efficacy of this intervention for fostering ward-round communication competence through a randomized controlled trial. The ward round performance of an intervention group (n=17) was compared between ward rounds performed before and after the half-day training program. The control group (n=11) performed two ward rounds without the workshop in between. Performance was assessed with a validated ward round rating tool (Ahmed et al. 2015) by two blinded and trained raters.
Results: Analysis of the ratings suggest that ward round performance scores of the intervention group improve between assessments while scores of the control group decrease.
Conclusion: The results of this study show that simulation-based training is an effective way of improving competency of medical students in conducting ward rounds and should be further explored and implemented in medical curricula.
Take-home messages:
- Ward rounds are an essential part of almost every doctor's work
- Current ward round quality is unsatisfactory

- Simulation-based training is a viable strategy to improve ward round quality

3JJ11 (2814)
An Educational Approach to Support Family Witnessed Resuscitation – Enhancing Continued Professional Development Through Animation

Authors
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Ronald MacVicar, NHS Education for Scotland, Inverness, UK
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Janice Turner, NHS Education for Scotland, Glasgow, UK
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Presenter: Natalie Smee, NHS Education for Scotland, Glasgow, UK

Background: Family witnessed resuscitation is endorsed by the Resuscitation Council UK, however a review of current literature and educational materials did not identify any focused resources aimed specifically at supporting healthcare staff to improve their communication skills when safely enabling families to be present during a resuscitation. Following discussion with key stakeholders including postgraduate medical trainers and trainees it became apparent that additional resources aimed at helping to equip staff with the communication skills necessary for these situations would be a welcome teaching aid.
Method: Stakeholders were identified including the Ambulance Service, resuscitation officers and key clinicians with an educational/ supervisory remit. Two short, animated, scenario based videos titled 'Supporting Families During and After Paediatric Resuscitation/ Adult Resuscitation' were produced. These complement a suite of existing videos used to support healthcare professionals gain increased preparedness with regard to a variety of challenging bereavement related conversations.
Family witnessed resuscitation has been shown to improve the outcomes for those who are bereaved. However, NHS Education Scotland identified a gap in the availability of teaching materials to support practitioners negotiate these situations. This informed the development of two bespoke educational animations which have multiprofessional application within the adult and paediatric settings.
Results: Use of video animation as a tool to support practitioners to enhance their communication skills in challenging death related situations is an innovative approach to continuing professional development. The versatile and accessible nature of these open resources which are quick to view allows for flexible learning out with traditional educational environments, thereby reducing the amount of time needed to be away from clinical duties.
Conclusion: Video animation is an effective educational tool which can be used to support the development of enhanced communication skills in challenging situations. Its versatile application as both a structured and independent learning resource makes it an ideal format to

deliver continuing professional development in a busy clinical environment.

3JJ12 (1906)
Improvised encounters – theatre-based methods in medical education

Authors
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Asta Toivonen, University of Helsinki, Medical Faculty (Clinicum, Department of Public Health), Helsinki, Finland
Otto Helve, Pediatric Research Center, Children's Hospital, University of Helsinki and the Helsinki University Hospital, Helsinki, Finland

Presenter: Kari Hevossaari, University of Helsinki, Medical Faculty, Helsinki, Finland

Background: Learning communication skills is a fundamental part of medical education. For the last 20 years, second year students have participated in a course called "Interviewing the patient". This year we introduced a new method of teaching in the course based on techniques commonly used in training of actors. In addition to patient interview simulations, we carried out an introductory session of short, hands-on practices refining improvisation and mental and bodily presence for the students to gain self-knowledge and confidence in communication.
Method: In January 2018, at the beginning of the course, a two-hour teaching intervention was implemented in groups of 36, 42 and 38 students. In each group, subgroups of 2-6 students practiced the use of body, voice, and self-awareness as building blocks of communication. At the end of each session, students were asked to fill in a feedback online qualitative questionnaire. In April, after patient interview simulations with professional actors, students will be questioned by an online questionnaire on whether actor-initiated teaching was deemed valuable in regard to patient simulation experiences and patient interviewing skills.
Results: 99/116 (85%) students answered at least one question in the online questionnaire. In the feedback concerning the teaching intervention, 58/92 (63%) reported having at least some experience on communication skills training or performing prior to the course. 74/99 (75%) expressed feelings from mild nervousness to anxiety when interacting with unknown people.
Students perceived the sessions useful. Storytelling while being instructed (e.g. be glad, use your hands more, try to whisper) and observing this practice was considered useful by 31/71 (44%). Also, posture and voice training were found useful together with mindfulness-oriented relaxation 9/71 (13%).
Conclusion: Most of the students were new to this kind of training. The students found the session useful, especially the improvisation techniques involved. While we believe this could be a valuable new method for teaching communication skills to medical students, more in depth-analyses will be performed at the end of the course.

Take-home message: Theatrical training methods could be useful when planning to improve medical students' communication skills.

3JJ13 (2283)
The Intention-Behaviour Gap: Students' views as predictors of exploring the patient's perspective

Authors
Annie Cushing
Esther Murray
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Presenter: Annie Cushing, Barts and The London School of Medicine and Dentistry, Queen Mary University of London UK

Background: Patient-centred communication involves exploring the patient's perspective in addition to biomedical information as part of a medical history. There is evidence that learning communication in simulation settings does not transfer to practice unless applied immediately and supported (Heaven et al 2006, Brown 2010, Rowlands et al 2013, Cushing 2015). This study explored students' attitudes and systems factors as predictors of behaviour in clinical placements.
Method: Following a two-week clinical communication course as preparation for a nine-week ward placement, students completed a questionnaire. They rated the importance of and intentions to explore psycho-social aspects as well as symptoms in forthcoming ward placements. At the end of the placement they completed another questionnaire rating importance and reported behaviour. Matched questionnaires were available for 75% of those surveyed (N = 165).
Results: Pre-placement ratings on a 10 point Likert scale of importance and likelihood were high; mean 8.78 (SD 1.33) and 8.23 (SD 1.30) respectively. Spearman's rho correlation was 0.328 (p 0.01). Post-placement ratings of importance remained high; 8.76 (SD 1.65). Reported behaviour from 'Never to Always' exploring the patient's perspective was mean 3.96 (SD 0.67) on a 5-point Likert Scale. Spearman's rho correlation between pre-placement intention and reported behaviour was 0.197 (p 0.05).
Factors affecting students' ward behaviour were explored as were their experience of being observed and receiving feedback on their communication by clinicians.
Conclusion: Following a targeted clinical communication course students commenced their ward placements with strongly positive attitudes and intentions to apply patient-centred communication. There is a positive albeit weak correlation between these and their subsequent behaviour. Behaviour is mediated by other factors which students identified as obstacles and which will be discussed.
Take-home message:
- Students were found to hold positive attitudes and intentions towards patient-centred communication
- Behaviour is influenced by more than attitudes.
- Collaboration between teachers in simulation settings and clinicians on ward could enhance and support students' application of learning in clinical settings.

3JJ14 NOT PRESENTED

3JJ15 WITHDRAWN

3JJ16 NOT PRESENTED

3JJ17 (2290)
Bad News or Life Altering Diagnoses? A Randomized National Needs Assessment of Canadian Neurology Trainees' and Neurologists' Perceptions towards Disclosing Diagnoses

Authors
Carol S. Hodgson, University of Alberta, Edmonton, Canada
Catherine Bell, University of Alberta, Edmonton, Canada
Janis Miyasaki, University of Alberta, Edmonton, Canada

Presenter: Carol Hodgson, University of Alberta, Edmonton, Canada

Background: Giving bad news is included in most medical school and post graduate training; however, studies indicate that giving a diagnosis is often done poorly leaving patients traumatized. Could this be related to physicians not considering many diagnoses as "bad news?"
Method: Neurologists and residency programs, randomized to two groups, received surveys listing 14 diagnoses; one group indicated which diagnoses were "bad news," the other "life-altering." Chi square was used for each diagnosis with "prompt" ("bad news"/"life-altering") or "role" (resident/neurologist) or gender. An ANOVA used total diagnoses with "prompt," "role," and gender as independent variables.
This study was approved by the university's institutional ethics board.
Results: More often respondents with "life-altering" prompt (n=138) chose the diagnoses versus those with "bad news" (n=121) prompt: epilepsy (80%, 54%); functional-neurological disorder (43%, 19%); migraine (22%, 7%); multiple-system atrophy (99%, 89%); muscular dystrophy (94%, 76%); Parkinson's (91%, 74%); peripheral neuropathy (25%, 13%); and stroke (91%, 64%).
Residents versus neurologists checked: Bell's palsy (12%, 5%); epilepsy (76%, 64%); multiple sclerosis (97%, 89%); progressive-supranuclear palsy (89%, 97%); and stroke (88%, 73%).
More diagnoses were marked "life-altering" (M=9.5) versus "bad news" (M=7.8). "Prompt" was significant for total diagnoses marked (p=.01); however, "role" and gender were not. There was a significant interaction (p=.03) for gender by "role" with female residents choosing more diagnoses overall.
Residents were, generally, more likely than neurologists to include particular diagnoses regardless of their "prompt" ("bad news"/"life-altering"). Overall, respondents chose more diagnoses if prompted with "life-altering."
Patients report physicians are often poor at giving "bad news." This could occur for numerous reasons: e.g., poor training, stressful experiences, lack of time. It could also be diagnosis severity is viewed differently depending on the terminology used. Perception may affect how physicians approach explaining a diagnosis to a patient.

How diagnoses are perceived may be related to terminology used, such as "bad news" versus "life-altering." These findings indicate perceptions about disease severity should be included in curricula.
Conclusion: Educational interventions are planned for medical students, residents, and physicians to discuss how perceptions affect their approach to difficult conversations with patients.

3JJ18 (623)
Implicit and Explicit Weight Bias in Physician Assistant Students

Authors
Gail Curtis, Wake Forest School of Medicine, Winston-Salem, USA
Sonia Crandall, Wake Forest School of Medicine, Winston-Salem, USA

Presenter: Gail Curtis, Wake Forest School of Medicine, Winston-Salem, USA

Background: The influence of unconscious (implicit) weight bias on clinical decision making and behavior toward patients is well documented in the medical literature. Data are lacking regarding whether Physician Assistant (PA) students are empathic and invulnerable to unconscious bias toward overweight and obese patients.
Method: To appreciate the magnitude of unconscious weight bias in PA students, we examined implicit and explicit weight biases and whether these biases correlated with empathy.
Three classes of first year PA students (2015, 2016, 2017) completed the weight implicit association test (IAT) and the Jefferson Scale of Physician Empathy. Associations among explicit and implicit measures were analyzed using Pearson correlation; differences in means were analyzed using t-tests.
Results: Response rate was 86% (205 of 237); statistics revealed no class variations (% women, mean IAT and JSPE scores, age); thus data were pooled. The overall mean IAT score across the three classes indicated that this group of students had a slight implicit preference for thin people. A significant correlation existed between implicit weight bias and explicit preference for thin people (r = .28, p<.000). As explicit preference for "thin" increased, there was a tendency for empathy to decline (r = -.158, p=.024). Empathy and implicit weight bias were unrelated; thus empathy did not mitigate unconscious bias.
Students who explicitly reported preferring "thin" people had significantly higher implicit preferences for "thin." Unfortunately, we found that as explicit preference for "thin" increased, empathy declined. This finding suggests that early in their educational process, guidance should be provided for how to manage patients who are overweight or obese without allowing explicit bias, known bias, to influence the care they provide. Interestingly, these PA students were more aware of and willing to acknowledge their weight biases.
Conclusion: More than 50% of the patients PAs evaluate and treat will be overweight. With explicit bias toward thin being associated with decreased empathy, efforts to intervene and educate in this area are warranted.

3JJ19 NOT PRESENTED

3JJ20 (2701)
The Comparison of Teamwork Between Senior Medical Teams and Junior Medical Teams

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Pei-Chia Hsu, Joint Commission of Taiwan, New Taipei City, Taiwan
Elma Hung, Joint Commission of Taiwan, New Taipei City, Taiwan
Daniel Lo, Joint Commission of Taiwan, New Taipei City, Taiwan
Shing Liao, Joint Commission of Taiwan, New Taipei City, Taiwan
Pa-Chun Wang, Joint Commission of Taiwan, New Taipei City, Taiwan

Presenter: Chien-Ming Lo, Joint Commission of Taiwan, New Taipei City, Taiwan

Background: According to research, the teamwork of medical teams is closely related to a patient's safety. By identifying the weakness in a medical team's Team Resource Management (TRM), a medical team can provide related training to its team members and hence improve its effectiveness. This study aims to analyze the teamwork of senior and junior medical teams participating in Simulation Campaign of the Joint Commission of Taiwan (SCJCT).

Summary of Work: SCJCT is based on the design of simulation to let medical staff experience how to take care of patients, as well as how to communicate and cooperate with each other. Data was collected from SCJCT conducted from 2014 to 2017. Junior teams were consisted of Post Graduate Year (PGY) or Under Graduate Year (UGY) medical students. We used the four constructs of TRM—leadership, situation monitoring, mutual support, and communication—to measure the teamwork of each team. There were 4 to 8 items in each construct. Based on the teams' performances, scores of 0, 50 and 100 were assigned to the teams accordingly.

Summary of Results: There were 114 medical teams (73 senior teams and 41 junior teams) form 33 hospitals participating in SCJCT from 2014 to 2017. 20% of the members in the senior teams have participated in SCJCT for more than twice. We used the independent T test to compare the teamwork performance between senior and junior teams. The result shows that the overall teamwork of the senior teams improved year by year. Moreover, senior teams performed better than the junior teams, especially in mutual support (Senior: 67.8 V.S. Junior: 52.2, $P<0.01$) and communication (Senior: 68.6 V.S. Junior: 54.6, $P<0.01$).

Conclusions: It can be concluded that mutual support and communication in the senior teams are better than they are in the junior teams. In the future, we will employ Kirpatrick's model, which include the constructs of reaction, learning, behaviour, and result, to evaluate the effectiveness of training on TRM.

Take-home Messages: Hospitals can provide related training, such as TRM, to junior medical staff to improve the teamwork.

3KK: Posters: Communication

Location: Hall 4.u, CCB
Date: Monday 27th August
Time: 1015-1200 hrs

3KK1 (2297)
Is learning how to ride a bike from a text book possible? Undergraduate medical student perception on communication skills training

Authors

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Verónica Silva
Peter Mc Coll
Jéssica Goset

Presenter: Mariana Searle, Universidad Andrés Bello, Viña del Mar, Chile

Background: Communication skills training is an essential part of undergraduate medical education. Using simulated patients is the chosen didactic strategy, as it allows students to have a "first person" experience, identify their personal styles in the clinical relationship; and facilitates self-evaluation and feedback. Implementing this methodology across curriculum is foreseen.
Objective: To determine student perception of the learning experience during communication skills training using simulated patients.
Method: Mixed quantitative and qualitative methodology, were used respectively. 51 students participated and responded to a Likert-type Scale that evaluated: non-verbal communication valuation, personal communication style recognition, feedback effectiveness, self-reflection opportunities, clinical clerkship application, use of simulated patients and methodology satisfaction. Discourse analysis through deductive categories on open questions was performed.
Results: All categories ranged between "totally agree" and "generally agree", Cronbach´s Alpha 0.84. Use of simulated patients (4.76), self-reflection opportunities (4.72) and feedback effectiveness (4.68) were the highest scores. Amount of role play and simulated patients sessions were negatively evaluated. Qualitative analysis shows positive perception for simulation, climate and feedback.
Students positively valued activities with simulated patients, the positive and constructive learning environment with immediate feedback, and the opportunity to self-reflect and discover personal communication styles. Negative perceptions reveal student need to increase number of learning opportunities, as practice leads to mastery for skill development.
Conclusion: Communication skills training through student direct involvement in simulated scenarios, is a didactic strategy that allows for a "first person" protected immersion in the complexities of the doctor-patient communication reality. Simulation, self-reflection and feedback ought to be academically considered as the strategies of choice for relational skill development in medical professionalism.
Communication skills training through simulation, in a positive and constructive learning environment is also about professor/student relational modeling on how to communicate and give constructive feedback for personal and skill improvement. This is a unique teaching opportunity to help students grow on self-confidence.

3KK2 (554)
Developing Medical Students' Competency to Communicate Bad News to Patients with Dementia

Authors

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Clecio Godeiro Jr., UFRN, Natal, Brazil
Rosiane Diniz, UFRN, Natal, Brazil
Julianna Arouca, UFRN, Natal, Brazil
Letícia Pontes, UFRN, Natal, Brazil
Ana Raulino, UFRN, Natal, Brazil

Presenter: Vanessa Peixoto, UFRN, Natal, Brazil

Background: Dementia is a life threatening and stigmatized condition, with devastating impacts on patient's personal identity and caregivers. There are many barriers to an effective diagnosis disclosure to dementia patients, including fear of causing distress, uncertainty of diagnosis, caregivers objection and lack of training on communication skills in undergraduate medical schools. Therefore, it is important to implement strategies to help medical students to build up multiple skills for an appropriate relationship between doctor, patient and family, including the ability of disclosing the diagnosis.
Method: First, we adapted SPIKES protocol to dementia patients. Then, an interventional, cross-sectional, randomized study with third-year medical students at our university was carried out. The goal was to evaluate how this protocol could help to improve communication skills of the medical students.
Results: Eighty-six students joined the study, divided into three groups: GI (trained protocol before lectures about dementias), GII (trained protocol after lectures about dementias) and GIII (did not join the protocol). Students on GI and GII were assessed by two similar OSCE (Objective Structured Clinical Examination); students on GIII only took part at the second OSCE.
Groups GI and GII showed better results on the second OSCE comparing to GIII (GI:7,56±1,22, GII:7,47±1,09, GIII:6,42±1,68, p<0,001). Students on GI performed better on this assessment than students on GII (p<0,001). Groups GI and GII exhibited increasing scores along the two OSCEs (GI OSCE1: 6,38±1,34, GI OSCE2: 7,56±1,22, p<0,001; GII OSCE1: 5,31± 1,36, GII OSCE2: 7,47± 1,09, p<0,001). Most students (98%) agreed that training on communicating the diagnosis of dementia is important for their career development.
Suggested adaptations to SPIKES protocol seem to encompass current guidelines about communication of the diagnosis of dementia, keeping its didactic approach. This training was well accepted by the medical students and contributed for their improvement on communication skills.

Conclusion: This model of training, as well as the adapted protocol, may represent replicable strategies for other curriculum elements in a way of improving communication abilities on health schools.

3KK3 NOT PRESENTED

3KK4 (303)
Teaching communication skills in order to make inevitable death discussable

Authors
Dorine van Woerden, Academic Medical Centre, Department of Medical Psychology, Amsterdam, the Netherlands

Presenter: Dorine van Woerden, Academic Medical Centre, Department of Medical Psychology, Amsterdam, Netherlands

Background: A timely discussion about the inevitable death of terminally ill patients is imperative to avoid misunderstanding. Misunderstanding about the care that terminally ill patients want and need during the last phase of their lives. This requires appropriate measures to be taken. Too often patients are 'over-treated' because their nearby death is not discussed. An explanation could be that doctors are trained to provide curative treatments rather than handle the heavy emotions of patients facing the end of their life. Also, patients themselves are reluctant to initiate this difficult subject. There is an increasing awareness that doctors need to be trained to initiate this discussion with patients.
Method: Effective communication about inevitable death can contribute to optimal palliative care. Therefore, we have developed a communication module for physicians. During this 4 hour training physicians: a) become aware of their own emotions that may hinder effective communication. b) are provided with the relevant theory and skills. c) practice these skills with the help of a professional actor.
During the last 8 years we have offered this module to four hospitals in the Netherlands. Participants were internal oncologists, gynecologists, intensive-care physicians and also 5th year medical students. Satisfaction was measured by means of a semi-structured questionnaire.
Results: Participants generally appreciated this module: "…it provides practical communication tools to initiate a consultation about inevitable death". Results also show that this module enables physicians to initiate this consultation, cope better with emotions and tolerate the fact that they cannot offer options for cure.
During which phase of medical education should this module be offered?
For which physicians is this module most appropriate (general physicians, specialists, medical students?)
Conclusion: Communication skills regarding inevitable death are helpful in initiating a discussion with terminally ill patients.
A timely discussion about the inevitable death requires communication skills that can be taught.

3KK5 (831)
Small-Group Interactive Role-Play Communication Workshop: Building up confidence

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Presenter: Chayanis Trakulthong, Kalasin Hospital Medical Education Center, Kalasin, Thailand

Background: Nowadays communication is important way connecting physicians and their patients. Miscommunication often leads to conflict among community, sometimes raising serious legal issues. Formerly, we never held interactive workshop involving communication skills. So, this might be fascinating and useful.
Method: Two-day workshops were held, one day for each group of students, divided into two parts. First, theoretical part. Secondly, practicing. Medical students formed groups, taking role-plays as a doctor and his/her patient, the other students observed the process. The situations were breaking bad news about brain death and cancer, asking permission for lower leg amputation, giving information about patient's child having Thalassemia and Febrile convulsion. Then, we let participants freely discuss, share what they had learnt and examples of how they chose to communicate. Our teams, doctors from different medical specialties including psychiatrist, directed feedback as a learning tool. Students assessed themselves using likert scale scoring tools.
Results: All 80 4th-6th year medical students participated. Most of them (95%) were highly satisfied. Students stated role-play helped improve their communication skills. It also helped to make situations practical and comprehensible. Since role-play situations were very common, it helped students prepare for their future practices. The students' confidence was statistically signicifant increased. Shifting from medium to high level. (3.3 VS 4.1 95%CI 0.6-0.9, p-value <0.05)
Dividing students into small group, both teachers and students thoroughly participate the workshop. The students understand those specific situations and feelings of listeners better. Teachers can immediately give reflections and explanation how students can have much more appropriate communication. Building up confidence in the short time.
Conclusion: Interactive workshop let the students better understand their patients, building up confidence about communications in both daily-living and clinical practices. Learning by doing. Small-group role-play practicing helps to make communication more practical and

comprehensible. It's also the way to learn how to be more humanistic in medical health care.

3KK6 (3541)
Implementing longitudinal curricula of communication: Experiences from four German faculties of medicine

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Presenter: Barbara Hinding, IMPP - Institut für medizinische und pharmazeutische Prüfungsfragen, Mainz, Germany

Background: In Germany, teaching communication competence in medical studies has been subject of political documents and initiatives and is practiced at the medical faculties since a longer time. Particularly the Masterplan Medizinstudium 2020 outlines the directions to reform medical studies. It stresses the importance of communication skills and recommends the implementation of the National Longitudinal Core Curriculum of Communication. To assist the faculties in this task, knowledge concerning the conditions and circumstances of implementation processes is necessary. Therefore the objective of our research is the identification and implementation of support measures to facilitate the realization of longitudinal concepts of teaching and examining communication competence.
Method: We carried out a comparative case study with four faculties of medicine in Germany. In 2014 and 2017 we conducted an inquiry to assess the state of implementation. To get more detailed information, Interviews with teaching staff, professors and lecturers and moderated group discussions with subsequent comparative qualitative content analyses were used to gain a better understanding of the implementation processes.
Results: The findings provide insights into different states of development of communication curricula and the settings and circumstances under which the change process is taking place. Regarding limiting and facilitating conditions numerous factors were identified: the motivation and qualification of teaching staff, committed students, organizational factors like a central coordination of and responsibility for teaching as well as the exchange of ideas and concepts between faculties and teaching staff.
Conclusion: Teaching and assessment of communication skills can be significantly different from university to university. Where teaching and examining communication is embedded in a longitudinal concept with a coherent

series of training units other kinds of support are needed than in faculties only offering single courses. Support measures for further steps of implementation therefore include a range of measures like examples of best practice, assistance in developing examinations, improvements in internal coordination and communication as well as overarching activities such as publicity work, better qualification of teaching staff and active involvement of students.
We need different measures for different states in the implementation process.

3KK7 (3558)
Communication at the End of Life. Experience Report from a Brazilian University

Authors
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Amanda Ciriaco Dantas
Juliana Farias Pereira
Laís Arraes de Carvalho
Vitor Hugo Araujo Cabral
Fernanda Patrícia Soares Souto Novaes

Presenter: Willian Megumi Momoeda, UNIVASF, Petrolina, Brazil

Background: New Brazilian Curriculum Guidelines for Medicine were developed with the aim of promoting more humane medical training, with criticality and responsibility. The object is to inform the educational experience that develops communication skills among doctors and patients nearing the end of life.
Method: The discipline Communication in Health, of the School of Medicine of the Federal University of the Valley of São Francisco - Brazil, uses the Doc.ComBrazil 's online platform "Communication near the end of life" to highlight the importance of the subject. The 2017.1 class was divided into subgroups to create playful seminars. The group of 5 student facilitators planned and executed the class using the steps of Reflection Based Learning (RBL). Step 1: Students arranged in a circle, shared prior knowledge, introducing the topic. Step 2: Class divided into 4 subgroups that received questions withdrawn from the digital platform, were: "How much do you avoid talking about palliative care?"; "How much do you overestimate the prognosis when talking to the patient?"; "How often do you use euphemisms when discussing difficult issues?" And "How much does bringing to the surface the issue of palliative care makes you feel like giving up your patient?" Step 3: A spokesman of each group summarized the reflections generated. Step 4: The facilitator group categorized the answers and explained some concepts about the subject removed from Doc.ComBrazil and academic articles, correlating the points raised by the class. Step 5: Dramatizations with positive and negative communicative attitudes in the clinical context.
Results: Generated reflections like "How far take care is really take care?", "The importance of honesty and clarity when it comes to reporting a diagnosis", "Suffering is only intolerable when there is no care". After the analysis and synthesis, the themes that emerged from the

conversations and dramatizations were: life story, human respect, empathy.

Conclusion: The RBL and the Doc.ComBrazil promote integration, discussions, dynamism, in addition to rescuing and strengthening empathy. Early focus on communication skills at the end of life expands the ability of health professionals to deal with patients in this difficult situation.

3KK8 NOT PRESENTED

3KK9 NOT PRESENTED

3KK10 NOT PRESENTED

3KK11 (3535)
Patient-focused communication skills in medical education through public advocacy

Authors
Nicole P Tanner
Rachel WC Lai
Joey HY Chan
Paul BS Lai
Justin Wu

Presenter: Wing Chuen Lai, The Chinese University of Hong Kong, Hong Kong

Background: Advocate is a medical student-initiated online platform to promote public medical education in Hong Kong. Each week, medical students are invited to publish evidence-based articles, translating complex medical concepts for general public. Medical specialists review the articles before publication to ensure reliability. Articles are then published online, where readers from the community are encouraged to feedback and comment. A creative space for medical students and public to explore current medical advancements and healthcare issues are thus developed.

Method: A quantitative survey assessing the educational value to medical student writers was administered online. Likert scale was applied in the survey. The study received all 16 responses from the writers' team.

Results: Medical students reported improved literature review and research skills (56.3%, n=16), and reported a mean of 3.625 (out of 5) in their improvement in language skills in delivery of professional medical content to the public. 62.6% indicated enhanced understanding towards patient's needs and the specific healthcare knowledge of highest educational value to the public. 62.6% indicated knowledge growth in the topic of their article, which they would have otherwise not been familiar on.

In writing education-focused articles, students learn to understand the patients' needs, specifically in a local context. To gauge patients' level of understanding, students develop skills in self-learning and research. Students, through Advocate, also learn how to deliver professional medical content in layman terms. They learn to bridge the gap between medical journals and the patient - a critical skill for future doctors. The highlight of Advocate is the platform it creates for engagement and active discussion between students and the public

readers, which allow for feedback from readers on content, language and ease of understanding.

By connecting the public and medical students, Advocate is a platform for students to learn patient-focused communication skills, strengthening their abilities and awareness in public education.

Conclusion: Providing hands-on experience in delivering healthcare information to the public early on in medical school develops essential communication skills.

3KK12 WITHDRAWN

3KK13 (3605)
The impact of the medical communication course on shaping the attitudes of medical students

Authors
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Presenter: Agata Stalmach-Przygoda, Department of Medical Education, Jagiellonian University Medical College, Cracow, Poland

Background: Many clinical communication courses focus on knowledge about the doctor-patient relationship and the teaching of communication skills. The results of studies analyzing the possibility of changing the attitude of students are ambiguous.

In constructing a medical communication course at the Medical Education Department, Jagiellonian University we have paid particular attention to shaping the students' attitudes. In our clinical communication course, the role of patient's perspective, autonomy, the role of therapeutic cooperation (e.g concordance) and empathy has been emphasized. Our perspective is consistent with the patient-centered approach as well as elements of relationship-centered care.

Method: In the presented study, we evaluated changes in 4th-year students' attitudes of the Medical Faculty at the Jagiellonian University during the course of clinical communication. The course lasted 20 hours, teaching methodology included work with Simulated Patients, small group reflection. 116 students of the fourth year, before the first classes and after the last classes of Laboratory Teaching of Clinical Skills, completed the Leeds Attitude to Concordance II (LATCon II) and Patient-Practitioner Orientation Scale (PPOS) questionnaires.

Results: The initial average LATCon II score was 37 pts and reached 40 pts after the course ($p < 0.001$). The average PPOS results have not changed (4.05 and 4.09).

Neither the results nor their change depended on the gender of the student nor on having a doctor in the family but we noted lower initial results in PPOS Caring Subscale in students with non-humanistic motivation to (compared with other students). We classified students' motivation also in terms of cognitive, based on values and other. Students with motivation based on values compared with student motivated by cognitive aspects reached higher initial results in PPOS Caring subscale with decrease during the course.

Conclusion: Clinical communication course can affect the elements of student attitude. In our research, we observed increase in doctor-patient concordance. On the other hand there is a possibility of decline in attitudes related to caring in selected groups of students. Medical students' attitudes can be modified and working with attitudes can be incorporated into clinical communication course curricula.

3KK14 (1738)
Priorities of medical students regarding patient communication in their clinical electives: A Q-method study

Authors
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Pascal O. Berberat, Technical University Munich, Munich, Germany
Martin Gartmeier, Technical University Munich, Munich, Germany

Presenter: Kristina Schick, Technical University Munich, Germany

Background: Much effort is dedicated to teaching doctor-patient communication skills in undergraduate medical education. Still, little is known about which attitudes medical students have towards doctor-patient dialogues during their clinical electives. Researching these attitudes is relevant because they are an important basis for communicative behaviors in clinical situations and might be more or less functional with regard to clinical practice. Researching these attitudes by means of self-report measures is challenging because results might be affected by several forms of response bias, like social desirability.

Method: We applied Q-method for this purpose because it allows to partially avoid shortcomings of more common approaches in attitude research.

Results: N=47 medical students in their clinical electives sorted 34 communicative behaviors of the Kalamazoo Communication Skills assessment form with the flashQ-software. They sorted the statements according to a normal distribution grid from "very important" across "important" to "less important". We use pqMethod for conducting a Q-Factor analysis for the sorting of the statements (Q-Sorts), where persons respectively individual Q-sorts were correlated with each other instead of the statements itself. We clustered similar Q-sorts to find differences in the perspectives of pre-service physicians.

42 Q-sorts could be clustered into three factors. The correlations between the three factors vary from $r°=°.31$ to $r°=°.56$. Two factors show a high agreement with the statement "I explain using words that the patient can understand", whereas another factor declares the statement "I greet and show interest in the patient" as most important. All factors differ in the less important statements.

Our results suggest that there are similarities and differences in the priorities of medical students towards doctor-patient dialogues during their clinical electives. These findings can be considered in the training and assessment of communication skills of pre-service physicians while taking differences in the students' perspectives into account.

Conclusion: There are considerable differences between medical students towards their priorities regarding important parts of doctor-patient dialogues during their clinical electives. These finding can have impact on further communication trainings and assessments in undergraduate medical education.

3KK15 (1142)
Evaluation of a mixed-methods skill training in patient-physician communication for Swiss first-year medical students

Authors
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Dominik Bleisch, Department of Health Sciences and Technology, ETH Zürich, Switzerland
Prof. Jörg Goldhahn, Department of Health Sciences and Technology, ETH Zürich, Switzerland
Stefan Neuner-Jehle, Institute of Primary Care University of Zürich, Switzerland

Presenter: Stefan Markun, Institute of Primary Care University of Zürich, Switzerland

Background: A new bachelor of medicine program for 100 students has been launched at the ETH Zurich in 2017. The program intends to integrate communication skills training at an early stage. Here, we present the structure and evaluation of the patient-physician communication skill training.

Method: The principal learning objective was the ability to conduct a full medical interview in simulation. Training took place weekly in two-hour lessons during the first semester. Lessons were structured in three parts; lecture, role-playing and debriefing. Lesson contents were elements of the medical interview in accordance with the Calgary Cambridge Framework and the Swiss learning objective catalogue for medical students (PROFILES). During the lectures, theory and communication techniques were introduced and exemplified by two lecturers present. The role-plays were performed in groups of three students, each assuming either the role of the physician (implementing lesson contents), patient (applying a storyboard), or observer (protocoling the physicians' implementation of lesson contents, using items from the Calgary Cambridge Guides). The role-plays were self-administered and the required storyboards and observation protocols were available electronically. The last two lessons focused on integrating the individual

communication elements to a full medical interview. Students self-evaluated their confidence in their skills for each sixteen individual communication elements (scale from 0 to 100 equalling very low or very high confidence respectively).

Results: After the training, students' self-evaluated median confidence combining all elements of patient-physician communication was 66, IQR 60-71. Confidence was highest in "opening the interview" (median 85, IQR 70-99) and lowest in "time management" (median 54, IQR 42-67).

Conclusion: A mixed teaching format including lectures and electronically guided self-administered role-plays actively involved students in learning medical interviewing technique and resulted in intermediate to high confidence in their own communication skills. The course will be further enhanced by coordinating role-play contents with medical background knowledge delivered in parallel lectures, thus enabling students to better assume the role of medical professionals.

Take-home message: An innovative patient-physician communication skills training was successfully launched and evaluated at the ETH Zürich. The roadmap to further advancements is set.

3KK16 (793)
How do first-year medical students communicate with elderly people? Changes in their interaction patterns across time

Authors

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Koji Tsunekawa
Chihiro Kawakami
Kaho Hayakawa
Takuya Saiki

Presenter: Rintaro Imafuku, Gifu University, Gifu, Japan

Background: Building relationships across generations is an essential social skill for physicians who need communicate with people from diverse backgrounds. However, due to the recent changes in social structure in Japan, including the trend toward the nuclear family, medical students have relatively little experiences of face-to-face interaction with elderly people. Therefore, we provided first-year students with opportunities of constantly interacting with the elderly in a non-clinical setting across six weeks (12 hours in total) to develop their communication skills and social identities.

Method: The aim of this study was to reveal how the interaction patterns and language in use among the students and elderly have been (or not) changed across time. The audio-recorded data of all the activities of two randomly selected groups (five students and two elderlies) were analysed from a discourse analytical perspective. Moreover, 30 written reflections in a series of e-portfolios by the students were collected to thematically examine their perceptions of learning through actual interactions with the elderly.

The student-elderly interactions in the first and second encounters were characterised by many question/answer adjacency pairs, long silence as a verbal disengagement and frequent topic shifts. From the third encounter on, the

students had tried to manage discourse cohesion and coherence in conversation, such as marriage, parenting, and view of life and death. Probing questions were made more frequently and effectively to explore the elderly's experience. Furthermore, as their focus was shifted to team building from individual behaviour, student-student interactions were observed in addition to student-elderly interactions.

Results: Through six weekly encounters, students struggled with and sought to better ways of communicating with the elderly. Their reflections indicated increased attention to coherence and development of topic, active listening and opinion-sharing, understanding of interlocutor's feelings, and collaborative conversation. They could not only deeply understand the elderly's sense of value and lifestyle, but also enhance their communicative competence, including linguistic, sociolinguistic, discourse and strategic components.

Conclusion: Constantly interacting with the elderly early in medical education is an important opportunity to learn to communicate and build social relationships with people from different generations.

3KK17 (525)
Developing numerical risk communication skills for medical undergraduates: An evaluation of multidisciplinary teaching

Authors

Katherine Joekes, St George's, University of London, London, UK
Judith Ibison, St George's, University of London, London, UK

Presenter: Katherine Joekes, St George's, University of London, UK

Background: Communicating about the risks and benefits of medical interventions is a core competency for physicians, and its importance has been reinforced in changes to UK case law (Montgomery, 2015). However, facilitating patient tailored choice, particularly numerical risk communication, has not been a traditional focus for undergraduates.

Method: At St George's, University of London, a new interdisciplinary (clinician, communication skills tutor, and statistician) teaching session was devised for the surgical placement in the penultimate 'Specialties' year. This 1.5 hour session revisits shared decision making, sets out ethico-legal aspects, considers barriers to effective risk communication, revisits relevant statistics, highlights numeric risk communication skills, and offers the opportunity to practise risk communication skills using relevant clinical scenarios.

To evaluate the sessions, all 214 students (in 2016-2017) were invited to complete a brief paper-based anonymous evaluation form, which contained three questions on the value of the sessions, answered using a three point Likert scale. The questions focused on: understanding of medical statistics and interpretation of research data; numeric risk communication skills; patient-centred decision-making. Free-text comments were also invited.

Results: 174 (81%) students completed the form. Students overwhelmingly rated the session as (very) valuable, with

question 3 (patient-centred decision-making) ranking highest. Thematic analysis of the free-text generated 283 separate comments, from 150 students who completed the evaluation. This revealed that practice and roleplay were identified as most valuable aspects of the session (55 comments), that students wanted further opportunities to practise (26 comments), and that reviewing relevant statistics was useful (23 comments). Students valued interprofessional input from of the three teachers.

The session facilitates the explicit integration of evidence-based medicine and communication skills for authentic clinical practice, whilst role-play highlights areas of competence and the need for further development.

Conclusion: Offering an experiential risk communication skills teaching session in the context of shared decision making is well received by senior medical students.

3KK18 NOT PRESENTED

3KK19 (2184)
Clinical Communication Skills: It's Never Too Late to Remediate

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Sara Almeida, School of Medicine - University of Minho, Braga, Portugal
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Joao J Cerqueira, School of Medicine - University of Minho, Braga, Portugal
Nuno Sousa, School of Medicine - University of Minho, Braga, Portugal

Presenter: Pedro Morgado, School of Medicine - University of Minho, Braga, Portugal

Background: Poor performance on clinical communication skills assessment requires remediation. Little is known about techniques used to remedy students' skills deficits and their effectiveness. The objective of this work was to design a structured remediation program in communication skills for medical students that failed clinical evaluation.

Method: Students that failed in the clinical skills examination at the end of the third-year were invited to join the 7-steps structured remediation program. This communication skills program included clinical practice with standardized patients, self-evaluation and evaluation by experts in communication skills and personalized interventions to improve communication abilities.

Results: All students enrolled in the program have obtained success in the subsequent clinical skills examination and the program was valued by students enrolled, who asked for more steps and similar opportunities to learn.

Conclusion: Implementation of a structured remediation program to improve communication skills was successful and well appreciated by enrolled students. The replication of this experiment in other medical schools will allow to better understand and quantify its advantages.

Medical schools should address remediation in clinical communication skills and implement programs to deal with students in difficulties. Structured remediation programs for communication skills add value to the training process and enhance the learning environment for students and faculty.

SESSION 4: SIMULTANEOUS SESSIONS

Monday 27th August
1400-1530 hrs

4A: Symposium: Acquisition, Maintenance, and Verification of Surgical Skills

Location: Event Hall
Date: Monday 27th August
Time: 1400-1530 hrs

Presenters:
Ajit K. Sachdeva, Division of Education, American College of Surgeons; Society for Academic CME; Feinberg School of Medicine, Northwestern University, Chicago, USA
Teodor Grantcharov, University of Toronto, Canada
Stephen Tobin, Royal Australasian College of Surgeons, Melbourne, Australia
Wa'el S Taha, King Abdulaziz Medical City, Al-Madinah, Saudi Arabia; Chairperson of AOTrauma Education Commission

Summary: Transformational changes in health care, unprecedented advances in science and technology, and ongoing innovations in teaching, learning, and assessment require a new paradigm to address acquisition, maintenance, and verification of surgical skills. A range of effective education and training interventions can help surgeons to perform at the highest levels of skill and fidelity throughout their professional careers. Such interventions need to be based on contemporary principles of adult education, experiential learning, and mastery-based learning. Simulation remains at the core of these interventions. State-of-the-art education and training should help in delivery of safe surgical care of the highest quality. This symposium will address the key advances in this burgeoning field and will focus on challenges and opportunities that need to be harnessed to achieve the best outcomes. Perspectives from different countries will be presented. There will be sufficient time for an interactive discussion with the meeting attendees, following presentations by the speakers.

4B: Symposium: Intersections, Introspections and Divergences: Sustaining the Growth of Medical Education Research and Training

Location: Montreal, 2nd Floor, CCB
Date: Monday 27th August
Time: 1400-1530 hrs

Presenters:
Mathieu Albert, Wilson Centre, University of Toronto, Canada
Nicole Woods, Wilson Centre, University of Toronto, Canada
Tina Martimianakis, Wilson Centre, University of Toronto, Canada
Klara Bolander Laksov, Department of Education, University of Stockholm, Sweden
Albert Scherpbier, Faculty of Health, Medicine and Life Sciences, Maastricht University, the Netherlands

Summary: As a field, medical education research has made remarkable strides over the last 50 years. Our community of researchers has made impressive gains in terms of breadth and depth of scientific inquiry, legitimization of education as a science and professionalization of education research as a career pathway. This evolution has led to a significant increase in the quantity and quality of the research conducted. We can say without doubt that collectively we have become a healthy and strong research community.
These gains can in part be attributed to strong methodological and theoretical contributions from disciplines outside of the health professions including sociology, psychology, cognitive science, kinesiology, political science, humanities, and higher education among others. Collectively, these disciplines have provided theoretical foundation and inspiration for research and innovation in teaching and learning across the continuum from undergraduate to continuing medical education. Evidence of this growth is also manifested in several organisational developments. In the last few decades there has been an increase in the number of graduate training programs specific to health professions education research, a significant rise in continuing education courses and certification programs related to education research and an increase in the number of journals devoted to publishing medical education research.
However, as the community grows in size, we may be paradoxically narrowing in scope when it comes to the kinds of research we are doing and the research we are preparing our students to do in the future. For example, when we cite predominantly medical education scholars and train future researchers who have limited understanding of the original disciplinary foundations of the work, are we inadvertently limiting the field's capacity to grow? Does our current success contain the seeds of our decline?
The goal of this symposium is to take stock of our achievements and start a conversation about our future as an academic community.
Panellists in the symposium will address several critical questions:
Does interdisciplinarity necessarily foster better knowledge production within the field of health professions education?
Are we at risk of becoming increasingly insular; leaving less room for the disciplinary and interdisciplinary traditions that fostered the development of our community at its start? Does that matter to our growth?
Is the current medical education research landscape welcoming to other disciplines or have we defined standards that have the effect of excluding scholars from external disciplines?
What kind of training would best prepare our graduate students for their academic and professional life in the coming years?

At a time where the medical education community is faced with pivotal questions concerning teaching, learning, and theory, we believe it is timely to also be reflective and consider the best strategies in terms of research and training to answer these questions moving forward.

Who should participate in the symposium? Our symposium will raise broad organisational, scientific and educational questions potentially impacting the broad medical education community. As such, we think this symposium will be of utmost interest to medical education researchers, medical school administrators (deans, department's chairs, and research centre directors), graduates students and clinician-educators. Moreover, the symposium is international in scope since the nature of the questions we are raising are not limited to one context, but of international interest.

What will they gain from participating? Participants will gain a broad understanding of some of the theoretical and conceptual debates in the field of medical education research.

Participants will have an opportunity to critically reflect on their own research practice and contribute to an on-going discussion on the direction of medical education research internationally.

4C: Symposium: Open Space Technology Applied to Wicked Issues in Medical Education and Health Care Practices

Location: Sydney, 2nd Floor, CCB
Date: Monday 27th August
Time: 1400-1530 hrs

Presenters:
Glenda Eoyang, Human Systems Dynamics, USA
Stewart Mennin, Human Systems Dynamics, USA

Summary: The most important and challenging issues in the current health system that affect us both as individuals and as groups are complex. They won't stay solved or can't be solved with existing traditional methods. This symposium will make accessible a different way to perceive, understand and take informed wise action to shift patterns of complex challenges. Participants will identify their own complex challenges and apply selected models and methods to shift the conditions that give rise to these challenges. Participants will have hands on practice in small groups during the symposium.
Open space technology is a self-organizing experience. Participants will join others who share passion and responsibility for innovation and change in medical education and health practices. The technology brings people together, holds them in a generative conversation, and promotes sharing experiences and discoveries. Diverse groups will share the results of their innovation dialogues. Notes from the various conversations will be shared with participants, and collected for wider distribution. Join us as we push the bounds of innovative practice together.

Who should participate in the symposium? Anyone who is engaged in teaching and organizing learning, assessment, design and implementation of curriculum and health practices; especially those involved in applying and evaluating new methods and models of medical education. The symposium is relevant for all levels of educators and practitioners in the health system.

What will they gain from participating? Participants will learn and practice a simple yet deep methods to be able to shift the complex challenges they face in the workplace of medical education and clinical practice. Each participant will bring their own innovative insights and questions. Join others who share the same passion and responsibility for creative responses to complex challenges. Do you want to talk about novel approaches to:

- Assessment in the moment?
- Community-based practice?
- Working with diverse cultures?
- Supporting inter-professional practice?
- Curriculum design, implementation and evaluation?
- Communication skills?
- Working with immigrants?
- Disaster response and recovery?
- More...

4D: Symposium: The role of the Biomedical Sciences in Teaching and Learning Medicine in the 21st century

Location: Singapore, 2nd Floor, CCB
Date: Monday 27th August
Time: 1400-1530 hrs

Organised by IAMSE:
Aviad Haramati
Peter GM de Jong
Neil Osheroff
Kelly M Quesnelle
Dujeepa D Samarasekera
Richard C Vari

Summary: In this high-tech, clinically-oriented healthcare arena in which information is readily available online, the role for teaching specific facts regarding the basic sciences is often questioned. What is the value of teaching our students foundational sciences as part of their medical training? Recent findings from the literature will be presented.

4E: Research Papers: Success & Failure

Location: Delhi, Ground Floor, CCB
Date: Monday 27th August
Time: 1400-1530 hrs

4E1 (179)
Early predictors in medical school: Supporting students early on through the use of data

Authors
Cassandra Barber, Western University, London, Canada
Gary Tithecott, Western University, London, Canada
Tisha Joy, Western University, London, Canada
Robert Hammond, Western University, London, Canada
Saad Chahine, Western University, London, Canada

Presenter: Cassandra Barber, Western University, London, Canada

Abstract Text:
Background: Medical students that underperform within the first year of studies often continue to struggle throughout their academic career and professional practice. While early student academic success within medical school has been strongly correlated with several preadmission variables, such as: MCAT scores, undergraduate GPA and the MMI (Multiple Mini Interviews), the problem still persists. The relationship among student's undergraduate academic backgrounds or majors and early student performance has shown to be inconsistent. It has also been reported that no differences in performance are observed between students from science or non-science backgrounds. Yet, the dichotomous groups (science/non-science) are not homogeneous, and the extent to which internal differences in performance exists within heterogeneous science/non-science backgrounds is unknown. This study examines the heterogeneous backgrounds of medical students over 12 overlapping years to identify key preadmissions variables, predictive of early student performance.
Methods: The study sample consisted of 696 medical school students, across 4 cohorts that matriculated between 2013 and 2016 (~174 students per cohort). During the period under study, applicants were required to have completed a four-year undergraduate degree prior to entry. The data was analyzed using hierarchical linear modeling (HLM), where students were nested within cohorts. Student characteristics and preadmissions variables, such as: gender; age at matriculation; urban/rural hometown origin; MCAT score; undergraduate GPA; admissions interview score and undergraduate degree were used to predict student performance within the first two years of medical school. Group-based centering was selected to allow us to compare group mean differences across cohorts for each variable. Through a stepwise process of manually entering and removing variables, two parsimonious models were created to predict early student performance using Year-1 and Year-2 curricular cumulative averages.
Results: The results of the HLM analysis identified small, yet significant portion of variation in student performance

was attributable to cohort (4% Year-1, 2% Year-2). The conditional Year-1 model included: gender, MCAT score, undergraduate GPA and having a biological science or general medical science undergraduate major as significant predictors of Year-1 performance ($p<0.05$) and explained 22% of the variation at the student level. The conditional Year-2 model included: gender, MCAT score, undergraduate GPA and general medical science undergraduate major as significant predictors of Year-2 performance ($p<0.05$) and explained 15% of the variation at the student level. Overall, males on average have lower Years 1 & 2 curricular cumulative averages than females, when controlling for all other variables. MCAT score and undergraduate GPA were positive predictors of Years 1 & 2 performance and students with biological science degrees have higher Year-1 cumulative averages and those with general medical sciences have lower Year-1 & 2 performance than those from other undergraduate disciplines.
Conclusion: Extending previous studies, evidence from our models suggest that undergraduate major matters early on in medical school, however, this predictive relationship dissipates within the second year of studies. This study suggests that undergraduate science majors are not homogeneous and internal differences in performance are observed within disciplines. These internal differences often remain unobserved when dichotomous outcomes (science/non-science backgrounds) are compared. In practice, we can use this model to better identify and support students at admissions, as they enter our program and transition into medical school. The potential of supporting students early on may have subsequent effects in enhancing how they perform on national licensing examinations and in practice.
References: Sui, E., & Reiter, HI. (2009). *Overview of what's worked and what hasn't as a guide towards predictive admissions tool development. Advances in Health Science Education, 14,759-775.*
Hall, JN., Woods, N., Hanson, M. (2014). Is Social Sciences & Humanities (SSH) Premedical Education Marginalized in Medical School Admissions Process? A Review and Contextualization of the Literature. Academic Medicine, 89(7),1075-1086.

4E2 (7)
Identifying medical students at risk for academic interruption using a growth-curve paradigm

Authors
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Presenter: Juan Cendan, University of Central Florida, College of Medicine, Orlando, USA

Abstract Text:
Introduction: Undergraduate medical students may have to confront significant interruptions in academic progress (IP) through course or academic year repetition, or even dismissal. The consequences may be social, psychological, and financial. Medical schools also bear the burden of developing remediation techniques, and providing special accommodations to students in areas where resource constraints can be challenging. Stegers-Jager noted that student grades at the fourth month of medical school were associated with completion of the first year of medical education; that is, poor grades at month 4 meant a lower likelihood of successful completion of the academic year.1 In a similar light, Jackson and Dawson-Sanders identified withdrawals in undergraduate courses to be associated with subsequent difficulty in completion of the medical curriculum.2 We hypothesized that the clinically familiar pediatric growth curve metaphor could be exploited as a method for early recognition of IP.
Methods: The assessment office provided the research team a de-identified table of internal summative assessments for 518 sequential medical students. An additional column identified if the student had IP or uninterrupted progress (UP). IP was defined as students having to repeat a module, several modules, or an entire year; go on a leave of absence; withdraw; or were otherwise hindered from UP. The data was organized such that percent scores were added in a cumulative manner over time. At every examination point the data were analyzed for distribution and a mean class score calculated; thereby creating the backdrop standards for individual student comparison. Each student's points accumulation was plotted and a linear fit accommodated. Using the mean of the class as the horizontal axis, students gaining points against the class mean show a positive slope; conversely students losing points against the mean reveal a negative slope.
Results: Twenty-nine students had an interruption in progress, and an additional 9 were identified as being at-risk, accounting for 7.3% of the total student population. Using a receiver operating characteristic approach, we identified a slope of -5 as an excellent screening test with 85% accuracy (sensitivity= 82%, specificity= 86%). The area under the curve (AUC) calculation, plotting sensitivity vs. (1-specificity), revealed an AUC=0.917, reflecting excellent screening properties. Twenty-five of the 38 students had an APA trailing slope below -5 as early as the 5th assessment, climbing to 35 by the 10th assessment.
Discussion: While some students who are at-risk of IP self-identify, and seek out assistance, other students must be identified based on their academic performance. When a student suffers IP, we sometimes wonder whether this could have been avoided had administration known at an earlier point in the student's academic career that intervention was necessary. This study aimed to develop an early warning system that would help to identify students who are at-risk IP, thus allowing for intervention that could mitigate that risk. This predictive modeling tool represents an opportunity for simplifying the process for identifying students at risk for IP.
Conclusions: We present an innovative approach with 85% accuracy for identifying students at risk for IP; utilizing a -5 slope, two-thirds of students at-risk for IP could have been identified by the fifth internal assessment . Implementation of this screening tool requires minimal programming expertise. Plans are in place to validate the approach at other medical colleges as course sequencing, and grading paradigms may affect the reproducibility of this approach.

References: *Stegers-Jager KM, Themmen AP, Cohen-Schotanus J, Steyerberg EW. Predicting performance: relative importance of students' background and past performance. Med Educ. 2015 Sep;49(9):933-45. doi: 10.1111/medu.12779.*
Jackson EW, Dawson-Saunders B. History of not completing courses as predictor of academic difficulty among first-year students. J Med Educ. 1987 Nov;62(11):880-5.

4E3 (86)
Remediation interventions for postgraduate medical learners with academic difficulties: Results from a BEME systematic review

Authors
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Presenter: Miriam Lacasse, Université Laval, Quebec City, Canada

Abstract Text:
Introduction: Most postgraduate medical learners will complete their training without significant difficulties. Residency programs are demanding, and 10-15% of learners will experience some problems during their training. One of the frequent barriers for clinical teachers to report unsatisfactory trainee performance is the lack of knowledge regarding available remediation options for the trainee. Most remediation interventions (individualized additional teaching) do not appear to be based on explicit conceptual frameworks and are more focused on anecdotal advice than evidence-based results. This review aims to identify evidence-based remediation interventions for postgraduate medical learners with academic difficulties and link them to a theory-based conceptual framework.
Methods: This systematic review searched MEDLINE, CINAHL, EMBASE, ERIC, Education Source and PsycINFO based on the following concepts: 1) medical education, 2) professional competence or difficulty and 3) educational support, from January 1st 1990 to December 31st 2016. Studies were included if they met the following criteria: primary research studies, innovation reports and reviews evaluating at least one remediation intervention for postgraduate medical learners in difficulty. Data were extracted following Michie's Behaviour Change

Techniques (BCT) Taxonomy1 and program evaluation models from Stufflebeam's CIPP model (context/input/process/product) and Kirkpatrick (reactions/learning/behaviour/results). The quality of each study was assessed using the Mixed Methods Appraisal Tool. The synthesis of extracted evidence is illustrated through descriptive statistics.

Results: Of the 16,692 screened titles, 20 met the inclusion criteria. Most articles identified more than one educational diagnosis: insufficient knowledge (80%), deficient skills (75%), attitudinal problems (45%) and personal (30%) or teacher-related (5%) issues. The 78 remediation interventions we identified involved at least one BCT, most commonly the following: Feedback and monitoring (37%), Shaping knowledge (28%), Repetition and substitution (22%), Social support (13%), Goals and planning (10%) and Regulation (11%). Program evaluation reported in the articles assessed context (20% of articles), input (35%), process (40%) and products (90% of articles assessed effectiveness of the interventions at the learning, behaviour and/or results (30%) levels). Effective interventions often included a variety of learning strategies: directed reading programs with feedback, mentoring or resident-led review sessions (n=3); standardized 10-step clinical reasoning remediation plan (n=1); individualized learning plans with deliberate practice, feedback and reflection (n=1); written clinical protocols with audits and back-up coverage (n=1); study skills mentoring (n=1); oral examination course (n=1); and structured additional year of remedial training (n=2).

Discussion & conclusions: This review identified 78 evidence-based remediation interventions with their BCT. This review states the importance of not only shaping knowledge or test-taking abilities, but also mainly to encourage feedback, peer/faculty support and structured remediation plans, and finally to ensure patient safety through various compensatory measures. It is difficult to report on the effectiveness of individual remediation interventions since few studies evaluated a single strategy. Despite the high percentage of studies assessing the remediation interventions effectiveness through learning, behaviour or results outcomes, many studies revealed methodological issues. This review provides clinical teachers and educators with a repertoire of evidence-based interventions that can be used for mentoring postgraduate medical learners and for faculty development purposes. Further remediation interventions should build upon effective BCT (or test the unexplored ones), use their associated theories, and undergo thorough program evaluation.

References: *1. Michie S, Wood CE, Johnston M, Abraham C, Francis JJ, Hardeman W. Behaviour change techniques: the development and evaluation of a taxonomic method for reporting and describing behaviour change interventions (a suite of five studies involving consensus methods, randomised controlled trials and analysis of qualitative data). Health Technol Assess. 2015;19(99):1-188.*

4E4 (94)
Problem-based learning with virtual patients promotes effective self-directed constructive learning, but at what cost to student wellbeing and cognitive engagement?

Authors
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Presenter: Viktor Riklefs, Karaganda State Medical University, Karaganda, Kazakhstan

Abstract Text:
Introduction: Problem-based learning (PBL) is known being effective, if done in a constructive, self-directed, collaborative and contextualized way [1]. Recently, there has been a tendency to move from linear paper-based patient cases to web-based virtual patients (PBL-VP), leading to better midterm learning outcomes [2]. Medical schools often introduce PBL-VP track due to its effectiveness for academic performance, in developing personal qualities and life-long learning strategies. However, there is an emerging theme in medical education research exploring PBL relation to academic stress and cognitive engagement of students, and testing whether the effectiveness is bought at a high price to learner wellbeing. The goal of our study is to estimate this frequently neglected 'price' and to provide evidence-informed advice on how to overcome the problem.

Methods: In the framework of an international project co-funded by the EU Tempus Programme and a research on the academic stress impact, Karaganda State Medical University surveyed 118 medical students in 2 tracks: PBL-VP (21 - in year 2, 10 - in year 3) and traditional lecture-based teaching (73 - in year 2, 14 - in year 3). Assuming that imbalances in achievement goals, cognitive load, perceived stress, personality and learning strategies may contribute to the 'price', we measured 70 parameters, further reduced to 17 factors by EFA and CATPCA. Factorial ANOVA compared the main effects of instructional method and study year on these factors and academic performance (GPA and progress test results).

Results: As expected, academic performance was better in PBL-VP track compared to traditional instruction – GPA did not differ for year 2, but was significantly higher for year 3 students (F=3.905; p=0.05). Progress test scores were better for PBL-VP for both years (F=7.243; p=0.05). Effectiveness of PBL-VP was also supported by better (p<0.05) development of convergent thinking ("think and do"), and a tendency to higher extraversion (p=0.09). However, PBL-VP did not seem to stimulate self-directed

learning. The most effective habits of distributed practice and practice-testing being initially high in year 2 PBL-VP students were replaced by abstract 'self-study for more than 2 hours' in year 3 students. Traditionally taught students showed the tendency to develop better self-directed learning skills over time. Year 3 PBL-VP students showed decreased germane cognitive load with a tendency to increase extraneous and intrinsic loads, and lower achievement goals. The overall intrinsic load was lower in PBL-VP track. The perceived stress was significantly higher for PBL-VP students increasing with the study year ($F=9.93$; $p=0.002$).

Discussion & Conclusions: PBL-VP led to significantly better academic results, critical thinking skills and extraversion confirming the positive effects of its constructive, contextual and collaborative features. One could be satisfied by this, if not paying attention to costs involved. The skills of effective self-directed learning even though initially naturally applied by students in the PBL-VP group deteriorated over time leading to lower achievement goals and germane cognitive load, as well as higher academic stress; the exact nature of such findings should be investigated with future qualitative research. But PBL-VP students were obviously at risk of burning out. Tutors need to pay closer attention to the emotional status of their students and actively promote the development of effective learning strategies. The goals and learning tasks also need to be tailored to PBL-VP curriculum to prevent a risk of imbalances in cognitive load experienced by learners.

References: *Dolmans D, de Grave W, Wolfhagen I, Van der Vleuten C. Problem-based learning: future challenges for educational practice and research. Med Educ. 2005;39:732–41.*

Poulton T, Ellaway RH, Round J, Jivram T, Kavia S, Hilton S. Exploring the Efficacy of Replacing Linear Paper-Based Patient Cases in Problem-Based Learning With Dynamic Web-Based Virtual Patients: Randomized Controlled Trial. Bamidis P, ed. Journal of Med

4F: Research Papers: Teaching

Location: Helvetia 1, 1st Floor, Swissotel
Date: Monday 27th August
Time: 1400-1530 hrs

4F1 (229)
Evidence-based quality improvement in clinical teaching: An initiative to enhance teaching in critical thinking, high value care, and health care equity

Authors
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Carrie Tibbles, Harvard Medical School and Beth Israel Deaconess Medical Center, Boston, MA, USA
Richard M Schwartzstein, Harvard Medical School and Beth Israel Deaconess Medical Center, Boston, MA, USA

Presenter: Amy Sullivan, Harvard Medical School and Beth Israel Deaconess Medical Center, Boston, USA

Abstract Text:
Introduction: Excellence in teaching in the clinical environment is a priority for academic health centers, but ongoing faculty development in this setting is challenging to implement and measure. Barriers to effective faculty development include competing demands of attendings to patient care and safety, identifying and meeting the training needs of residents and students, and staying current in best practices with respect to clinical care and teaching. We developed an initiative to develop and deliver educational content in the context of clinical care and assess changes in teaching behaviors. This study aimed to improve teaching in three areas identified as hospital and teaching priorities: critical thinking (CT), high value care (HVC), and healthcare equity (HCE).
Setting: U.S. teaching hospital.
Intervention: We used the behavior change Theory of Planned Behavior[1] to inform the development of the intervention, targeting faculty skills, knowledge, perceived group norms, and teaching intentions. Three working groups (CT, HVC, HCE) of 6-8 members each developed the intervention. Each group developed resources that included video, didactic sessions, structured exercises, and handout materials. Learning objectives were aligned with key elements of each topic as distilled from literature reviews, and resident competencies as defined by the medical school and housestaff education accrediting bodies. The training was delivered to faculty from January-March 2017.

Methods: Evaluation of the intervention was conducted addressing Kirkpatrick's[2] outcome levels of faculty satisfaction, learning, and behavior. Methods of data collection included direct observation and audio-recording of ambulatory and inpatient precepting and inpatient rounds. We created and validated an observation instrument based on the learning objectives for each topic. For CT, domains included use of questions to stimulate critical thinking, teaching about sources of bias in thinking (e.g., premature closure), and cognitive constructs such as System 1/System 2 thinking. In HVC, domains included discussion of costs, test characteristics, and patient-centered decision-making. HCE domains included attention to affordability, access to care, need for interpreters, and unconscious bias. Three groups of faculty were observed: intervention group (IG), comparison group (CG), and working group (WG) members. Primary analyses compared counts of total post-intervention teaching behaviors per hour in each of the three topics across the three faculty groups. Statistical analyses of counts were modeled with a generalized linear model using the Poisson distribution.
Results: Thirty faculty members participated in the IG; 27 faculty served as CG, and 29 faculty participated as WG members. Observation results: 68 faculty members (IG n=28, CG n=23, WG n=17) were observed teaching in the clinical setting, with a median of 3 observation sessions each and median of 5.2 observed hours each. Pre-intervention counts of teaching behaviors were similar in the three domains between IG and the CG, suggesting that pre-intervention teaching was similar across groups. Post-intervention comparison of teaching (average counts per hour of observation) showed statistically significant differences across groups as follows: critical thinking CG=5.1, IG=5.8, WG=6.0; high value care CG=0.6, IG=0.9, WG=1.3; and healthcare equity CG=0.2, IG=0.5, WG=0.7.
Conclusion: A faculty development intervention in teaching in the clinical setting is feasible and demonstrates more frequent teaching in each of the targeted domains of critical thinking, high value care, and healthcare equity. With the creation of durable teaching materials and a cadre of trained faculty, this project sets the foundation for ongoing quality improvement in teaching that can be disseminated and implemented in other departments and hospital settings.

4F2 (41)
Video versus bedside teaching of paediatric clinical examination skills: A mixed methods study

Authors
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Ziyaad Dangor, University of the Witwatersrand, Johannesburg, South Africa
Sanjay Lala, University of the Witwatersrand, Johannesburg, South Africa

Presenter: Ann George, University of the Witwatersrand, Johannesburg, South Africa

Abstract Text:
Introduction: Video usage offers a number of benefits for medical education, including the teaching of clinical skills (1). Increasing student numbers in South African medical schools have resulted in larger groups for bedside tutorials, raising concerns about maintaining the standard of clinical teaching. Paediatricians at Chris Hani Baragwanath Academic Hospital recorded videos for teaching clinical examination skills. This study compared the effectiveness of one of these videos to bedside teaching, and explored student perceptions of the two teaching methods, with a view to better understanding the role of video usage in clinical teaching.

Methods: Equivalence testing is useful for showing that a novel intervention, which may offer certain advantages over the standard method, is not inferior to the standard method (2). Data from a pilot study was used to calculate the required sample size of 52 for equivalence testing, using an equivalence margin of 10 percentage points and 90% power. For the actual study, 60 medical students were randomly assigned into two groups. The experimental group watched a video of an abdominal examination, while the control group was taught the same procedure at the bedside. Immediately after, blinded assessors observed the students conduct an abdominal examination in a 10-minute mini-OSCE (objective structured clinical skill examination). Students were evaluated on their professionalism and organisation/ efficiency using rating scales of 1-10, their physical examination skills using a checklist of 10 items rated from 1-5, and were also allocated an overall grade. All scores were converted to percentages for analysis. A t-test was used to calculate the 95% confidence interval of the difference between the groups and compared to the specified equivalence margin. Linear regression was used to calculate the difference between the groups, adjusting for assessor effect, age, gender, and previous academic performance. Separate focus group discussions were held for the bedside and video groups. Students were asked which aspects of the teaching method they experienced were most useful, and which could be improved. Data were analysed thematically.

Results: The video usage was found to be equivalent within the 10% margin to the bedside teaching for all criteria. For example, the difference in the overall grade between the video and bedside groups was -2.58% [95%CI: -6.17-1.01] (unadjusted) and -3.14% [95%CI: -6.45-0.17] (adjusted). Students valued the various interactions possible at the bedside, with the tutor, their peers, and the hands-on interaction with patients, which the video did not permit. However, the recorded examination was regarded as being more systematically structured than the bedside teaching. The video usage also overcame the limitations of not being able to hear or see properly at the bedside, especially in large groups. Useful suggestions for improving the content of the video emerged, with students asking for more explanations to be included. Students also commented on technical aspects that could improve the acceptability of the videos.

Discussion and Conclusions: This study confirms other findings that video usage is not inferior to bedside teaching. Our results suggest that video usage could serve as a useful adjunct to compensate for the challenges of teaching large groups at the bedside. While students indicated that they would prefer a combination of the two teaching methods, further increases in student numbers may require more extensive use of videos, warranting further investigation into the possibilities of teaching with interactive videos to augment clinical teaching.

References: 1. Taslibeyaz, E., Aydemir, M., & Karaman, S. (2014). An analysis of research trends in articles on video usage in medical education. Education and Information Technologies 22:873–881. 2. Greene, C., & Morland, L. (2008). Noninferiority and equivalence designs: Issues and implications for mental health research. Journal of Traumatic Stress, 21(5):433–439.

4F3 (131)
Faculty Perceptions of Challenges and Opportunities to Facilitate Implicit Bias Instruction: Implications for Curriculum Development

Authors
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Presenter: Cristina Gonzalez, Albert Einstein College of Medicine/Montefiore Medical Center, Bronx, NY, USA

Abstract Text:
Introduction: Despite a four decade focus on cultural competency education, patients globally continue to report experiencing bias in clinical encounters (1). In response, medical educators have begun to address the role of implicit bias in clinical encounters. Existing frameworks (2) expect faculty to instruct students in developing knowledge, attitudes, and skills in implicit bias recognition and management, but most faculty have not received this instruction themselves. The purpose of this study was to inform curriculum design by exploring faculty perceptions of challenges and opportunities when facilitating instruction on racial and ethnic implicit bias recognition and management.

Methods: We recruited faculty participants using typical case sampling. We conducted semi-structured interviews using a constructivist grounded theory approach. Interviews explored participants' perspectives of implicit bias within themselves and others, its role in medical care and education, and preferences and concerns for facilitating instruction with medical students. Interview transcripts were analyzed using a constant comparative method, and we performed post hoc member checking.

Results: We reached thematic saturation after nineteen interviews. Our analysis identified four themes related to faculty's perceptions of influences on facilitating implicit bias instruction. Theme One. Faculty identities and emotions impacted perceived ability. Participants were concerned with how they would be perceived by the students based on their race, ethnicity, gender, age, and/or doctoral degree. They hesitated to discuss race worrying about emotions limiting their facilitation. "Talking about implicit bias is asking someone to look at themselves and say, 'I do things I'm ashamed of, yet I'm still doing it.'" Theme Two. Institutional values affect faculty success. Participants believed implicit bias may be discredited as a "soft science." The institutional climate could inhibit discussion and growth around it. "There's this acculturation [in Academia] where we rarely call anybody out. You never know when you're going to need somebody's support. People just tend to look the other way." The hidden curriculum and its potential influence to undermine implicit bias instruction was another factor. Theme Three. Perceived obstacles to instruction. Participants identified many potential obstacles, including the safety of the learning environment, getting buy-in from faculty and students, and resistant learners, including those who believe bias isn't important and those who think they don't have biases. "It is a little bit of, 'No, I am one of the good guys trying to help the people who are at the mercy of the bad guys.'" They described consequences of not teaching skills to mitigate the influence of bias after raising awareness. "It raises frustrations when you're feeling a little vulnerable after you've recognized something perhaps about yourself that you aren't totally thrilled by." Theme Four. Enhancing instructional opportunities and competence. Participants identified opportunities to enhance the faculty experience during facilitation and overcome concerns identified in the other three themes. They envisioned continuing instruction and role modeling during clinical rotations. "We do debriefs for hemorrhage. Why can't we do debriefs for bias?'"

Discussion: These themes provide novel insights for many who might teach in the area of bias, with potential implications for faculty development, curriculum design, and program-level decision making. Incorporation of these perspectives may enhance faculty comfort and confidence during facilitation and could facilitate the success of implicit bias curricula by making room in the existing curriculum for multiple sessions, recognizing the topic as an institutional priority, and facilitating culture change.

References: *Mellor D, McCabe M, Ricciardelli L, Mussap A, Tyler M. Toward an Understanding of the Poor Health Status of Indigenous Australian Men. Qual Health Res. 2016;26(14):1949-60.*

Teal CR, Gill AC, Green AR, Crandall S. Helping medical learners recognise and manage unconscious bias toward certain patient groups. Medical education. 2012;46(1):80-8.

4F4 (66)
An international study validating teacher profiles based on their conceptions of learning and teaching

Authors
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Gerda Croiset, VUmc School of Medical Sciences and LEARN! VU University, Amsterdam, Netherlands
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Presenter: Johanna Jacobs, VUmc School of Medical Sciences and LEARN! VU University, Amsterdam, Netherlands

Abstract Text:
Introduction: Teachers' conceptions of learning and teaching affect their teaching behaviour and indirectly their students' achievements. [1] Faculty development should pay more attention to these conceptions in order to achieve enduring changes in teaching practice. To measure these conceptions, we constructed the COLT (Conceptions Of Learning and Teaching) questionnaire and conducted several studies in two Dutch student centred curricula. The COLT (http://colt.vumc.nl) comprises 18 items and three scales, i.e. 'teacher centredness', 'appreciation of active learning' and 'orientation to professional practice'. In a previous study in student-centred curricula we found five teacher profiles based on their conceptions, ranging from Transmitters, Organizers, Intermediates, Facilitators to Conceptual Change Agents. [2] In the present study we investigated teachers' conceptions in an international context. Our research question was: What kind of profiles of teachers are found in an international context?

Methods: The data used in this study were collected with the COLT-website which is freely accessible. After filling out the the questionnaire, teachers receive instant feedback about their conceptions and teaching profile. Participants are explicitly asked if they agree that their answers will be used in a coded form for research purposes. An information letter is provided as well as an explanation on informed consent, filling out the complete questionnaire is seen as an informed consent to participate. Ethical approval was provided by the NVMO Ethical Board (nr. 330). Ward's method was used to explore the number of clusters based on the explained variance and a k-means clustering was used to identify the groups. Also Cronbach's alpha's were determined to assess the agreement between the clusters identified based on different datasets. A split half validation was performed for validation of the profiles.

Results: Respondents (n=694) hailed from 32 countries. Fourteen outliers were excluded from the analysis. Cronbach's alphas for the reliabilities of 'teacher centredness', 'appreciation of active learning' and 'orientation to professional practice' were 0.67, 0.54 and

0.66 respectively. The cluster analysis produced two solutions: of six clusters and of five clusters. The six cluster solution fitted best because of better psychometric properties and interpretability. Explained variance for 'teacher centredness' was 71%, for 'appreciation of active learning' was 51% and for 'orientation to professional practice' was 60%. Relative to the five teacher profiles found in the earlier study, the sixth cluster had high scores on teacher centredness and appreciation of active learning. We labelled this 6th teacher profile as 'Neo-Transmitters'.

Discussion: The new teacher profile 'Neo-Transmitters', found in the present study, reflects a new category of teachers with teacher centred conceptions. We assume that this new teacher profile reflects the heterogeneity of the large international group of teachers, with different national cultures, curriculum types and teacher characteristics. Insight into one's teacher profile can trigger reflection and contribute to a change in a teacher's conceptions. Also, insight into teacher profiles may enable faculty developers to tailor their activities to the needs of teachers. An overview of teacher profiles at an institutional level may serve as a useful starting point for a curricular change.

Conclusions: We found six teacher profiles based on their conceptions of learning and teaching in this international study, comprising teachers from several curriculum types and cultures. Future research exploring the relation between teacher profiles, national cultures and curricula might be promising.

References: *1. Gibbs G, Coffey M. The impact of training of university teachers on their teaching skills, their approach to teaching and the approach to learning of their students. Act Learn High Educ. 2004;5:87-100.*

2. Jacobs JCG, Van Luijk SJ, Galindo-Garre F, Muijtjens AMM, Van der Vleuten CPM, Croiset G, Scheele F. Five teacher profiles in student-centred curricula based on their conceptions of learning and teaching. BMC Med Educ. 2014;14(1):220. doi:10.1186/1472-

4G: Patil Teaching Innovation Awards 2

Location: Helvetia 2, 1st Floor, Swissotel
Date: Monday 27th August
Time: 1400-1530 hrs

4G1 (1967)
Introducing a Clinical Teaching Unit to increase autonomy, competence and relatedness in medical training using Self Determination Theory principles

Authors
Esther Hamoen, Leiden University Medical Center, Leiden, The Netherlands
Argho Ray, Leiden University Medical Center, Leiden, The Netherlands
Peter de Jong, Leiden University Medical Center, Leiden, The Netherlands
Marlies Reinders, Leiden University Medical Center, Leiden, The Netherlands

Presenter: Esther Hamoen, Leiden University Medical Center (LUMC), Leiden, Netherlands

Background: Learning in a clinical environment is a complex process in which residents, interns, nurses and specialists need to apply acquired theoretical medical knowledge to patient care. Due to several challenges including time pressure and complexity of patient cases the clinical learning environment is suboptimal. Previous studies have shown that specific adaptations to this environment and training program can benefit learning.
Method: At LUMC we developed a Clinical Teaching Unit (CTU) on an Internal Medicine ward, using teaching activities based on Self Determination Theory (SDT) principles in order to increase motivation, engagement and autonomy and to provide a learning continuum in a multidisciplinary setting.
Rearranging the existing ward allowed for learners' exposure to more diverse clinical presentations. A weekly multidisciplinary Grand Round has been established to promote interprofessional learning and collaboration. Teaching takes place from supervisor to resident during observed rounds, from doctor to nurse in clinical lessons and from nurse to doctor in skills training. Weekly teaching visits with peer-feedback, pre-rounds and optional case reporting sessions are organised for interns improving participation, hands-on training and observed assessment of clinical performance. Training activities are being delivered by trained teaching clinicians with allocated teaching time.
Results: Introduction of clinical teaching based on SDT design principles resulted in an active learning environment that is autonomous and individualised, and competence training that is both observed and assessed. The multidisciplinary approach, peer-learning and presence of dedicated teachers stimulate relatedness between above mentioned learners.
Conclusion: The construction of the CTU has resulted in a ward where the whole spectrum of clinical cases in Internal Medicine can be taught and where teaching, learning and teamwork are now a cornerstone in daily patient care. Using SDT principles has enriched clinical learning for interns, residents, nurses and specialists. The resulted open learning-atmosphere is barrier-braking and improves work atmosphere and mutual communication between health care providers, which in the end is expected to positively affect patient care and safety.
Take-home message: Using SDT principles in clinical teaching can generate effective learning in the complex clinical setting.

4G2 (2761)
Iran International Public Health Summer School (IPHS): A Report of an On-site Educational Game on Global Health for Healthcare Professions Students

Authors
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Ali Ganjizadeh, AVECEN Co. & Tehran University of Medical Sciences, Tehran, Iran
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Navid Manouchehri, AVECEN Co. & Isfahan University of Medical Sciences, Isfahan, Iran
Pouria Rouzrokh., AVECEN Co. & Tehran University of Medical Sciences, Tehran, Iran

Presenter: Azim Mirzazadeh, Tehran, Iran

Background: Games can make considerable changes in the learning environment of the learners and are becoming increasingly popular in healthcare professions education. However, more insight into their design features and effectiveness is needed. This study describes several aspects of organizing of IPHS as an on-site educational game.
Method: IPHS is a 7-day long on-site game in which participants in the role of health specialists, try to promote the health status of their own community through doing ten missions. Each mission contains game play(s) that simulate different aspects of public health specialists' tasks. Some examples of the missions are advocacy of the authorities to start their activity on the community, investigate and control an outbreak and write a policy brief.
Besides, Games are designed in a way that encourage students to develop their soft skills such as team management, problem-solving, time management and communication skills.
Results: At the end of the IPHS2017, a Likert scale questionnaire was given to students to evaluate their overall satisfaction on the course. Scores were evaluated using 1 (highly disagree) to 10 (highly agree) Likert scale. The mean score of the questions "The games were effective in making me more enthusiastic for learning about public health." and "I hope that other courses can also adopt games in their educational methods." were respectively 9.12 and 9.15.
Conclusion: Our 5-year experience demonstrated the feasibility of conducting games on training healthcare professions students on the topic of global health. As the participants report a high level of satisfaction with

adopting game plays to other different educational topics, we could suggest that this effort is able to reach broader educational topics with greater impacts on students' learning. Although designing and implementing well-structured educational games require a lot of time and effort, we can conclude using games in education will lead to increased joy of learning and significant improvements in comprehension of training material and the application of knowledge to practice.

Take-home message: Although games have proven to be effective in medical education, the cost efficacy of organizing educational games still needs to be investigated.

4G3 (1546)
Changing the healthcare education through teacher assistants

Authors
Marcos Rojas, University of Chile, Santiago, Chile
Nicolás Ortiz, University of Chile, Santiago, Chile
Diego González, University of Chile, Santiago, Chile
Karim Gallardo, University of Chile, Santiago, Chile

Presenter: Marcos Rojas, University of Chile, Santiago, Chile

Background: Faculties of medicine face an increase in the number of students, limited educational resources and the constant need to develop the abilities of the graduate and the evaluation of their competences. In order to improve the learning of the students of the 8 undergraduate careers of the Faculty of Medicine of the University of Chile and to positively impact the process of curricular innovation through promoting in the teachers the use of active learning methodologies and ICT's, the Teacher Assistants Program (PAD) is created.
Method: The PAD was founded on August 24, 2014 by a group of 14 students of Medicine. It is composed of undergraduate students who design, prepare, administer and execute teaching assistantships for the 8 undergraduate careers of this faculty. The participating students do their work on an honorary basis. The assistants not only participate in subjects, but also manage innovations, extend the university to the community through Coursera and carry out research in Higher Education.
Results: Since its foundation, the PAD has been diversified and increased, currently it is present in 60 subjects of the 8 careers of the faculty, with a historical participation of 492 teaching assistants in 3 years of operation. The PAD has made it possible to increase the quality of the learning of the students through the creation of the website: ayudantesdocentes.med.uchile.cl which has free access resources for students in the health area developed by teaching assistants along with the teachers of the respective subjects. This website is visited from 47 countries around the world.
Due to the growth and expansion, this program was incorporated to the Undergraduate Department of the Faculty of Medicine on October 1, 2017.
Conclusion: The PAD has proven to be a convenient approach to respond to the academic needs of students

and motivation of teachers to innovate. It is expected that in the coming years there will be greater growth and expansion to more subjects and universities, and the curricular integration of program activities.
Take-home message: Consider the students to share your teaching role.

4G4 (3067)
Déjà vu all over again: An innovative 3-year spiral curriculum in antimicrobial stewardship and infectious diseases

Authors
Peter Chin-Hong, UCSF, San Francisco, USA
Arianne Teherani, UCSF, San Francisco, USA
David Irby, UCSF, San Francisco, USA
Brian Schwartz, UCSF, San Francisco, USA

Presenter: Peter Chin-Hong, UCSF, San Francisco, USA

Background: By 2050, antimicrobial resistance is predicted to account for 10 million deaths worldwide/year, more deaths than cancer today. Physicians frequently prescribe antibiotics unnecessarily leading to high antibiotic resistance rates. Early, continual, and integrated medical student education may help students develop a framework before prescribing patterns become part of their mental repertoire.
Method: We designed a spiral antimicrobial stewardship curriculum (defined as revisiting the same concept but with increasing complexity) for medical students in years 2-4. Data provided by the Graduation Questionnaire (GQ) administered by the U.S. Association of American Colleges were used. We compared student responses over 2013-2015 between classes at our institution and students at other schools. We surveyed graduating seniors in 2015 about antimicrobial stewardship training.
Results: Using GQ data for the class of 2013 (pre-intervention), a similar proportion of UCSF medical students compared to other US medical students rated microbiology clinical preparation as excellent (43.6% vs 45.1%, P>0.20). For the 2014 class, we developed interactive case-based sessions at the beginning of years 3 and 4. After this first intervention, a higher proportion of UCSF students rated the microbiology clinical preparation as excellent (51.3%) compared to responses at all schools (39.8%, odds ratio [OR] 1.59, 95% confidence interval [CI] 1.1-2.3, P=0.013). For the class of 2015, we added content during the medicine clerkship and 1 week before graduation. For the 2015 class, an even higher proportion of UCSF students rated microbiology preparation as excellent (57.6%), compared to all schools (41.2%, OR 2.23, 95% CI 1.54-3.22, P<0.0001). From our survey, 88% were very or extremely satisfied with antimicrobial stewardship training.
Conclusion: A spiral curriculum focusing on antimicrobial stewardship and infectious disease increases student perception of clinical preparation prior to graduation. As the curriculum was incrementally introduced, students' knowledge increased indicating a dose-response pattern. Based on these positive results, we plan to introduce more content throughout UME, and link to curriculum for GME and practicing clinicians.

Take-home message: Providing a spiral curriculum in UME can be a powerful way of engaging students with and preparing them for antimicrobial stewardship.

4G5 NOT PRESESENTED

4G6 (383)
Using visual- and e-learning methods to enhance medical student engagement in clinical genetics

Authors
Adam Jones, Cardiff University, Cardiff, UK
MJ Coffey, Cardiff University, Cardiff, UK

Presenter: Adam Jones, Cardiff University, Cardiff, UK

Background: With the diagnosis, analysis and treatment of diseases with a genetic basis becoming a more common component of clinical practice, it is vital that medical students have an appropriate working knowledge of common genetic pathologies, both at the molecular and patient level. Students have anecdotally reported struggling with some concepts in Genetics and have indicated that traditional didactic methods of teaching the material can lead to disengagement.

Summary of Work: Through the creation of a user-friendly e-learning package, we devised an innovative way of covering key Learning Outcomes for medical genetics to students. The e-learning package utilised graphics-rich interfaces and animations to facilitate student-centered learning of epigenetics and its clinical relevance, through exploring 3 virtual patient cases. The e-learning package was piloted with a small group of year 2 medical students who had expressed a subject interest in Medical Genetics.

Summary of Results: Creation of the package was informed through staff feedback on current methods of delivery and through analysis of pre-existing student feedback on areas of the medical course that had a taught component of genetics. The e-learning package targeted clinical genetics specifically but had common structural interface elements deliberately engineered for use as a template to facilitate teaching other challenging topics in Medicine.

Discussion: From my own experience as a medical student and polling current medical students, there is a clear consensus that clinical genetics is perceived as a challenging topic. This work highlights the potential usefulness of illustration, animation and e-learning in engaging medical students in clinical genetics.

Conclusion: Students and staff appreciate this novel approach to teaching aspects of genetics. Utilising a number of graphics, animation and web-design applications can be used to create highly effective and immersive content that can facilitate knowledge acquisition through visual learning.

Take-home message: Providing an appealing visual platform that fosters independent learning of complex science concepts facilitates making medical and clinical genetics more comprehensible and accessible to medical students.

4H: PechaKucha™ 2

Location: Kairo 1, Ground Floor, CCB
Date: Monday 27th August
Time: 1400-1530 hrs

4H1 (2103)
The Sim360 Trial – Innovating simulation training with the use of a 'flipped' 360-degree virtual reality video

Authors

Jordan Tsigarides, Norwich Medical School, Norwich, UK
Jordan Curl-Roper, Norwich Medical School, Norwich, UK
Sophie Holland, Norwich Medical School, Norwich, UK
Veena Rodrigues, Norwich Medical School, Norwich, UK

Presenter: Jordan Tsigarides, Norwich Medical School, Norwich, UK

Background: Simulation is a widely-employed teaching method in undergraduate medical education, providing a safe and supportive experiential learning experience. However, for inexperienced students, it can often be a stressful and daunting prospect with technical aspects of the SimMan® impeding learning. Production of a low-cost virtual reality (VR) resource has the potential to provide an appealing, immersive learning experience for the millennial learner, increasing preparedness and enhancing the learning potential of formal sessions.
Method: In this Pecha Kucha, we will showcase our journey into VR, starting from nothing and leading to the creation of a 360-degree 3D video. Our immersive video was based on content covered in the first simulation teaching session attended by first-year medical students at our institution. Twenty-nine first-year students were independently randomised to one of three groups: (1) viewing the video on their smartphone using a VR headset (n=9); (2) viewing the video on a desktop computer screen (n=10); or (3) not viewing the video at all i.e. the control group (n=10). We assessed student performance in an OSCE-style simulation station and evaluated subjective experience using a survey, including the use of a validated assessment of students' motivation.
Results: All participants completed the survey following the intervention. Provisional results show that students who watched the virtual reality video felt significantly more prepared for their simulation teaching session compared to controls (p=0.03). Participants viewing the video using a VR headset reported higher median ratings of immersion and engagement compared to those viewing on a desktop monitor.
Conclusion: We filmed this VR video with no prior film production or editing experience and limited funding. This presentation intends to showcase how any educator, regardless of technological know-how can produce immersive, low-cost, accessible resources for technology-enhanced learning.

4H2 (255)
Technology-Enhanced Learning: Audio Tours in Anatomical Pathology

Authors

Lynelle Govender, University of Cape Town, Cape Town, South Africa
Dhirendra Govender, University of Cape Town, Cape Town, South Africa

Presenter: Lynelle Govender, University of Cape Town, South Africa

Background: Pathology education faces many challenges. Seen as the bridge between the basic sciences and clinical practice: Pathologists argue for the prioritization of Pathology in an undergraduate medical education, particularly in the setting of an integrated curriculum. Timetable pressures, competing clinical workloads and increasing intakes into medical school, challenge the Pathologist's ability to teach using traditional methods. Furthermore, in the South African setting: resource-constraints, student diversity and external pressures from the healthcare system create a unique landscape where these challenges are to be met.
Method: At the University of Cape Town in 2017, the authors sought to adapt the way Pathology is taught by making use of technology-enhanced learning. This took the format of "Audio Tours" in Anatomical Pathology. Audio Tours served as a means to guide students through a series of Pathology specimens. Specimens are preserved human tissue and were sourced from the existing collection at the Pathology museum (Pathology Learning Centre) at the University of Cape Town. Specimens were selected based on their application to the material students were engaging with, in their Problem-Based Learning cases. Audio files were scripted and recorded using input from specialist Anatomical Pathologists. These audio files serve as an in-ear, expert guide while students examine specimens at the Pathology Learning Centre. This PechaKucha presentation seeks to share with the audience our experience of implementing these Audio Tours. The presenter will share difficulties experienced as well as insights gained throughout this process. In a resource-constrained setting, where teaching time with Pathologists is limited; Audio Tours have proven to be an innovative means to increase guided, student engagement with Pathology content. Moving forward, several avenues can be considered in the evolution of this project including: multilingual tours, sharing Audio Tour content with students in outlying teaching sites and the application of Audio Tours in the postgraduate setting.

4H3 (3272)
Short supplemental videos produced by students, for students

Authors
Simon Albrechtsen, University of Copenhagen, Copenhagen, Denmark

Presenter: Simon Albrechtsen, University of Copenhagen, Copenhagen, Denmark

1. Why and how are students using online videos?
2. Problems of irrelevant or wrong information.
3. Advantages of the format.
4. How could we improve?
5. Aligned with curriculum in collaboration with professors.
6. Language and pedagogy.
7. What have we done? (Clip from video)
8. More than ten videos produced within first year.
9. Digital blackboard, draw and talk format.
10. Short, focused videos.
11. Choosing the subject based on input from other students and professors.
12. Professors approving and recommending individual videos.
13. Channels of access for students (YouTube, Facebook and university intranet).
14. University support and collaboration.
15. Resistance to change - turned to visions of possibility.
16. Survey results - does it work? (Yes)
17. Direct video-specific feedback as a tool for further improvement.
18. Students as teachers - widely used at UCPH.
19. A sense of helping each other.
20. Improving opportunities for making the best doctors of tomorrow.

4H4 (3175)
Clinic instead of lecture room – to start the medical curriculum!

Authors
Jörg Goldhahn, ETH Zurich, Switzerland
Rahel Kubik, Kantonsspital Baden, Germany
Manu Kapur, ETH Zurich, Switzerland
Ursula Brack, ETH Zurich, Switzerland

Presenter: Jörg Goldhahn, ETH, Zurich, Switzerland

Why should medical students wait for years to see what they are aiming for? In the newly developed bachelor in human medicine at ETH Zurich, we utilize the theory of Productive Failure (Kapur, 2008, 2016) to design learning experiences for medical students on the second day of their study to the clinical environment. A complex clinical case serves as the anchor for the clinical introductory week, where students are introduced into basic principles of patient management including interprofessional trauma care, multimodal imaging and principles of treatment and rehabilitation. The case is also utilized to introduce basics of biology, chemistry, mathematics and terminology. In addition, students practiced the basics of first aid, ultrasound imaging, wound treatment and rehabilitation. Consistent with the theory of Productive Failure, even though students were not able to solve the case successfully, nor was it a goal to begin with, the experience activates their knowledge, makes them aware of what they know and do not know, and prepares them for future learning by motivating them to look for solutions and ask challenging questions,. Student feedback was extremely positive with more than 85% of students indicating a deeper understanding of the physician's job, a better understanding of the curriculum, and learning of the first practical skills. The course contributed significantly to active student engagement form the very first day and provides the base for continued interaction with highly motived medical students.
Kapur, M. (2016). Examining Productive Failure, Productive Success, Unproductive Failure, and Unproductive Success in Learning. Educational Psychologist, 51(2), 289-299.
Kapur, M. (2008). Productive failure. Cognition and Instruction, 26(3), 379-424.

4H5 (2745)
Let's Share a SIX Pack...for Faculty Development

Authors
Heather Billings, Mayo Clinic, Rochester, MN, USA
Lotte Dyrbye, Mayo Clinic, Rochester, MN, USA

Presenter: Heather Billings, Mayo Clinic, Rochester, USA

Our challenge was to create high quality and applicable faculty development resources. Our charge was that it NOT be another asynchronous online module. We built upon the Snippet model to create a series of stand-alone, mini workshops that can be delivered by faculty to faculty, within their own practice environment (M. Bar-on, 2014). A 2016 systematic review of more than 100 faculty development programs suggests that the most successful programming includes, among several other things, evidence-informed design principles, relevant content, experiential learning, opportunities for practice, application, feedback and reflection, and intentional community building (Steinert ,2016). Many clinical departments and schools are charged with delivering faculty development programming and resources, however, clinical, research and administrative obligations limit the amount of time available to create and lead these activities. The return on investment and efficiency of this model is suspect - especially if they are only going to be delivered once, to a small and siloed audience. We want to make it easy for high quality faculty development to be shared, received and applied – in an efficient, consistent and effective way. The SIX-Pack Faculty Development program includes a collection of Succinct, In-person, eXpandable faculty development sessions that can be taken off of the "shelf" (ie downloaded from a website), reviewed and adapted by the facilitator, and delivered, in person to a diverse audience - when and where appropriate. The SIX-Packs include 6 components 1) objectives, 2) powerpoint slide deck, 3) facilitator guide, 4) activities, trigger videos, case scenarios, 5) resources, and deeper dive references, and 6) evaluation tools. We utilize the Successive Approximation Model (Design, Develop, Evaluate, repeat) for continuous improvement and feed the evaluation data back into the design and revision process (Allen, 2012). Lessons learned, impact data and next steps will be shared.

4H6 (3549)
Interprofessional collaboration education: The experience of students at the end of their professionalizing journey

Authors
Brigitte Vachon, Université de Montréal, Montreal, Canada
Tania Deslauriers, Université de Montréal, Montreal, Canada
Johanne Beaulieu, Université de Montréal, Montreal, Canada

Presenter: Brigitte Vachon, Université de Montréal, Canada

Background: The aim of this presentation is to describe the experience of rehabilitation students who participated in a 3-year interprofessional collaboration education program. This program brings together students from 12 health and psychosocial training programs. It is led by patients--trainers who cofacilitate problem-based learning sessions with a professional.
Method: We conducted discussion groups with students in occupational therapy, physiotherapy and nutrition to understand how they felt prepared and competent, at the end of their professionalizing journey, to collaborate with patients and work in team. Seven students participated to each group. Content was recorded and analysed using the framework analysis approach.
Results: Interesting themes emerged from these groups such as "interprofessional collaboration being part of who they are", "putting the patient first in the decision-making process" and "nurturing curiosity for other professional roles and expertise". However, they also reported how difficult it was to enact these values and ways of being in practice. They were able to recognize gaps between what they learned and what they experienced during their clinical training. They reported not having yet enough self-confidence and competence to take the risk to act on situations and to change practice. Even if they expressed their disappointment towards a clinical environment that does not always support the transfer and continued acquisition of their interprofessional collaboration competencies, they felt well trained and prepared to work in team in partnership with patients.
Conclusion: These results illustrate the impacts and challenges related to training future clinicians to become competent inteprofessional collaborator.

4H7 (2334)
Jindaola: The process of embedding Indigenous knowledge into mainstream medical and health science curricula at the University of Wollongong, NSW, Australia

Authors
Pippa Burns, School of Medicine, University of Wollongong, Wollongong, NSW, Australia
Karen Fildes, School of Medicine, University of Wollongong, Wollongong, NSW, Australia
Jade Kennedy, Learning and Teaching, University of Wollongong, Wollongong, NSW, Australia
Jola Stewart-Bugg, School of Medicine, University of Wollongong, Wollongong, NSW, Australia
Teresa Treweek, School of Medicine, University of Wollongong, Wollongong, NSW, Australia
Scott Winch, School of Medicine, University of Wollongong, Wollongong, NSW, Australia

Presenter: Teresa Treweek, School of Medicine, University of Wollongong, Australia

Background: The disparity in health outcomes between Indigenous and non-Indigenous Australians continues to be National challenge. In an effort to redress these inequalities, the University of Wollongong (UOW) has built respectful, reciprocal relationships with custodians of local Aboriginal knowledges and collaborate to embed these knowledges into mainstream medical and health science curricula. This innovative approach shifts the focus from learning about Aboriginal culture to valuing Aboriginal knowledges, empowering the knowledge-holders as teachers and creating authentic knowledge-exchange between UOW academics, Aboriginal organisations, elders and students.
Method: This paper represents the inquiry phase of a qualitative study employing Indigenous research methodology embedded in an overarching framework of Participatory Action Research (PAR). Immersive workshops were conducted with Aboriginal and non-Aboriginal staff members over the period in which the curriculum innovation was being developed. Experience-based evidence was collected via interviews and focus groups with participants.
Results: Significant risks inherent to the process of embedding Aboriginal knowledges were identified. Protocols to avoid tokenism and cultural knowledge appropriation must be developed to preserve the 'cultural capital' that Aboriginal knowledges and perspectives represent. An authentic approach that reduces the risks identified above is heavily reliant on non-Aboriginal academics becoming students of the process themselves before modifying curricula. This includes engaging non-Aboriginal academic staff members in whole days of learning throughout the year in order to better understand 'the way' in which these innovations must be respectfully implemented.
Conclusion: Through first re-orientating teaching staff to focus on Aboriginal knowledges and their value rather than on Aboriginal culture as if it is outside of, and irrelevant to, the dominant culture, we can then re-orientate students. It is our aim that UOW graduates will become culturally capable health professionals with a critical understanding of Indigenous determinants of health and a greater appreciation for the strength and resilience of Aboriginal communities.

4H8 (2746)
'You Murderer!' - challenges faced by recent veterinary graduates when performing euthanasia

Authors
Claire Vinten, Royal Veterinary College, London, UK
Ruth Serlin, Royal Veterinary College, London, UK

Presenter: Claire Vinten, Royal Veterinary College, London, UK

Background: Euthanasia is one of the most challenging aspects of veterinary practice, but also one of the most rewarding. Being able to end the suffering of an animal is one of the many privileges of being a veterinarian, and requires tremendous compassion, excellent communication and considerable technical skills. It also necessitates resilience - for those cases where the heartbreak is unbearable, when the animal has suffered for too long or where the owners channel their grief into anger. It takes practice to develop these abilities, which veterinary students are expected to be competent in by the time they graduate. But as exposure during training is often limited, what are the challenges those new to the profession face when performing euthanasia by themselves for the first time?
Method: We performed a pilot study asking a cohort of 45 recent graduates to produce a 'displayed thinking' mural about their experience of euthanasia and to explain it.
Results: The thematic analysis of the data showed graduates struggling to manage the emotional needs of both their clients and themselves, whilst at the same time trying to build their practical skill competency. It also highlighted the extreme impact that euthanasia 'gone wrong' can have on the confidence and wellbeing of a recent graduate.
Conclusion: This presentation presents these results and discusses how we can better equip our graduates for the realities - good and bad - of euthanasia.

4I: Short Communications: Curriculum: Community Based/Rural Teaching

Location: Rio, 2nd Floor, CCB
Date: Monday 27th August
Time: 1400-1530 hrs

4I1 (979)
Comparative efficacy of postgraduate MD longitudinal integrated clerkships in rural communities translating to regional internships

Authors
Scott Kitchener

Presenter: Scott Kitchener, Griffith University School of Medicine, Toowoomba, Australia

Background: Rural medical school programs in Australia have been developed to address the maldistribution of medical practitioners away from rural communities. The Griffith University 4-year postgraduate medical program includes the Rural Medical Longlook Program of amalgamative, blended and comparative longitudinal integrated clerkships (LIC), for students to choose their path of scholarship in third and fourth year. These represent adaptive syllabi for longitudinal rural placements.
Methods: The aim here is to determine the comparative efficacy of different forms of LIC in terms of regional workforce outcomes in internship and thereafter. Students were classified by participation in one or more of these LIC. Their postgraduate location of practice choice was recorded as outcome variables categorized as Regional or Metropolitan for analysis.
Results: Of 108 medical graduates through the Griffith Longlook Program the postgraduate locations of practice of 103 have been identified. Overall, 61% began their medical career in a regional hospital and 56% of post-internship/foundation graduates are still practicing in regional locations in 2017.
Students who completed two consecutive LIC (through their third and fourth year) were more likely to practice in a regional hospital ($X2 = 6.7$, $p<0.01$) than those completing only one LIC. No significant difference was found between the those participating in either third year comprehensive or fourth year blended or amalgamative LIC.
Discussion/Conclusion: These further findings confirm previous results of Griffith Rural Longlook LIC placements translating into regional internships on graduation. With more graduates of the Longlook Program, the two-year combined LIC is demonstrated as more closely associated with graduates choosing regional hospital practice. This association may indicate student choice of a scholarship pathway to prepare them for a regional internship, or a positive influence on their choice towards regional communities, or both. Any differences existing between the efficacy of third-year comprehensive compared to fourth-year blended or amalgamative LIC are small enough to require a greater sample size to demonstrate.

Rural LIC are effective in addressing regional workforce maldistribution. Longer LIC of any form are more effective in translating graduates to regional medical practitioners.

4I2 (3404)
Personal learning perceived by students and teachers from primary care experiences in vulnerable population of Northern Argentina

Authors
Fabiana Reboiras
Clara Facioni
Florencia Cararo
Mauro Fioramonti
Julio Busaniche
Marcelo Figari

Presenter: Clara Facioni, Instituto Universitario Hospital Italiano, Buenos Aires, Argentina

Background: Training programs on primary care in vulnerable rural population have proven to strengthen health professional competencies for clinical practice in different contexts (Pullon, S. et al, 2016). The Instituto Universitario Hospital Italiano in Argentina is a private non-for-profit institution dedicated to the training of professionals in health sciences, and integrates a consortium with a high complexity university hospital. The rotation in Primary Health Care with vulnerable population in the north of Argentina is oriented to transform the professional perceptions of students and residents by practicing in a context with critical health indicators, where infant mortality rate reaches 11.3 per one thousand and 80% of the population is native.
Methods: Along 2017, 28 students, residents and teachers of the medical and nursing careers participated in the project. A qualitative study was carried out based on structured, open-response, self-administered, electronic questionnaire before and after the rotation in order to record and identify the usefulness and transformational power of the experience. 50% of the responses has been processed, so far.
Results: In 100% of the total responses processed, students, residents and teachers reported having exceeded their expectations and emphasized teamwork experience and the possibility of professional practice in unfavorable contexts. Although they had little previous training for comprehensive care in this context, they all agree in the improvement experienced.
Discussion: The rotation allows to transform the professional approaches, understanding the social role of the practice, and enables being an agent of change of the indigenous population reality. The results challenge us to review the gap observed between the current curricular contents and the competences required for the rotation.
Conclusion: The experience reinforces the importance of promoting this kind of community and rural projects that provide the educational opportunity of developing professional expertise in primary health care in vulnerable contexts.

4I3 (1780)

An Interdisciplinary primary care approach to multimorbidity: a pilot study of medical and nursing students' home visits in developing patient care plans

Authors

Carmen Ka Man Wong
Matthew Cheuk Kun Hui
Samuel Yeung Shan Wong
Ka Ming Chow

Presenter: Carmen Wong, The Chinese University of Hong Kong, Hong Kong

Background: Interdisciplinary primary care teams enhance comprehensive care options, increased continuity, and coordination of care. Interdisciplinary home visits involving medical students and nursing students in developing care plans for patients with multimorbidity were piloted.

Methods: One medical student was paired with 1-2 nursing students volunteered to conduct an assessment of a patient with chronic disease and develop an integrated care plan.

Evaluation using e open-ended, qualitative reflection and evaluation of learning exercise using a six-point Likert scale ranging from strongly disagree (0) to strongly agree (5) evaluated usefulness, teamwork, similar learning tasks and increasing scope to other professions.

The interviews were taken at the patients' home in Nov – Dec 2017. 10 groups of students (10 medical and 19 nursing students) in clinical years of training visited 10 patients with multimorbidity.

Results: Reflections: Nursing students

- Scarce opportunity to communicate/ collaborate on the wards
- Have space and time to express nursing concerns
- Difference in approach to primary care
- Equal platform
- Enhance alertness to symptoms

Reflections: Medical students

- Allow nurses more proactive
- Greater understanding of nurses
- More patient centred and holistic approach
- Attention to detail
- Comprehensive assessment

Overall rating on usefulness, team-working, further collaborative work and involving other disciplines was 3.87, 3.92, 3.97 and 4.13 respectively.

Medical students had higher ratings than nursing students (4.13, 4.13, 4.13 and 4.25 vs. 3.87, 3.92, 3.97 and 4.13 respectively)

Both medical and nursing students were positive about the learning task. Medical students had higher ratings on usefulness, teamworking, further collaborative work and involving other disciplines.

Suggested improvements include onsite professional for advice, additional learning with interdisciplinary collaboration. Further follow-up visits/exercises and addition of other allied health students e.g. pharmacists, physiotherapists. Group size of 3 was optimal.

Challenges will be in scaling up the project for the whole year and collaborating with other disciplines with varying student numbers.

Conclusion: This was a feasible and useful learning task which can be used to enhance interdisciplinary student clinical learning in primary care.

4I4 (2645)

Mapping the Thinkable: ways of characterising and researching general practice placements

Authors

Sophie Park

Presenter: Sophie Park, UCL Medical School, London, UK

Background: How we construct and produce research about general practice matters: making general practice thinkable in particular ways.

Methods: This study aimed to examine research texts about UK general practice placements from 1960s to present, to make visible how research is justified and placements characterised. A Foucauldian approach to discourse analysis was used to examine discursive boundaries and rules of acceptability within research texts, to understand power relations and normative ways of seeing or being. This produced a map of how research is justified; placements characterised; and related, how particular subject positions are made available (or not) for GPs, patients, students and researchers.

Results: Two distinct ways of characterising placements were identified. A 'gaze of discovery' characterises placements as workplace-based learning about 'Generalism as a speciality', valuing experiential knowledge of patients and GP-teachers; and encouraging students' active participation in practice, although sometimes positioning students as 'intruders'. A second 'gaze of deciphering' characterises placements as pre-determined compartments of knowledge, often supplementing what is not taught in the hospital setting, such as interactional knowledge or 'basic'. Patients are pre-selected as relevant to a curricular component and GPs positioned as 'teacher' or 'GP'. Different ways of justifying research (e.g. as evaluation, or making visible) enable placements to be characterised in particular ways. These also produce differing available positions for practitioner-researchers, legitimising (or not) their experiential knowledge.

Discussion: This discourse positions placements as supplementary and different to hospital teaching. Justifying research as evaluation produces challenges for the field's legitimacy in relation to other research. While teaching is treated as exchange of existing knowledge, research is positioned as informing teaching practice, legitimising its value through innovation and production of 'new' knowledge.

Conclusion: A Foucauldian approach to evidence synthesis can map the thinkable (and unthinkable) in relation to how general practice placements are characterised, and highlights important tensions between ways in which research and teaching and treated in published literature.

4I5 (1607)
The Role of Student-Led Community Health Projects in a Singapore based Graduate Medical School - Critical Reflection and Learning Experience

Authors
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Jung Hiong Tan, Duke-NUS Medical School, Singapore
Li Wen Lee, Duke-NUS Medical School, Singapore
Siang Hui Lai, Duke-NUS Medical School, Singapore

Presenter: Rui Xin Ng, Duke-NUS Medical School, Singapore

Background: Duke-NUS Medical School is the only graduate entry medical school in Singapore. Established in 2005, the school aims to nurture clinicians with skills, knowledge and abilities to impact the future of medicine and healthcare delivery. With faculty support, successive classes of medical students have initiated, inherited and adapted a wide range of community projects to increase healthcare accessibility for underserved populations. Such projects range from running overseas rural community clinics to organizing local public health screenings. This paper features a reflective journey of experiential learning arising from an annual public health screening initiative, documenting various anecdotal pieces by organizers, volunteers, alumni and faculty.

Methods: For the last five years, students co-organised an annual community health screening event with the Chinese Development Association Council targeted at underprivileged members of the community. A targeted follow-up three months after the project has been planned to assess the impact of the health screening on subsequent lifestyle modifications and healthcare utilization. Interviews were conducted with student organizers, volunteers, alumni and supervising faculty involved in the project to document their reflective journey of experiential learning.

Results: Among the first year students, the greatest motivation for engaging in the community health screening was the opportunity to translate the knowledge and skills learned in the classroom to serve the community. Students in the health counselling room discussed the need to familiarise themselves with clinical practice guidelines before counselling participants on adherence to medical therapy, follow-up clinic visits and appropriate cancer screening. The paper will further elaborate on the selected reflections and the impact of these projects on the students' professional development.

Discussion: A strong tradition of altruism and volunteerism has evolved alongside the school's unique pedagogical philosophy emphasizing a holistic learning experience. Students and alumni have gained much professional insight into the calling, purpose and art of Medicine through active and consistent organisation and participation in community based events over time.

Conclusion: Student-Led Community Health Projects are an important element of medical education. Facilitating reflection and communication amongst students can enhance medical education and steer future project developments.

4J: Short Communications: Assessment: Progress Test

Location: Shanghai 1, Ground Floor, CCB
Date: Monday 27th August
Time: 1400-1530 hrs

4J1 (547)
Physical Findings Progress Test at a Medical School – Longitudinal Data Analysis

Authors
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James Daniels

Presenter: Heeyoung Han, Southern Illinois University School of Medicine, Springfield, Illinois, USA

Background: Detection of physical findings is a core aspect of clinical performance in medical education. However, there is a limited understanding of medical students' development of physical finding skills. This study investigated students' physical findings skills progress over four years of the curriculum to understand their skills development.
Method: We developed a computer-based physical findings progress (PFP) exam to measure students' diagnostic abilities of visual and auditory discriminations. Sixty items were created. The exam includes detection and description of ecg, x-ray, heart/breath sounds, skin lesions and movement findings. The exam was implemented at the beginning of the year with incoming students since 2014. Additionally, we implemented the exam with the class of 2017 prior to their graduation. Descriptive statistics, ANOVA, and Tukey HSD were used to determine group differences.
Results: Test completion rates ranged from 98% to 100%. One way ANOVA showed that students' physical findings skills increased by training year until their incoming fourth year. While group means increased, variation within the classes did not change across four years. It means that the class did not become more homogeneous in physical findings skills as they went through the medical curriculum. Repeated measures ANOVA of the class of 2017 longitudinal data showed that the students' performance patterns were same as the cross-sectional data up to their incoming fourth year. However, there was no difference in their performance between when they became incoming year 4 students and when they were graduating. Box plots showed that performance of the bottom quartile of graduating fourth year students was not much higher than the performance of the top quartile of incoming first year students without medical training. Medical students' physical finding skills increased for three years and showed a flat pattern during the fourth year. While increasing, students' physical findings skills within classes did not become more uniform, suggesting that growth is opportunistic rather than through planned curriculum.

Conclusion: There is a need for planned curriculum for physical finding skills in medical education. We also call for study of reasons why performance does not improve during the fourth year.

4J2 (822)
Progress testing and self-evaluation in undergraduate medical students

Authors
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Presenter: Janina Ulbl, Faculty of Medicine, University of Maribor, Slovenia

Background: The self-evaluation ability serves in developing critical thinking and learning skills. Students need to assess their own knowledge level in order to learn new material effectively. Self-evaluation is also important in clinical work. Our study aims at estimating the self-assessment ability of undergraduate medical students.
Method: Medical students (n=44) participated in progress test with given "I don't know" option (DKO). The obtained DKO scores were compared to the expected DKO scores. The latter were estimated from the amount of curriculum covered by students. The difference between actual and expected DKO scores smaller than 10% indicates good self-assessment ability.
Results: The difference between actual and expected DKO scores was greater for lower-grade students comparing to end-year students. The largest difference (30.65%) was for year 3 students at the beginning of their clinical work. The difference was the smallest (2.68%) for students near the end of medical school.
Discussion: Significantly lower than expected DKO scores indicate less accurate self-assessing. Similarly, other studies have shown poor self-evaluation of medical students. Our results furthermore reveal students' tendency for knowledge over-estimation. However, the difference between actual and expected DKO scores decreases with increasing year of the study for years 3 to 6.
Students' self-evaluation ability has been shown to be relatively poor especially at the beginning of clinical work. The ability was better for students in the last year of medical school. It can be argued that clinical experiences help in developing critical thinking and reflective practice and thus self-assessing skills.
Conclusion: Medical schools need to provide positive environment for developing self-evaluation skills. Suggestions include more problem-based learning, earlier contact with patients, group discussions and receiving feedback from supervisors. Practising self-assessment should start early in medical school so that students can develop this skill and use it effectively in their clinical work.

4J3 (1686)
Progress test analysis: Is the students' knowledge improved?

Authors
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Yoyo Suhoyo, UGM, Yogyakarta, Indonesia

Presenter: Rahmaningsih Sabirin, Universitas Gajah Mada, Yogyakarta, Indonesia

Background: Indonesian Medical Council (IMC) arranged a list of standard competencies for the medical doctor. All medical schools have to ensure all students meet these competencies. To assess the progress of students' knowledge that include in these competencies, and how undergraduate curriculum facilitate students to learn it, Faculty of Medicine Univeristas Gadjah Mada has implemented progress test that covered all students in the different year. In this study, we analyzed whether there were differences in the level of students' knowledge between years and whether there were differences between students of the regular and international program in each year.
Method: We studied 1336 data from second to sixth-year students who enrolled in progress test. Since the data were not normally distributed, we analyzed data by using non-parametric test in the SPSS program.
Results: The highest average score was gotten by students in the sixth-year (60.22 ± 6.215), followed by students in the fifth (52.75 ± 9.373), fourth (49.86 ± 8.671), third (46.28 ± 7.775), and second (36.12 ± 7.220) year. By Kruskal-Wallis test, we found that there were significant differences between years ($p < 0.05$). By using Mann-Whitney U test, we found that there were significant differences between students of the regular and international program in the third, fifth and sixth years ($p < 0.05$), but no significant differences in the second and fourth years.
Conclusion: This study showed, that the level of students' knowledge was in line with the years of study. However, the average score of the sixth-years students was below the passing grade (66 of 100). To improve the students' competencies, developing strategies with curriculum team and other stakeholders are necessary.
The differences levels of knowledge between students in the regular and international program were not consistent. Further study to explore the possible factors that affect the results are needed.
Take-home messages: It is important to arrange progress test regularly in order to measure the improvement of students' performance.
An increase of students' mark in each year does not guarantee that the students can pass the passing grade at the end of their studies.

4J4 (1029)
Fourteen years of formative progress testing in radiology residency training: experiences from Netherlands

Authors
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Presenter: Dirk Rutgers, University Medical Center, Utrecht, Netherlands

Background: Progress tests are not common in postgraduate medical training. In this study, we describe the development of the Dutch Radiology Progress Test (DRPT) for knowledge testing in radiology residency training in Netherlands from its start in 2003 up to 2016. The DRPT, a semi-annual comprehensive knowledge test, is required for all Dutch radiology residents in all training years. Residents can apply for dispensation from participation for various reasons, such as holidays and attendance of congresses.
Method: We reviewed all DRPTs conducted since 2003, when the test started as a formative paper-and-pencil test. We assessed key changes and events in the test throughout the years, as well as resident participation and dispensation, test reliability and discriminative power of test items.
Results: The DRPT has been conducted semi-annually since 2003, except for 2015 when one digital DRPT failed. Key changes in these years were improvements in test analysis and feedback, test digitalization (2013), leading to the introduction of test items with volumetric radiological images, and inclusion of test items on nuclear medicine after the merge of the national training programs for radiology and nuclear medicine (2016). From 2003 to 2016, resident dispensation rates increased (Pearson's correlation coefficient 0.74, P-value <0.01) to maximally 16%. Cronbach´s alpha for test reliability varied between 0.83 and 0.93. The percentage DRPT test items with negative item-rest-correlations, indicating relatively poor discriminative power, varied between 4 and 11%.
Conclusion: Various changes in DRPT construction, administration, analysis and feedback have been implemented between 2003 and 2016. Test reliability and discriminative power of test items have remained fair over the years, while resident dispensation rates have increased. In our experience, important factors in the development of the DRPT have been a close collaboration among program directors, support by the national radiological society and development of specific test software for image-based radiological testing.
Take-home messages: The DRPT has proven a feasible and sustainable way of formative postgraduate radiological

knowledge testing. It has moved from a paper-and-pencil test to a digital test with volumetric image-based test items, keeping up with innovations of the radiological profession.

4J5 NOT PRESENTED

4K: Short Communications: Curriculum: Empathy

Location: Shanghai 2, Ground Floor, CCB
Date: Monday 27th August
Time: 1400-1530 hrs

4K1 (988)
Promoting Empathy among medical students: a two-site randomized controlled study

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Philippe Jaury, Université Paris Descartes, Sorbonne Paris Cité, Faculté de Médecine, Département de Médecine Générale, Paris, France

Presenter: Céline Buffel du Vaure, Université Paris Descartes, Sorbonne Paris Cité, Faculté de Médecine, Département de Médecine Générale, Paris, France

Background: Observed decline of self-reported empathy during medical training raises important issues. Examining whether empathy can be promoted among medical students is thus of high importance. This study aims to assess the effects of Balint groups on empathy measured by the Consultation And Relational Empathy Measure (CARE) scale rated by standardized patients during objective structured clinical examination and self-rated Jefferson's School Empathy Scale - Medical Student (JSPE-MS©) among fourth-year medical students.
Method: We performed a two-site randomized controlled trial, from October 2015 to December 2015 at Paris Diderot and Paris Descartes University, France. Eligible students were fourth-year students who gave their consent to participate. Participants were allocated in equal proportion to the intervention group or to the control group. Participants in the intervention group received a training of 7 sessions of 1.5-hour Balint groups, over 3 months.
CARE and the JSPE-MS© scores at follow-up were the main outcomes.
Results: Data from 299 out of 352 randomized participants were analyzed: 155 in the intervention group and 144 in the control group, with no differences in baseline measures. There was no significant difference in CARE score at follow-up between the two groups (P=0.49). The intervention group displayed significantly higher JSPE-MS© score at follow-up than the control group [Mean (SD): 111.9 (10.6) versus 107.7 (12.7), P=0.002]. The JSPE-

MS© score increased from baseline to follow-up in the intervention group, whereas it decreased in the control group [1.5 (9.1) versus -1.8 (10.8), P=0.006]. CARE scores were higher in the intervention (versus control) group among men [66.3 (15.9) versus 59.4 (12.6), P=0.009] but not among women (P for interaction: 0.007), and were higher among participants with a baseline JSPE-MS© score above the median [67.1 (17.0) versus 62.1 (13.9), P=0.048], but not among those with a score below the median (P for interaction: 0.035). Sensitivity analysis using the JSPE-MS© score at baseline as the JSPE-MS© score at follow-up for the 53 randomized participant students who did not provide follow-up data yielded similar results.
Conclusion: Balint groups may contribute to promote clinical empathy among medical students.

4K2 (1528)
Evolution of Empathy in French medical students during their first academic year

Authors
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Presenter: Olivier Coste, Ecole de santé des armées, Bron, France

Background: Empathy is a very important skill in medical art. Several studies indicate that the level of empathy decline during medical studies, but there is no data available dealing with the French military medical students. Last year, a prospective study started in order to follow the level of empathy of a whole promotion of cadets from their first academic year and during the five following years.
Method: The level of empathy was determined using the Jefferson empathy scale just before the beginning of medical cursus in 2016 August and at the end of academic year in April. The promotion initially counted 144 cadets (62 males and 82 females). Forty-five pupils were repeating a year. Indeed, French medical students have to pass high selective exams during their first academic year. Results were analyzed by a repeated measure ANOVA and post-hoc tests with p = 0.05.
Results: We presented the results of the first year only. Initial level of empathy (in 2016 August) was significantly higher in female students (110.3 ± 1.1) than in male students (103.6 ± 1.7). It was also higher in students repeating a year (111.4 ± 2.0 vs. 105.6 ± 1.1). Global score of empathy, 'perspective taking'' score and 'compassionate care' score increased during the first academic year, but only for the cadets who did not repeat a year. At the end of their first academic year, 34 pupils who failed their exams were authorized to repeat a year as military students. A stabilization of their level of empathy was observed at the beginning of the following year (JES: 116.1± 1 in 2017 August vs. 114.5 ± 2.0 in 2017 April), explaining the initial results observed in 2016 August.
An increase of empathy in military medical students during the first academic year, with higher scores in females was our main outcome.

Conclusion: These preliminary results encourage us to continue this evaluation on the same cohort of students during six years at least in order to precise the influence of French medical education on empathy level.

4K3 (1636)
Humanism in medicine - instilling empathy

Authors
Anna Byszewski, University of Ottawa, Ottawa, Canada
Philippe Rousseau, University of Ottawa, Ottawa, Canada
Melissa Forgie, University of Ottawa, Ottawa, Canada
Heather Lochnan, University of Ottawa, Ottawa, Canada

Presenter: Anna Byszewski, University of Ottawa, Canada

Background: Physicians that emphasize garner greater patient satisfaction and may have reduced malpractice claims. Lack of, or diminished empathy has been linked to burnout and in turn diminished quality and medical error. Previous studies have reported that empathy may erode as medical students progress through their studies. This study was designed to determine if the medical curriculum at the University of Ottawa, Canada has instilled empathy in its students.
Method: The Interpersonal Reactivity Index (IRI) was used to measure emotional and cognitive empathy. It was preferred over other measures due to high psychometric properties, use within medical fields around the world, and validation in multiple languages. Students were contacted by email and participation was voluntary.
Results: Empathy was statistically significantly different between the four academic years, $F(3,192)=35.474, p<.001, \eta^2=0.357$. Tukey post hoc analysis revealed that students enrolled in year one of the medical program ($M=9.5, SD=1.3$) had lower empathy scores than students enrolled in year two ($M=11.9, SD=1.5$), year three ($M=11.4, SD=1.6$), and year four ($M=11.5, SD=1.6$), $p<.001$. Interestingly, the empathy measures of the first year students were similar to the scores of typical university students. The higher scores observed in second, third, and fourth year students would suggest that the University of Ottawa medical curriculum may foster empathy in its students. As students gain clinical exposure if provided with appropriate supports such as a reflective writing eportfolio program, diverse professionalism curriculum, wellness and faculty development (as introduced at the University of Ottawa) empathy competency may improve with training.
Conclusion: These findings at our institution are in contrast to some previous studies measuring empathy in medical students where empathy appeared to decline in the clinical years. It could also be reflective of the shift in medical education designed to foster a more positive learning environment. The results indicate also that IRI is a tool that can be applied across a medical school curriculum.

4K4 (3502)
Empathy in training: Applied Drama and Communicating Bereavement in the Maternity Services

Authors
Aisling Smith

Presenter: Aisling Smith, Royal College of Physicians of Ireland, Dublin, Ireland

Background: Publication of the Irish Health Service Executive's (HSEs) National Standards for Bereavement Care in the maternity services as part of the national Maternity Strategy highlighted the importance of empathy and compassion in bereavement care. This topic has received much attention in the Irish media and created a highly pressurised environment of doctors in training. There has also been increasing concern expressed by national and international professional training bodies about the effects of traumatic work-related experiences on clinicians.
In response to this, the Royal College of Physicians of Ireland and the Institute of Obstetricians and Gynaecologists have collaborated with the Community and Education Department of the Abbey Theatre, Féileacáin (National Stillbirth Society) and Patient Focus to develop an innovative educational intervention for Obstetricians and Gynaecologists who are currently in training in the Irish maternity services.
The primary aim of this intervention is to facilitate a deeper empathic understanding and a more compassionate response to stillbirth and pregnancy loss by clinicians in order to provide the highest level of care to bereaved parents. It is also intended that this intervention will provide clinicians with a greater insight into their own emotional responses when faced with these tragic and often unanticipated events - enhancing their abilities to cope with the personal consequences of this trauma.
Method: Following structured interviews the narratives of parents and clinicians were used to develop a series of applied drama workshops for Specialist Registrars in Obstetrics and Gynaecology in which the emotional experience of stillbirth is explored. A research project is running on conjunction with the project to examine the effectiveness of applied drama as a method of teaching in medical education.

4K5 (2801)
Building civic responsibility among medical students through service learning - A visit to a Disability Centre

Authors
Sajida Naseem, Shifa College of Medicine, STMU, Islamabad, Pakistan
Syeda Hanaa Fatima, Shifa College of Medicine, STMU, Islamabad, Pakistan

Presenter: Sajida Naseem, Shifa College of Medicine, STMU, Islamabad, Pakistan

Background: The instructional strategies commonly used in medical colleges generally address the knowledge and skills required for medical students to be a knowledgeable physician. Addressing different attitudes is a difficult task for the educationists and therefore left in hidden curriculum both by faculty and students. Instead of cooperation and service to others, the values modeled in the medical schools focuses much on individual achievements. The objective of this study was to strengthen the civic responsibility among undergraduate medical students while delivering their curriculum objectives through visit to a disability centre.
Method: A cross sectional study involving 100 students in Year 4 was carried out over one year in Shifa College of Medicine, Islamabad Pakistan. The students attending the clerkship of Community & Family Medicine as part of their curriculum, visited the Disability Centre where they interacted with children in an environment of school, performed their general and physical examination, developed and practiced the skill of empathy. The civic responsibility among students was assessed by exploring the perception of medical students. The centre has children with different mental and physical disabilities.
Results: The main themes identified were: empathy, learnt to interact with disabled children, imagined doing consultation with them and their family which they felt would be challenging, they experienced the challenge of to their professional life, philanthropy, felt they are part of our society, brought smile on children face. Details will be shared at AMEE 2018.
Conclusion: Clearly medical education is in a need to expand the strategies and to create a learning environment for teaching such attitudes which are generally left untouched in the form of hidden curriculum. Service learning is a form of experiential pedagogy to educate students to serve the communities.
Take-home messages: Students found visit to Disability centre useful, which opened avenues for wider scope of learning to interact in a different environment. Undergraduate medical teaching through visit to remote centre should be incorporated in the curriculum delivery.

4L: Short Communications: Social Accountability

Location: Shanghai 3, Ground Floor, CCB
Date: Monday 27th August
Time: 1400-1530 hrs

4L1 (2660)
Results from a Global Social Accountability Survey - What do medical students really think?

Authors
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Mohsna Bhiri, IFMSA, Tunis, Tunisia
Ximena Nunez, IFMSA, Quito, Ecuador
Ahmed Elshaer, IFMSA, Mansoura, Egypt
Mohammed Salah, IFMSA, Baghdad, Iraq
Roshit Bothara, IFMSA, Christchurch, New Zealand

Presenter: Aikaterini Dima, International Federation of Medical Students' Associations (IFMSA), Thessaloniki, Greece

Background: In September 2017, together with THEnet - Training for Health Equity Network, the International Federation of Medical Students' Associations - IFMSA published a comprehensive toolkit on social accountability in medical education, aimed to provide students worldwide with the right resources to develop, implement and assess the social accountability of their medical schools.
Method: A group of 8 students from 7 different countries across 4 different regions was appointed to follow up on the creation and dissemination of the toolkit, to ensure its wide implementation and assess its efficacy.
The toolkit is an interactive online platform that provides comprehensive explanations, logistical materials as well as an assessment tool. The assessment tool was isolated and prepared into an online form for IFMSA members to fill in and give an outline of how social accountability is implemented.
Results: Results will be collected until June 2018, with a final report being published in early July 2018.
Conclusion: Social Accountability is not only a challenge affecting education, faculties and hospitals but as well the future health workforce. With an easy-to-use and widely accessible toolkit, we seek to empower an important stakeholder in SA to defend communities' needs and interests. The IFMSA provides a vast network of both over and underrepresented countries across the world, offering very broad input. Medical students should be the first in line to advocate for better education, and through this assessment, it is expected to place social accountability on top of student organizations' agendas.
There's an increased need for an action to ensure Social Accountability of health institutions. By developing such materials and utilizing them across our networks, IFMSA and THEnet strive for the empowerment of a crucial stakeholder, medical students worldwide. Our goal is to ensure that every medical school globally better responds to the community's needs.

4L2 (2858)
A tool for Social Accountability: presenting the iSAT

Authors
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Jose Garcia Gutierrez
Larisa Carrera
Bjorg Palsdottir
James Rourke
Sarita Verma

Presenter: Ruy Souza, Federal University of Roraima-Brazil, Boa Vista, Brazil

Background: There is a growing interest in social accountability(SA) in medical education, specially concerning the challenge of reforming the curriculum towards a program that align its education, research and service activities with the priority healths needs of the community. Recently many works have been published trying to clarify concepts and define standards for SA, and now it is time to disseminate the concept, specially to medical schools committed to community based education. In this context, the Human Resource unit of PanAmerican Health Organization (PAHO) developed the Indicators for Social Accountability Tool-iSAT, to help schools to evaluate their program towards the objective to better address the health needs of the communities they serve.
Method: The iSAT is a educational tool to help schools to evaluate their curriculum with a focus on social accountability and was developed by the Human Resources Unit of PAHO-DC. After an extensive review of the literature, indicators for SA were grouped in five dimensions: (1) Students; (2) Faculty; (3) Educational program; (4) Research; (5) Governance. The instrument was further validated by experts from some of the leading organizations involved with SA: AMEE-ASPIRE, Training for Health Equity Network-THEnet, Association of Faculties of Medicine of Canada-AFMC, Beyiond Flexner inittiative, and representatives of Medical Schools from Latin America and Caribe.
Results: The resulting tool, is an instrument that can be easily used by the different stakeholders involved in the program of medical schools. The results are organized in the form of a spidergram, allowing a clear view of the current stage of the schools towards SA and also showing which dimension should be prioritize in the process. The instrument has been used by several institutions in South America with consistent results.
Conclusion: The 2017 Dublin Declaration on Human Resources for Health called for increasing SA. Aligning Medical Education with the population needs should be a priority of every institution involved in health professions education, and iSAT offers the possibility of an accurate evaluation of the curriculum.
Take-home message: iSAT is an educational tool that will help schools to align their program towards the population priority health needs.

4L3 (2118)
"Change A World" Program with the TOOTH FAIRY: Promoting oral health among at-risk Youth

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Presenter: Ruth Margalit, Tel Aviv University School of Medicine, Tel Aviv, Israel

Background: Accessible dental care for youth is not available in Israel. Life experiences of neglect and abuse are barriers to seeking help and developing trust in the health care system. A dental health survey conducted among at risk youth living at Ha'Lev (The Heart) shelter concluded that 45% suffer from oral pain daily, 46% concerned about dental care, 38% received oral hygiene guidance and 82% needed dental care. 70% of respondents said they did not seek dental treatment for economic reasons.
Method: The "Tooth Fairy" is a project of "Change a World", a platform working to promote social responsibility and student engagement with local communities. The project was established to provide care in response to oral health needs of at risk youth, including those in prostitution, at the 24/7-Halev Shelter. It was developed with the careful consideration of both the medical and the psychological needs and barriers that comprise the special context. The treatment is conducted by students and faculty dentists at the Academic Dental Clinic at Tel Aviv University (TAU), alongside other dentists, volunteers from the Alfa Omega organization.
Results: Mapping of the pathology and the dental care plans were carried out in coordination with doctors from the Alpha Omega Association, with the cooperation of the "Ha'Lev", the Faculty of TAU Dental Medicine, and the "Change the World" program students. 55 individuals received care in the first phase. In addition to dental care, selected and interested youth will soon undergo professional training, enabling them a path to employment as dental assistants.
Conclusion: Dental schools provide little preparation for culturally sensitive and compassionate work with disadvantaged youth. Therefore, even when youth in prostitution finally arrive to receive medical treatment they might receive a negative and insensitive approach. The project helped increase skills and break the cycle of alienation and mistrust between this youth and the medical establishment.
Take-home messages: Engaging at risk youth working in prostitution in the planning, development, and implementation of the project brought to its success. The program facilitated the development of skills and sensitivities for the treatment of disadvantage youth based on values of solidarity and compassion.

4L4 (3513)
Winning the ASPIRE-to-Excellence Award in Social Accountability: what's next?

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Presenter: Emmanuelle Careau, Faculte de medecine, Universite Laval, Quebec, Canada

Background: Social accountability is part of the Faculté de médecine de l'Université Laval's DNA since its creation in 1852, to serve French-speaking population from the Province of Quebec, which is part of a mainly Anglophone country. In the 2015-2019 strategic plan, social accountability was put forward through a dedicated vice-dean office that has supported numerous initiatives. Its Directions in Global Health (international, First Nations and aboriginal communities, vulnerable and marginalized populations), in Training for Regional and Remote Settings, in Professionalism and Patient Safety, as well as in its offices promoting health and welfare of the Faculty community (Student Assistance Direction and Professor Support Office) were mobilized to fulfill our engagement towards social accountability. In August 2017, the outstanding roadmap of the Faculté de médecine in social accountability was recognized with the granting of the International ASPIRE-to-Excellence award in social accountability. But a year after, what has this recognition changed within our University? What are the next challenges to take up to pursue our efforts in educating more socially responsible healthcare professionals? How to become a truly changing agent supporting social innovations? In this presentation, we will explain the rationale behind the organization of our various Directions contributing to our social accountability mission. We will discuss the specific implications the ASPIRE recognition has brought within our Faculty and our network. We will then present the great projects in which we wish to invest over the years to come in order to keep up to date our leader and changing agent role in social accountability in health and social care.

4L5 (2341)
The Needs of the Many: NOSM Students' Experience of Generalism and Rural Practice

Authors
Roger Strasser
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Presenter: Roger Strasser, Northern Ontario School of Medicine. Lakehead and Laurentian Universities, Sudbury, Ontaio, Canada

Background: After this presentation, participants will be able to: Describe NOSM students' experience of generalism; Outline key elements of generalism in rural practice.
Northern Ontario School of Medicine (NOSM) opened in 2005 with a social accountability mandate focused on improving the health of Northern Ontarians. NOSM recruits students from Northern Ontario or similar backgrounds and provides Distributed Community Engaged Learning in over 90 community settings located in a vast underserved rural part of Canada.
Objective: In the context of a growing discourse on generalism, this paper explores the NOSM student and graduate experiences of generalism in rural practice.
Method: NOSM tracking studies use mixed methods drawing on data from various sources including interviews of students, graduates and other informants. This paper reports analysis of semi-structured interviews involving 37 graduating medical students and 9 practising NOSM graduates.
Results: Key themes from student observations include an affinity for Northern Ontario and a recognition that rural medicine involves a broad scope of practice. NOSM students consider generalist care as a comprehensive service with a strong focus on responding to the health needs of the community. Beyond primary care, a rural medicine "true generalist" is viewed as a complete package, a physician who provides care ranging from promoting prevention to performing specialist tasks. Rural practitioners, particularly in family medicine, are extended generalists with a broad scope of practice guided by the health needs of the communities they serve.
Conclusion: NOSM students' and graduates' experience of rural generalism is positive and highly influential in determining their career direction including specialty, scope and location of practice. NOSM's generalist approach may be effective beyond rural applications and an advantageous approach for foundational medical education. Students and graduates report that the NOSM Distributed Community Engaged Learning prepares them well for rural generalist practice.

4M: Short Communications: International 1

Location: Boston 1, Ground Floor, CCB
Date: Monday 27th August
Time: 1400-1530 hrs

4M1 (2144)
An Overview of the Medicine and Humanities International Program, an International Educational Initiative

Authors

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Background: In a changing world, with increasing disparity, health care burden, and innovation, medical students are benefiting from a well-rounded, collaborative, and humanistic style of medicine, in order to stay grounded, flexible, and resilient. We present the first Medicine and Humanities International Program (MHIP). The medical faculties of Lyon University (France), Ottawa University (Canada), Shanghai University of Traditional Chinese Medicine (China) and Shanghai Jiao Tong University (China) established a professional partnership in 2016, with the purpose of raising awareness for medical humanities.
Method: The first MHIP Summer School was held in Ottawa in July 2017. It introduced a variety of course work, group activity, and experiential learning, allowing students to work together to address the role of humanities within medicine, as well as critically thinking upon the social determinants of health and its impact on health.
The 2017 Summer School gathered 27 students. The themes included the history of medicine, philosophy, arts, literature and the humanities. Students also learned about Traditional Chinese Medicine (TCM) and its holistic approach towards healthcare. Survey responses were collected from each course, to collect information on student experience and preliminary results show strong satisfaction with highlights on the cultural richness of the experience.
Results: This school allowed students and instructors to forge long-lasting professional networks, paving the way for research, work collaboration, and increased learning. This was represented by work done by three medical students, in their 8-week project in Shanghai, conducting an observational field report and comparison of the medical curricula across the four medical faculties and writing a report for each faculty. Opportunities for clinical exchange internships were also created.
The next Summer School will be organized in Lyon in July 2018, adding a fifth faculty (Saint-Etienne, France) to the MHIP.
Conclusion: The MHIP is an opportunity to explore new approaches to medical training, as well as new educational methods that could be implemented in medical curricula. This school promotes intercultural exchange, professional collaboration, and learning between future physicians and researchers from across the world.

4M2 (1314)
Do you embrace or decline? A study into the influence of physicians' views of the organizational culture on their incorporation of global standards in clinical teaching

Authors

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Background: In an era of globalization, physicians may experience cognitive dissonance between the global standards of clinical teaching and their local context and practice. Whilst we expect clinical teaching to be associated with organizational culture, few studies have explored how physicians' perspectives on their organizational culture influenced their acceptance of new teaching approaches. We aimed to examine how clinical teachers embrace or decline different teaching approaches when they observe clinical teaching in a foreign country that meets global standards.
Method: We have developed a one-week, on-site faculty development programme in which 29 Japanese clinical teachers from different hospitals/specialties observed and learned about clinical teaching approaches and systems in Canadian teaching hospitals. The transcripts of daily group debriefings and participants' final reports were thematically analyzed. Dimensions of Organizational Culture (Detert, 2000) were employed as a theoretical framework.
Results: Although physicians' views towards the different pedagogical approaches, such as cognitive apprenticeship, respect for learner's autonomy, and creation of a safe learning environment, were positive in general, each participant's decision-making process of accepting such approaches into their work varied and was deeply embedded in their understanding of their own organizational culture. The latter included patient-centeredness (basic truth and rationality), working hours (time), professionalism, work-life balance (orientation to

work/task/coworkers), incentives (motivation) and the promotion criteria(control).

Conclusion: This study indicated that the physicians' understanding of their own clinical work and organizational culture varied and influenced their acceptance of new pedagogical approaches in diverse ways. Detert's dimensions were useful as a framework to examine physician's acceptance of global standards in clinical teaching. This study shed light on understanding physicians' initial response to cognitive dissonance between global standards and their daily clinical work and teaching from an organizational and cultural perspective. The findings can guide faculty developers to better understand physicians' decision-making processes.

Take-home message: Faculty developers should pay simultaneous attention to physicians' views toward pedagogical approaches and organizational culture so that clinical teachers can easiily incorporate new teaching approaches into their daily work.

4M3 (1430)
JPEMS – Joint Program for European Medical Studies – From idea to success

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Background: Medical studies are presently poorly involved in international exchanges programs for a number of different reasons. In most European countries the medical curricula tend to be submitted to regulations and constraints related to national health policies, and the organization of medical studies varies a lot across Europe. Language barriers are difficult to overcome as medical studies imply contact with health staff and patients who do not usually speak any other language than their native language.

Method/Results: A group of 7 universities from 5 European countries developed the Joint Program for European Medical Studies (JPEMS) for promoting international exchanges and structured cooperation between higher education institutions through an offer of enhanced quality medical semester thought in English language, with a distinct European added value.

The curriculum was composed of Immunology, Microbiology, Physiopathology, Genetics, Medical Informatics and Biostatistics, Medical English and Medical Research Module for a total of 30 ECTS. The program also comprised a full-time 6-week research placement in a research laboratory. Since 2011, there were 7 editions of the JPEMS program in 4 different locations (Angers – 3 times, Nantes – 2 times, Szeged and Amsterdam) with a total of 189 participating students.

The semesters were focused on pre-clinical teaching, centered on biological sciences and research issues, with the defense of an IMRAD-structured research report. The full accreditation of credits and exams was carried out by the university consortium. The students emphasized the most important positive points of this program, such as linguistic aspect (significant improvement of their English), scientific aspect (direct contact with research), and social aspect (contact with students from other countries).

Conclusion: Despite the difficulties, JPEMS program is a real success, proving that it is possible to create successful international joint programs for medical education on undergraduate level, enabling talented students to benefit linguistically, culturally and educationally from the experience of pursuing academic studies in another country.

4M4 (1935)
Explaining the causes of differential attainment for International Medical Graduates in selection tests and licensing exams

Authors

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Background: Differential performance at postgraduate exams between home medical graduates and those who qualified outside their country of practise is well recognised. This difference is especially marked in the practical component of the UK Membership of the Royal College of General Practitioners (MRCGP) exam. The potential causes of such disparities are not well understood.

Method: Data were available for 1874 international medical graduates who applied for UK GP speciality training 2008-2012. The primary outcome was performance at the Clinical Skills Assessment (CSA) OSCE component of the MRCGP. The main predictors were performance on the Situational Judgment Test (SJT) and the Clinical Problem Solving Test (CPST- a test of applied clinical knowledge), used in the selection for GP training. Data relating to the demographic characteristics and English language fluency were also available. To understand better the relationship between the predictors, the selection measures, and the outcome, a series of univariable and multivariable models were developed and tested, concluding with a structural equation model to explore causality.

Result: The CSA rating was more strongly predicted by SJT scores (standardised beta 0.26) than by performance on the CPST (standardised beta 0.17). There was a relationship between English language fluency and CSA score that was mainly mediated via SJT performance.

Conclusion: These findings demonstrate that performance on an SJT predicts performance at a high fidelity clinical simulation OSCE in international medical graduates. Whilst the constructs tested by SJTs are likely to vary across settings, culturally appropriate knowledge of

interpersonal competence is likely to be evaluated. Improving the confidence of doctors in this area through targeted educational interventions, rather than focussing on increased clinical knowledge, is likely to be more effective at reducing disparities observed in postgraduate exam performance. Thus there are important implications for the design of speciality selection and licensing assessments globally.

Take-home message: Educational interventions to support international medical graduates in passing licensing OSCEs should focus on improving knowledge of interpersonal competence as measured in SJTs.

4M5 (360)
Sharing stories about medical and health professional education in difficult circumstances: Conceptualising issues, strategies and solutions

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Background: Medical and health professions students and educators and patients live and work in an increasingly complex and ever-changing volatile world that is all too often fraught with suffering due to conflict, disease, poverty and environmental disasters. These 'difficult circumstances' are challenging in health professional education and health care.

Method: Through various collaborative AMEE activities (e.g. conferences, surveys, MedEdPublish themed issue) over two years, health care educators and students from around the world have shared their 'difficult circumstances' and offered strategies and solutions. We have developed a conceptual model involving individuals, 'culture' and organisations and systems to frame discussions about how we, as a community of health professionals and educators, can share wisdom, experiences and resources to assist colleagues struggling to deliver education and health care.

Results: Leadership and management emerged as a central issue is dealing with many 'difficult circumstances'. Difficult circumstances ranged from natural disasters, war, low resource settings, funding models, role conflict and stress and burnout.

Discussion: Delivering quality health professions education and health care involves an intersection between people, systems, organisations and culture. Thoughtful leadership and collaboration are critical for mitigating and addressing a range of challenges. Contemporary health professions' education leadership needs to be inclusive, mindful, compassionate and caring; echoing and role-modelling how we expect our students to be with patients and colleagues. This means being willing to confront unacceptable behaviours and speak out and challenge authority when needed. It also requires awareness and understanding of the complex systems in which health care education is provided.

Conclusion: Addressing the current and future 'difficult circumstances' requires contemporary health professions education leadership to be inclusive, mindful, compassionate and caring, role-modelling how we expect students to treat patients and their colleagues.

4M6 (1952)
Difference in Communication styles of Western Teachers and Nepalese Learners in an Intercultural Faculty Development Program for Mountain Rescuers in Nepal

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Presenter: Monika Brodmann Maeder, Institute of Mountain Emergency Medicine, EURAC Research, Bolzano, Italy and Department of Emergency Medicine, Inselspital, Bern, Switzerland

Background: Introduction: Educators have become aware of the challenges during teaching-learning activities in different cultures. Until now, publications have concentrated either on intercultural competence of healthcare professionals when caring for patients with different cultural background, or on students being confronted with a different host culture. We conducted a research on intercultural competence of Western Instructors (WI) and Nepalese Instructor Candidates (NIC) during a pilot instructor course for future instructors in mountain rescue in Nepal.

Method: Data collection was based on self-assessments of intercultural competence of NIC and WI, using the "Assessing Intercultural Competencies" (Feil) questionnaire. Additionally, we performed semi-structured interviews with randomly selected NIC.

Results: In a conflict situation in their own culture, half of WI prefer exchanges that are dispassionate and another half of them want reveal people's true feelings and emotions. All [17/18, 1 missing] the NIC declared to reveal people´s true feelings and emotions. (Exact Sig. =0.006, z-test0.05). The semi-structured interviews with three Nepalese rescuers and three Nepalese physicians highlighted the importance of language, time and dedication of teachers. NIC described that the WI did not have enough time to get to know the host culture. Prior exposure with the host culture clearly was an advantage for WI.

Conclusions: We found significant differences in communication styles between NIC and WI: NIC establish relationship before talking about business, and in conflict situations, they prefer not to speak openly so as not to offend anyone. WI are much more direct. Such differences

are relevant for intercultural medical education. Unless addressed, they can heavily disturb teaching and learning. Giving feedback in such a situation can be difficult or even harmful. Faculty members should be prepared before going abroad. Organizers of trainings in foreign cultures must raise awareness for these issues. Content of the training should include knowledge about the host culture, language and communication skills, and attitudes like empathy or respect.

4N: Short Communications: Clinical Reasoning 1

Location: Boston 2, Ground Floor, CCB
Date: Monday 27th August
Time: 1400-1530 hrs

4N1 (560)
Students' approaches to learning clinical reasoning: Evidence as a threshold skill

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Presenter: Ralph Pinnock, Dunedin School of Medicine, Dunedin, New Zealand

Background: Threshold concepts and skills are new and previously inaccessible ways of thinking about and performing in a discipline. They represent transformed ways of thinking and doing without which learners cannot progress. Clinical reasoning may be a threshold skill. It requires learning a combination of concepts and skills. As yet, threshold skills have not been studied in medical education. Our aim was to establish whether clinical reasoning exhibited features of a threshold skill.
Method: Twenty-four final-year medical students were interviewed with a five-question protocol about how they were learning clinical reasoning. Focus groups were used to collect further data. Students' responses were analyzed thematically then compared with the features of threshold skills.
Results: Students' descriptions of learning clinical reasoning exhibited the features of threshold skills: clinical reasoning was transformative, troublesome, and required prolonged practice. Also present, but less pronounced, were its irreversible and integrative features.
Discussion: Viewing clinical reasoning as a threshold skill is a novel interpretation of its nature and has implications for learning and teaching. Clinical reasoning should be learned intentionally and taught explicitly. With increased awareness of clinical reasoning as a threshold skill, students can advocate for further learning opportunities to solve problems in clinical settings. Teachers can help students to understand that clinical reasoning may be difficult to learn and will require time and repeated practice to develop.
Conclusion: Our study of students' learning of clinical reasoning reveals that it can be interpreted as a threshold skill. It is transformative, troublesome, integrative, irreversible, and requires prolonged practice. In this light, medical educators may be motivated to revise their approaches to teaching clinical reasoning.

4N2 (1010)
The effects of reflection on clinical problems on medical students' engagement in a learning activity and learning outcomes

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Background: Reflection on practice is believed to foster learning by enhancing interest in knowing more about a topic, which would increase engagement in learning and learning outcomes. However, despite theoretically sound1,2, this claim is not supported by empirical evidence in medical education.
Method: This three-phase experiment investigated whether structured reflection while practicing with clinical cases influences medical students' engagement in learning tasks and learning outcomes. Seventy-two 4th-year students from UNIFENAS-BH Medical School, Brazil, participated in the study. Initially, the participants, randomly assigned to either experimental or control group, diagnosed 2 clinical cases with jaundice as the chief complaint, either by following a structured-reflection procedure that requires matching the patient's findings to alternative diagnoses3 (experimental group) or by providing a differential diagnosis (control group). Subsequently, all participants received the same study-material about the differential diagnosis of jaundice. Finally, they performed a cued-recall task about the study-material.
Results: There was a significant main effect of experimental condition on participants' engagement in the learning activity, measured as study-time, with students who reflected upon the cases engaging longer than those who made a differential diagnosis ($p = .028$, d=.53). There was also a significant main effect of experimental condition on learning outcomes, measured as the frequency of recalled idea units. Students who reflected upon the cases obtained higher scores than those who made a differential diagnosis ($p = .034$, d=.51). Effect sizes (Cohen's d) were medium for both outcomes.
Conclusion: Relative to making differential diagnosis, structured reflection while diagnosing cases fostered medical students' engagement in learning and learning outcomes. Teachers can, therefore, employ this relatively simple process, possibly both in simulated and real scenarios, to help their students expand their knowledge, an important requirement in their professional development.
Take-home messages: Encourage structured reflection on to-be-solved clinical problems to enhance students' engagement in learning and learning outcomes.

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4N3 (278)
Clinical reasoning in physiotherapy and critical decision method

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Presenter: Etienne Dayer, HEdS HES-SO Valais & Université de Genève, Sion, Switzerland

Background: Clinical reasoning is an essential skill for physiotherapists (Edwards et al., 2004). Unfortunately, this important skill is difficult to teach and learn because it's non-visible, complex and situation specific. Clinical reasoning is also influenced by several contexts as the professional practice context (Ajjawi, 2009). Clinical reasoning involves to gather and to analyse information in order to make the best therapeutic decision specific to the context and patient's wishes (Delany & Golding, 2014). One method to make visible the invisible reasoning in naturalistic context as the practice context is the critical decision method linked to the recognition-primed model (Klein, 1998b, 2008 ; Klein et al., 1989). With this approach we try to better understand the clinical reasoning and the physiotherapists' decision process.
Method: Several physiotherapists, from different levels of expertise and practicing in different contexts, were interviewed according to Pierre Vermersch's methodology of explanation (Vermersch, 1994). The purpose of each interview was to explain a therapeutic session with a patient; this session took place in the days preceding the interview.
The interviews were transcribed and analysed using the critical decision method in order to bring out the stages of physiotherapists' clinical reasoning and the characteristics of this process.
Results/Discussion: The recognition-primed model and the critical decision method are appropriate to analyse the clinical reasoning of physiotherapists in naturalistic context. In the case that will be presented the context of practice and the experience are the two major influencers of the clinical reasoning process. The physiotherapist looks for a lot of different cues to make a therapeutic decision. These cues are mostly linked previous experiences. The contexts of practice (as the therapy schedule) influence the decision-making process.
Conclusion: The analysis of clinical reasoning is a major challenge. Indeed, better understanding the clinical reasoning of physiotherapists in naturalistic context would make it possible to adapt the training and the education.
Take-home message: To understand and analyse the clinical reasoning complexity a method is needed and the critical decision method could be one of the most appropriate.

4N4 (3506)
Instructional approaches for the development of clinical reasoning: the effects of modeled-reflection, cued-reflection and free-reflection on students' diagnostic performance

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Background: Reflection upon to-be-diagnosed cases by comparing/contrasting alternative diagnoses develops students' diagnostic performance[1]. In a study with final-year students, providing additional guidance made reflection more effective: cued-reflection ("which-diagnoses-to-be-compared") and modeled-reflection (reflection worked-examples) were more beneficial than free-reflection[2]. Modeled-reflection, despite requiring less mental effort, was not more advantageous than cued-reflection. This experiment investigated whether this applies for intermediate students.
Method: Eighty 3rd-year medical students were randomly allocated, in the learning phase, to diagnose 9 clinical cases (6 criterion-cases; 3 fillers; counterbalanced) under one of 3 conditions: modeled-reflection, cued-reflection or free-reflection. In a two-week-later test, all students diagnosed 10 more difficult cases (4 of the diseases studied in the learning phase; 4 of related but not studied diseases; 2 fillers).
Results: Learning phase: Diagnostic accuracy differed significantly between conditions [range=0-1; (mean; standard deviation)], $F_{(2,77)}=7.9$, $p=.001$. Modeled-reflection [0.70(0.19)] and cued-reflection [0.66(0.18)] performed similarly, both significantly better than free-reflection [0.49(0.23)]. Mental effort showed a similar pattern: modeled-reflection and cued-reflection scored equally, both lower than free-reflection. Test phase: Diagnostic accuracy differed between conditions, $F_{(2,77)}=3.22$, $p=.04$, only on studied-diseases. Cued-reflection [0.60(0.23)] performed better than free-reflection[0.45(0.20)]; no difference emerged between cued-reflection and modeled-reflection[0.55(0.22)] nor between modeled-reflection and free-reflection. The groups' background characteristics were comparable, and post hoc analyses suggested that so was their initial performance: it was similar in the first cases solved in the learning phase ($p=.46$), with the accuracy of free-reflection decreasing only in late cases ($p<.001$). Mental effort increased as the learning phase progressed, particularly for free-reflection.
Discussion/Conclusions: d-reflection was so beneficial as modeled-reflection for students' performance for studied-

diseases. The mental effort associated with free-reflection apparently accumulated across the learning activity, reducing its effectiveness.

Take-home message: Providing additional guidance simply by cueing reflection is sufficient for increasing intermediate students' performance.

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4N5 (3129)
The Glasgow Clinical Review Form: An undergraduate clinical reasoning tool to foster skills in ongoing clinical assessment in the secondary care setting

Authors
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Presenter: Kevin Garrity, University of Glasgow, UK

Background: Clinical reasoning skills are fundamental to medical practice and are often thought of through the lens of diagnostic thinking. However, just as important as diagnostics is engagement in ongoing clinical assessment. Through ongoing assessment, clinicians undertake essential tasks including assessing patient response to treatment, detecting patient deterioration or even reviewing and revising other clinicians' diagnoses. Thus, it is important to consider how we might teach these skills to undergraduates in addition to diagnostic reasoning.

Method: Using the existing literature, we sought to explore how we might develop a tool to foster skills in ongoing clinical assessment. A proforma was developed to enable students to gather clinical data and review patient progress. Students were then encouraged to generate a clearly framed 'problem list' based on gathered information. Finally, we used hypothetico-deductive models of reasoning to help students frame a management plan based on their problem list before recording it on simulated medical documentation and prescription charts.

Results: We developed a tool that allowed students to begin assessing the clinical progress of patients they encountered during clinical attachments. Students could view patient encounters through the lens of ongoing clinical review, rather than focusing solely on the initial diagnosis. Students were able to develop skills in 'problem representation', enabling them to assess patient progress and formulate focused management plans to help refine diagnosis or treatments.

Discussion: This study offers an approach to teaching skills in ongoing clinical assessment to undergraduates The proforma proved a useful tool for fostering hypothetico-deductive reasoning, allowing students to focus on not just singular diagnoses, but identify and address multiple ongoing and sometimes separate clinical problems. Problem representation in this fashion is in-keeping with

current models of clinical reasoning. Furthermore, the tool highlighted students' deficiencies in the clinical reasoning process and thus aids in remediation of clinical reasoning difficulty.

Conclusion: Encouraging students to focus on ongoing patient review helped foster skills in clinical assessment and the ability to formulate focused management plans. It also aided as a tool for identification and remediation of difficulties in clinical reasoning.

4N6 (2955)
Using knowledge translation to facilitate the implementation of a novel teaching activity for clinical reasoning

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Presenter: Martine Chamberland, Université de Sherbrooke, Canada

Background: To teach clinical reasoning to medical students in a renewed undergraduate curriculum, we implemented a learning activity combining self-explanation (SE) and structured reflection (SR). Using a knowledge translation (KT) framework, we studied the facilitators and barriers to the implementation from the perspective of students, case developers, curriculum coordinators and instructional designers. This study examines how KT may support the large-scale implementation and uptake of educational interventions (i.e., SE and SR).

Method: The SE-SR activity consists of 10 learning sessions completed individually by students, on a web-based platform over the first two years of the undergraduate curriculum. Students complete the SE-SR web activities at their convenience within a three-day period on three clinical cases. Learners solve each case using SE by verbalisation that is audio-recorded, and then using SR by completing a grid that compares and contrasts alternative diagnoses. Uptake by students is monitored through platform data and surveys. Facilitators and barriers are explored through focus groups.

Results: The SE-SR was implemented for the 205 first-year students. During the first session, 72.3% of students completed all cases. Fifty-five percent of students responded to the survey. Ninety-two percent found SE helped deepen understanding of clinical topics and 96% reported that SE helped identify gaps in their knowledge. Thematic analysis of focus group discussions identified two key facilitators: alignment of the SE-SR with the previous block work, and the practical aspects of the activity. Besides minor technical problems reported, the major challenge was the fact that this innovation constitutes only one piece of a whole curriculum renewal requiring students to adapt to a variety of teaching methods simultaneously. In keeping with KT, revisions to

the activity are being implemented based on these findings.

Conclusion: Findings suggest that SE and SR, implemented via web-based platform, supports knowledge building relevant to clinical reasoning. The KT approach informs ongoing adjustments to optimize the activity as well as its implementation.

Take-home messages: KT is supporting the large-scale implementation of novel SE and SR learning activities. KT frameworks support both adoption of, and subsequent refinements to, curriculum innovations.

4O: Short Communications: Clinical Teaching 1

Location: Boston 3, Ground Floor, CCB
Date: Monday 27th August
Time: 1400-1530 hrs

4O1 (2460)
Are we missing something? What are medical students missing out on, and why, when they are excluded from doctor patient encounters in general practice?

Authors
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Presenter: Jane Smith, Bond University, Gold Coast, Australia

Background: Medical training uses the apprentice model, but medical students are excluded from doctor patient encounters during placements so miss out on learning opportunities. There is little understanding of why patients do not want medical students present. Consent from patients is essential prior to encounter, but where consent is asked, and by whom varies, and may be repeated, or anticipated on the patient's behalf. Research in Australia found that 70 -90% of patients said they would "never refuse" to have a student in the room. But this is not what our students are telling us occurs during their placements.
Method: We are collecting data from medical students during their GP placements to explore why they are not being allowed into consultations. Each participant is asked to complete a short survey each time they are excluded from an encounter during their GP placements. Quantitative information is collected about the demographics of the student, GP, practice, and patient; also who asked for consent, and when; plus the frequency of exclusions. Qualitative data is provided by free text answers about the reasons for exclusion, the nature of the consultation, any cultural issues, and the students feelings regarding exclusion.
Results: Male students are more likely to be excluded by male GPs seeing female patients, however male students with female GPs were excluded more frequently.
The age range of excluded patients was 20 to 50 years
Most students were present when consent was asked, this was mostly asked by the doctor, in the waiting or consulting room, but many were not. It was more likely for the doctor to ask the student to leave than the patient.
Mental and sexual health were commonly quoted reasons for exclusion.
Conclusion: It is important to better understand student exclusions from patient encounters to address the gaps in clinical experience. It may be possible to stop some of the exclusions, for example if the patient's decision is anticipated incorrectly.
Take-home message: Improved insight about the issues causing student exclusions, will improve our ability to either prevent this happening, or compensate the lost learning.

4O2 (2974)
The Clinical Skills Passport (CSP): An innovative approach for the assessment of clinical skills competence

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Presenter: Laura Smith, University of Leeds, UK

Background: The University of Leeds is recognised for its successful and innovative mobile learning programme where students are able to capture assessment and feedback wherever they are. Medical undergraduates spend 75% of their time off campus in clinical placement, it is therefore imperative that we are able to record when and how students acquire the necessary clinical skills in order to be deemed as clinically competent.
Method: Placement learning is self-directed with students negotiating assessment opportunities with clinical supervisors. The CSP app supports the students by automatically mapping their skills assessments against the MBChB skills framework. Students are then able to action plan based on the feedback they receive. Importantly, the app maps across all years of the programme providing students with a longitudinal view of their development, which also allows staff to remotely monitor student engagement.
Results: The real time data has provided a rich source of information relating to the frequency of supervised practice & workplace teaching. The assessment includes assessor details, location and placement type showing the distribution of teaching opportunities and variety of assessors, particularly by profession. The data also creates a clear audit trail on skill acquisition for governing bodies such as the GMC. By monitoring placements to identify the quality of teaching and areas of poor engagement we have been able to intervene and remediate.
Discussion: A frustration for all healthcare programmes is that placement environments are out of the control of the school and yet we must ensure that our students receive quality teaching and evidence that our students are competent professionals. Mobile assessment provides an ideal view of placements enabling us to address learning and teaching provision in an evidenced way.
Conclusion: Mobile technology is providing a valuable platform to monitor and support student learning and quality of placement provision ensuring safe and effective practitioners. The ability to track clinical skills acquisition longitudinally has multiple benefits for student education, teaching quality and workplace learning.

4O3 (763)
The Medical Exhibition Seminar: Implementation and evaluation of a new teaching method for clinical reasoning and consultation

Authors

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Presenter: Henk Schreuder, University Medical Center Utrecht, Netherlands

Background: Clinical reasoning and consultation are important competencies for doctors, but not easy to teach during medical school.
We implemented a new teaching method, 'The Medical Exhibition Seminar'. In a 90-minute seminar for 18-36 students, pictures of 25 gynaecological diagnoses are discussed interactively.
Method: One week before the seminar, learning objectives and a list of 25 diagnoses are published online. Twenty-five posters of gynaecological diagnoses are placed on the wall of the classroom, showing pictures of symptoms, diagnostics or therapies of each of the diagnoses. An answering sheet, containing statements with clinical vignettes chosen to be central for the diagnoses of the pictures is provided. The students form small groups of 2-3 and walk alongside the numbered pictures. They must describe and discuss each picture and correlate the statements with the actual diagnosis in the pictures. Interaction with peers and a consultant-teacher is encouraged. After one hour the pictures and correlating statements are discussed in the full group.
An evaluation questionnaire provided directly after the seminar included ten 5-point Likert-scale (1=totally disagree to 5=totally agree) questions.
All students (N=146) in 7 groups responded.
Results: Setup and content of the seminar were well appreciated (mean 4.60±0.5 SD and 4.44±0.58). The seminar supported clinical reasoning and consultation skills (4.61±45 and 4.23±0.66). Highest appreciation was for joyfulness to do it (4.77±0.55). The workshop was rated better than lectures (according to 64%), interactive classroom (69%), small group (62%), clinical reasoning lecture (62%) and e-module (52%). Narrative comments included compliments ("fun to do, interactive, stimulating, challenging, lets you think and better remember through active participation") and tips ("some pictures difficult/far-fetched").
The active participation this seminar requires may lead to good retentions of information, but this effect needs to be studied.
Conclusion: The Medical Exhibition Seminar appears to be a good addition to conventional methods, is easy to implement and is highly appreciated. The teaching method seems suitable for the competencies of clinical reasoning and consultation.
Take-home message: The Medical Exhibition Seminar is a well appreciated new teaching method for clinical reasoning and can successfully be implemented for various specialties.

4O4 (704)
Second Year Medical Student Emergency Medicine Rotation: "It's Not Like on TV"

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Presenter: Colleen Bush, Michigan State University College of Human Medicine, Grand Rapids, USA

Background: Exposure to Emergency Medicine (EM) is a crucial aspect of medical student education yet has historically been absent from training until 3rd or 4th year required or elective rotations. Although there has been an effort among US medical schools to increase early clinical encounters, research has been scant to determine when students should be exposed to the "undifferentiated patient" presenting to the Emergency Department (ED). During our inaugural second year EM curriculum, we conducted a qualitative analysis to explore the following question: What are the potential benefits of this early ED exposure from the student perspective?
Method: We asked students to write two short reflective essays, approximately 150 words, about one point they learned during their rotation. We asked 180 students to respond and received a total of 216 essays during the first 22 of 30 weeks. The reflective essays were phenomenographically analyzed for themes of personal learning. The three authors independently coded 21 essays and developed an initial coding scheme. This was refined by all authors during the coding of the remainder of the essays.
Results: Thirteen themes were identified. The 6 most frequently mentioned themes were differential diagnosis, focused history and physical, oral case presentations, psychomotor skills, teamwork and specific learning experiences (e.g. dealing with death, cyanide poisoning, connecting quickly with patients). Three less frequently mentioned, but interesting themes included transitions of care, taking time to expand knowledge and the reality of the ED (i.e., fast paced, limited workup, insurance restrictions, "not like on TV").
Discussion: The established themes correlated with 9 out of the 13 Association of American Medical College's Core Entrustable Professional Activities. Students learned more about the basic skills of patient care than specific medical details. Future research could explore if this ED experience improves understanding of patient care and safety in any particular clinical scenario, and if it promotes student confidence moving forward.

Conclusion: Students indicated learning a multitude of skills, concepts and refinement of their patient approach during EM shifts.

4O5 (663)
Mastering or Inventing? The Impact of Instructional Design on Preparation for Future Learning of a Procedural Skill

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Presenter: Ryan Brydges, University of Toronto, Canada

Background: Competence in clinical practice involves effective use of previously-acquired knowledge, and the ability to apply knowledge adaptively to innovate across diverse clinical contexts. For trainees, this adaptability has been called Preparation for Future Learning (PFL), the capacity to use resources and strategies to learn about and solve new problems. Various instructional designs that might improve trainees' PFL abilities have been studied, but these have not been compared. We compared how three instructional designs impacted procedural skill acquisition, and transfer to learning a novel procedure.
Method: We randomized 60 medical students to practice simulated infant lumbar puncture (ILP) according to a Simulation based Discovery Learning "Do-then-See" sequence (i.e. self-regulated, hands-on learning before expert instruction), a Simulation based Mastery Learning sequence (i.e., a stringent form of competency-based education), or a control "See-then-Do" sequence. In a second session, we assessed how well learners transferred strategies developed in the first session to learn a novel task – knee arthrocentesis. We compared trainees' post-test ILP performance and their PFL ability via a knee arthrocentesis transfer test.
Results: Data collection is ongoing, however, preliminary data align with our expectations of no significant group differences on ILP post-test, and of more post-test performance variance displayed by the Do-then-See group versus the Mastery group. We expect this pattern of performance will reverse on the transfer test. Differential approaches to training may have differential impact on how learners acquire a target task and, potentially, on how they are prepared to learn new tasks. We will discuss relationships between practice variability, discovery models, and preparation for future learning.
Conclusion: This study contributes to the literature on how instructional design involving discovery and expert instruction might impact procedural skill acquisition and transfer to new learning problems. This is important given the expectation for trainees to problem solve and innovate across varied learning scenarios and diverse clinical contexts.

4O6 (1098)
More than another pair of hands? The impact of medical student placements on the healthcare service

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Presenter: Elizabeth Molloy, University of Melbourne, Australia

Background: Clinical placements are key to developing work-ready graduates. To date, the literature on workplace learning has focussed on learner-as-consumer, rather than learner-as-contributor. This study aimed to identify the impact of medical student clinical placements for multiple stakeholders in healthcare services.
Method: This study was conducted at a large outer metropolitan healthcare service. Qualitative data collection included: observation of students on placement; activity profiling of supervisors and students; student and supervisor focus groups; and interviews with clinicians, academic and hospital leaders, and patient advocates. The data were analysed using Braun and Clarke's (2006) thematic analysis.
Results: The effects of medical students on the healthcare service were categorised into two higher order themes: 'impact on workflow'; and 'student presence amplifying quality of care'. In terms of affecting workflow, students in their earlier years reportedly absorbed clinicians' time on account of direct teaching, task selection, and supervision of activities. As they approached graduation, students began to take on tasks independently (e.g. history taking, data entry, and coordinating patient discharge). Amplifying quality of care was observed through students' prompting clinicians to reflect on their own practice. Students attended to different aspects of care, often responding to patient or family questions in the specialist's absence. As one supervisor reported, "students often form an important, informed, but lay, connection between the patient and the medical staff so they can identify a mismatch of expectations."
Discussion: The results suggest that although students require an upfront investment of supervisor energy on clinical placement, they add value along a number of dimensions, particularly in the final year of their program. These contributions are beyond being "another set of hands". The presence of students encouraged clinicians to reflect on their practice.
Conclusion: The presence of students prompted clinicians to adopt a more critical gaze on their own work, and students focussed on humanistic elements of care – elements that can be missed or deprioritised when there is an attending expert only. The role of students as a bridge between patients and experienced staff, and how this can be optimised, warrants further exploration.

4P: Short Communications: Portfolios

Location: Darwin, Ground Floor, CCB
Date: Monday 27th August
Time: 1400-1530 hrs

4P1 (92)

EPAs-based e-Portfolio facilitated the application of Entrusted Professional Activities (EPAs) among emergency medicine residency training in a regional hospital in Taiwan

Authors

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Presenter: Chen-Wei Lee, Dalin Tzu Chi Hospital Buddhist Tzu Chi Medical Foundation, ChiaYi, Taiwan

Background: EPAs is by far the most integrated and holistic assessment method to evaluate trainees in medical setting. The trainee's earn trustworthiness by direct observation from their supervisor in workplace. Trainees have to meet the provision level of experience, knowledge, skills, attitudes, and constantly being trusted during ad-hoc observation prior entering the clinical competency committee for summative entrustment decision. Meanwhile, gathering and sorting these mass information might create a significant burdens for the user. Thus, EPAs-based e-Portfolio could be a convenience tools for the trainee and the supervisor to catch up all information at a glance.
Method: We have formulated eight EPAs for emergency resident training program in our hospital. Various observable practice activities (OPAs) for ad-hoc entrustment decision were created based on the scope of each EPA's definition. Besides, the provision level of clinical experience, knowledge and skills prior the summative entrustment decision were also clearly defined. These data were recorded in trainee electronic portfolio. We convert these mass information into infographics dashboard for user of different level. The trainees can clarify their ability insufficiency and enhanced self-directed learning. The CCC can obtain the whole picture of the trainee's clinical performance.
Results: The EPAs-based e-Portfolio provide three information level and blogs function for self-reflection to the user. The first level was the completeness of each EPAs. Expansion the EPAs display the archived level of knowledge, skills, attitude and experience in a systemic and concise manner. The third level display the more detail information of knowledge, skills, attitude, experience and OPAs, including the quality, quantity and supervisor's feedback.
Conclusion: EPAs-based e-Portfolio aim to provide a user friendly interface to facilitate the implementation of EPAs.

It save valuable time for the trainee's to figure out their weakness, meanwhile inspire their motivation of self-directed learning. The clinical competency committee could assess the whole picture of trainee performance for summative entrustment decision.
Only important information should be display on the EPAs-based e-Portfolio in order to minimize cognitive load. Besides, using graphical representation and emphasis on readability and follow gestalt laws were both important elements.

4P2 (1726)

Concepts and expectations of Taiwanese first-year post-graduates' feedback in e-portfolio: A realist evaluation

Authors

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Background: E-portfolios with clinical teachers' feedbacks are an established part of the Post-Graduate Year 1 (PGY1) training record, but what of the processes of trainees' feedback-seeking behaviors for e-portfolios? Our previous research identified context-mechanism-outcome (C-M-O) models of feedback via e-portfolio using a realist review methodology. The review considered published research within primarily western settings. The question remains, however, to what extent is this applicable in a Taiwanese setting. A realist evaluation study was undertaken using qualitative methods.
Method: A realist evaluation study using qualitative interviews was employed. The context is a teaching hospital in northern Taiwan. Focus group interviews with 25 PGY1 trainees and 14 clinical teachers were conducted May-July, 2017. Each interview comprised 4-5 participants and lasted around 1 hour. Interviews were audio-recorded, transcribed verbatim, and anonymized. Data were analyzed using realist evaluation method.
We identified a number of Contexts (Cs), Mechanisms (Ms), and Outcomes (Os) as follows: synchronous interaction, understanding the purposes of e-portfolio, usage training, format flexibility (Cs); doubt/trust, connection/disconnection, engagement, responsibility, personality, social discomfort, expectation, external motivation (Ms); obligation, effects, guidance, advantages (Os). For example, not understanding the purpose of e-portfolio (C) makes trainee doubt the authenticity of feedback in e-portfolio (M), which leads to poor educational effect (O).
Results: Comparing these C-M-O models, there are differences between our results and realist review. For example, responsibility, and social discomfort (mechanisms) and obligation (outcome) were observed in the qualitative interviews, but not in the realist review. More detail about our preliminary configurations and

comparison with the programme theory developed from literature review will be discussed in the conference. Differences in contexts and mechanisms, such as the understanding of the purposes of e-portfolio, personality of user, and social discomfort, may contribute to the differences in outcomes, and require further analysis.

Conclusion: Our research established the C-M-O model of Taiwanese PGYs' feedback via e-portfolio. There are similarities and differences comparing with C-M-O configuration developed from Western research. Factors contribute to the results, such as personal perspective or cultural influence, require further evaluation.

4P3 (190)
Perceived Needs and Challenges with electronic portfolio implementation in the discipline of Anesthesiology

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Background: In Canada, the Royal College of Physicians and Surgeons of Canada (RCPSC) has created an adapted model of CBME called Competence by Design (CBD). This move has required a large increase in the number of clinical observations of resident performance as well as the introduction of competence committees that review the data from these observations to make decisions on resident progress. Given the volume and complexity of data generated and the need for sophisticated reporting mechanisms, electronic portfolios are an important enabler in moving to CBD. The aim of this study was to assess the perceived data needs and challenges of implementing CBD, specifically as they relate to the use of an electronic portfolio system. Anesthesiology was used as the discipline to illustrate these perceived needs and challenges, as it is one of the larger RCPSC disciplines and is part of the first cohort to move into CBD.

Method: In the first stage of this study, stakeholders were interviewed regarding perceived needs and challenges in handling CBD assessment data. The findings from this stage were used to structure focus groups around different kinds of stakeholder needs and concerns. These include the identified risks associated with this change (resident focus group), daily scheduling conflicts with the increased granularity within CBD (faculty focus group), and clearly defined parameters for information access after residency training (CBD focus group).

Results: The results indicate that although contextual variables are important, there are many similarities nationally. Some of which include assessment tools and practices, information access and ownership, performance monitoring, and training. Additionally, addressing risks such as bias, reductionism, lack of time and space, and legal ramifications were highlighted as priority.

Conclusion: The perceived needs and challenges faced for CBD in Canada could be generalized to those faced at a national level. This study concludes that there are some

key questions that should be posed to all stakeholders when adopting an electronic portfolio for the purposes of CBME.

Take-home message: Applicability of research to your institution, and key questions to pose when adopting an electronic portfolio for CBME.

4P4 (1140)
Portfolio-based assessments: Does the portfolio reflect students' competence development?

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Presenter: Andrea Oudkerk Pool, Maastricht University, School of Health Professions Education, Maastricht, Netherlands

Background: The validity of portfolio as an assessment instrument for students' competence relies on the assumption that students' competence development is documented in a faithful manner. However, research findings question this assumption. This study aims to contribute to validation of portfolio-based assessment of competence, by exploring how students select and document performance data in their portfolio and how they perceive these data to be representative for their competence development.

Method: Students uploaded performance data in their portfolio on the basis of which their competence was assessed. During one clerkship, twelve students simultaneously recorded an audio diary in which they documented experiences that helped them build a self-image of their level of competence. Afterwards, students reflected on their audio diary and portfolio during a semi-structured interview. The interviews were analyzed using the principles of constructivist grounded theory.

Results: Overall, students considered their portfolio to be representative for their development. However, the portfolio provided more snapshots of the development instead of a coherent narrative. Moreover, several experiences important for student development were not covered in the portfolio. Students' beliefs about the goal of portfolio, what others need to know to be able to make an assessment and their feedback seeking behavior influenced which feedback and experiences were documented. Also, the workplace culture and portfolio structure did not always facilitate the documentation of valuable evidence.

Discussion: This study confirms the importance of taking students' perceptions into account when implementing a competency-based portfolio. Students should receive training on how to use workplace-based assessments and select meaningful performance data. Flexibility in portfolio structure and requirements is essential in ensuring optimal fit between students' experienced competence development and their portfolio content.

Conclusion: The study results have broadened our understanding of students' considerations when constructing their portfolio, which factors help and hinder,

and what portfolio elements are representative for their development. Teachers, assessors and educational developers can use these results to improve portfolio and workplace-based assessment.

Take-home message: Portfolios designed to assess students' competence can only be implemented in a successful manner if students' considerations when constructing their portfolio are taken into account.

4P5 (2750)
Can Reflection be Taught?

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Presenter: Julia Humphreys, University of Manchester, Faculty of Biology, Medicine and Health, Manchester, UK

Background: Current principles within medical undergraduate assessment incorporate student reflection and learning. This corresponds to the UK General Medical Council's learning objective that students should 'continually and systematically reflect on practice and, whenever necessary, translate that reflection into action'. At the University of Manchester, Faculty of Biology, Medicine, and Health, this is a mandatory aspect of the student's professional development, as recorded in their electronic Portfolio for Personal and Professional Development (PPD Portfolio).

Method: Manchester Medical School has approximately 2,200 undergraduate students currently enrolled on its MBChB Medicine course, all of who complete an electronic PPD Portfolio throughout the course. One of the features of the PPD Portfolio requires students to upload written reflections, drawing on their clinical experiences in a variety of areas. They analyse their clinical learning points and formulate specific action plans, which are then revisited. Such analyses can be used to identify areas of strength, as well as issues that still require improvement. In Years 3-5, students are allocated an Academic Advisor who oversees their PPD Portfolio and completes formative and summative reviews. Successful completion of the portfolio is a mandatory requirement for progression between Years 4 and 5 and for graduation. This study examined the PPD Portfolios completed by a cohort of Year 4 students who graduated from the Manchester Medical School MBChB programme in 2016.

Results: Of the 437 student portfolio outcomes assessed, a total of 54 were 'unsatisfactory' at their formative Review 1, in Section 2 of the PPD Portfolio (Reflective Practice). The study recorded the reasons for students having gained an unsatisfactory outcome in this domain. The feedback and guidance provided by the student's Academic Advisor were explored via a thematic analysis. At summative Review 2, there were only 7 students assessed as 'unsatisfactory' in Section 2.

The study concludes with types of feedback and advice that enabled the students to make adequate

improvements towards a 'satisfactory' assessment of their reflective practice. The efficacy of such feedback will form our **take-home message** – which advice demonstrably improved student PPD Portfolio reflection and assessment outcomes.

4P6   WITHDRAWN
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4Q: Short Communications: Postgraduate: Junior Doctor as Teacher

Location: Lima, Ground Floor, CCB
Date: Monday 27th August
Time: 1400-1530 hrs

4Q1 (2933)
A three-year longitudinal milestone-based "Residents as Teachers" Program: Experience from the first two years

Authors

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Presenter: Jen-Feng Liang, Taipei Veterans General Hospital, Taipei, Taiwan

Background: Competency-based medical education has yet to be applied to the faculty development activities. Most residents as teachers (RaT) programs are delivered over days or weeks without objective evaluation and long-term follow-up.
Method: We designed a longitudinal three-year, milestones-based RaT program and used a randomized control study design to investigate whether this novel program will produce a better outcome than the traditional short-term program for the first-year residents in Taipei Veterans General Hospital since Sep. 2016. The program were evaluated by the objective structured teaching exercise (OSTE), feedback from medical students, and evaluation for professional performance from program directors.
Results: This program includes three annually courses according to the pre-set teaching milestones for residents. By the end of January, 2018, 13 residents finished the first and second-year course of the milestones-based program and 11 finished the traditional short-term RaT course. 71% of the residents are from internal medicine field. The OSTE conducted 3 months after the courses revealed a higher, but not significant, average score in the longitudinal group. The satisfaction of the milestone-based program and self-evaluated learning results were good. The feedback from medical students revealed higher scores in both groups then residences without complete teaching training and the effect persisted for more than one year.
Conclusion: This innovative RaT program is characterized by 1) a longitudinal design; 2) teaching milestones; and 3) multiple outcome measurements. The main challenge of the randomized control study is the low participation rate, especially in certain specialties, which may be responsible for the insignificant OSTE and student feedback result. A longitudinal milestones-based RaT program has been implemented and is being assessed in an ongoing randomized control study. Preliminary results from the first 2 years showed positive effect.
Take-home messages: It's challenging to conduct a randomized control study on the busy young residents. Different models of faculty training such as web-based training should be designed for the demand of these trainee-teachers.

4Q2 (335)
EPA of residents-as-teachers

Authors

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Background: Residents have the pivotal role of clinical education. However, no teaching competency for residents existed.
Method: We developed and reported the teaching competencies for residents by Delphi approach in AMEE 2016. We plan to hold workshops following this result and developed the teaching entrustable professional activities (EPAs) for residents as a next step.
The first author arranged expert meetings including three medical educators, one specialist of instructional design and two attending doctors on service who have experiences as chief residents, five times to develop the teaching EPAs. The author conducted 90- to 120-minute online and offline meeting.
Firstly, two of the researchers made the initial list of the activities. Six experts discussed it and refined, deleted and added the activities. As a result, we selected ten activities as teaching EPAs for residents.
Discussion: EPAs is a new assessment tool of competency and is garnering attention. Evaluation of being a good teacher can be very challenging. Therefore, teaching EPAs for residents can be useful for the assessment of residents' teaching competency.
Conclusion: This is the first study to develop teaching EPAs for residents. EPAs were designed to link competencies to real practice and make them feasible. We plan to use and evaluate this EPAs for assessment of our future workshops.
Take-home message: EPAs is a new assessment tool. Not only clinical competency but also teaching competency can be assessed by it.

4Q3 (3522)
Making use of students' enthusiasm in technology to improve feedback to clinical teachers

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Presenter: Dilshani Hunukumbure, Imperial College London, UK

Background: Numerous hospitals across the UK have introduced a new role for doctors, Clinical Teaching Fellow (CTF). These doctors have an interest in medical education and wish to develop teaching skills. Feedback, in particular from students, is necessary to improve teaching competencies.
A survey amongst the CTFs teaching Imperial College students, demonstrated that they usually received little or no feedback. What was received was stated as 'non-specific' with 'contradicting [student] opinions'. Anecdotal evidence suggests that students are reluctant to engage with feedback as they perceive it will not be acted on and not benefit them.
Method: Our aim is to develop an innovative feedback tool to promote effective student feedback for teachers.
We implemented an online feedback tool whereby students can post and view all feedback received anonymously, they then can vote up or vote down each other's statements. At the end of the week CTFs can address the most voted statements with relevant actions. We used three perspectives to collect the data; objective analysis of students' comments from the feedback tool, exploration of student views using focus group and CTF perspectives using a questionnaire.
Results: Most of the feedback was specific and constructive. It allowed conversations to be generated anonymously. Majority of the students engaged with voting and this was found to be particularly useful when there was contradicting feedback. CTFs were able to prioritise actions according to popular votes.
Some students did not engage, stating they would only respond if they felt a strong need such as 'unsatisfactory teaching'.
Conclusion: This tool generated communication between CTF and student, giving them an unique insight into each other's comments and fostering collaborative working. It allows CTFs to timely tailor teaching and students to gain an understanding of the feedback process. Initial engagement with the tool remains a challenge and we have highlighted some of the strategies below.
Take-home messages: Online feedback tools have a role in medical education but to be effective they require:
- easily accessible links or QR codes
- student registration and induction at the start of placement
- prompt response from teachers

4Q4 NOT PRESENTED

4Q5 NOT PRESENTED

4S: Conference Workshop: Applying Threshold Concepts to Health Professional Education—Helping the Struggling Learner (2776)

Location: Wettstein, 2nd Floor, Swissotel
Date: Monday 27th August
Time: 1400-1530hrs

Presenters:
Janice Hanson, University of Colorado, School of Medicine, Aurora, Colorado, USA
Virginia Randall, Uniformed Services University of the Health Sciences, Bethesda, Maryland, USA
Lindsey Lane, University of Colorado, School of Medicine, Aurora, Colorado, USA
Meghan Treitz, University of Colorado, School of Medicine, Aurora, Colorado, USA
Daniel Nicklas, University of Colorado, School of Medicine, Aurora, Colorado, USA

Background: A threshold concept is an idea that, once grasped, changes the way learners think about themselves. The concept cannot be forgotten and may be emotionally difficult. An example might be the myth of black/white answers in medicine. Through experience, learners see the fallibility of physicians and other healthcare professionals, but may still hope they can know everything and never make a mistake. Identifying threshold concepts in health care may help educators support learners through the challenges of becoming a physician, therapist, nurse, or other healthcare professional. Educators may have noticed that some learners get "stuck" when learning to incorporate key aspects of professional identity; these aspects of professional identify may be threshold concepts. These learners may lose empathy for patients, question whether they should remain in medical school, have difficulty with work/life balance, or experience depression. This workshop will provide strategies for educators to support learners through these struggles and move into their professional identify as physicians, therapists, nurses, or other healthcare providers.
Who should attend: Health professions educators intrigued by the concept of threshold concepts will enjoy this workshop. Classroom teachers, clinical teachers, mentors, advisors, and education leaders will gain insights for their work.
Structure of workshop: A short didactic will introduce threshold concepts. In a facilitated large group, participants will then identify and describe threshold concepts they have experienced as learners, physicians/health professionals, and educators. Participants will write potential threshold concepts on "sticky notes" that workshop facilitators will gather and group on flip charts, engaging all participants. Participants will then work in facilitated small groups to develop strategies to help learners who seem "stuck" at a threshold concept juncture, then report strategies to the large group.
Intended outcomes: Workshop participants will
1. Define the characteristics of a threshold concept.

2. Collaboratively identify several threshold concepts in health professional education.
3. Develop ways to help learners who seem stuck at the identified threshold concepts.
Participants will record definitions, threshold concepts, and strategies for supporting learners on a worksheet, providing them with a resource to take home and apply.
Level: Intermediate

4T: Conference Workshop: The (Forgotten) Art of Receiving Feedback (1073)

Location: Helvetia 3, 1st Floor, Swissotel
Date: Monday 27th August
Time: 1400-1530hrs

Presenters:
Jane Moller, Aarhus University, Aarhus, Denmark
Noelle Junod Perron, Geneva University, Geneva, Switzerland
Claudia Kiessling, Brandenburg Medical School Theodor Fontane, Neuruppin
Kristian Krogh, Centre for Health Sciences Education, Aarhus, Denmark
Bente Malling, Aarhus University, Aarhus, Denmark

Background: Evidence shows that feedback is a key factor for effective learning and developing competencies, and much literature formulates models and principles for giving feedback. The act of receiving feedback, however, seems to receive less attention, even though it plays a crucial role for implementing effective feedback into training. The purpose of this workshop is to help educators better understand how and why learners react and respond to feedback and how to improve it.
Who should attend: This workshop will be of interest to all educators who give and receive feedback, and who are interested in exploring the act of receiving feedback, i.e. ways of understanding and exploring learner reactions to feedback.
Structure of workshop: After a short introduction, participants will identify challenges related to receiving feedback (think-pair-share). They will practice different modes of receiving feedback in groups of three (using video example, followed by a large group debrief). A brief didactic session will present the different factors influencing responsiveness to feedback (feedback triggers, promotion vs prevention orientation) and ways of exploring learner reactions. Participants will consider implications for own practice. We then collect take home messages and wrap up.
Intended Outcomes: By the end of this workshop the participants will be able to: 1) identify factors that influence how feedback is received by learners, 2) reflect on challenges linked to receiving feedback (own reactions and responses), 3) use techniques for better exploring learner reactions and, 4) practice receiving feedback and discuss implications for giving feedback.

4U: Conference Workshop: Adopting Learning Analytics in Medical Education (2684)

Location: Helvetia 4, 1st Floor, Swissotel
Date: Monday 27th August
Time: 1400-1530hrs

Presenters:
Vania Dimitrova, Leeds Institute of Medical Education, University of Leeds, UK
Tamsin Treasure-Jones, Leeds Institute of Medical Education, University of Leeds, UK
Rachel Ellaway, University of Calgary, Canada
David Topps, University of Calgary, Canada
Martin V. Pusic, NYU Langone Health, USA

Background: The growing digitalisation of education leads to accumulating a vast amount of digital data ranging from student interaction with learning resources, to formative and summative assessment, to workplace feedback and student reflections. The abundance of data, together with the availability of tools for automatic processing, offers exciting opportunities for medical education. However, the adoption of big data and learning analytics brings socio-technical challenges, e.g. data availability and reliability, potential for oversimplification and misinterpretation, ethics and institutional barriers. The workshop will discuss the promises and pitfalls of learning analytics for medical education by drawing upon an ensemble of experience into using learning analytics in medical education contexts.
Who Should Attend: Anybody interested in adopting innovative technologies to enhance medical education: medical educators, researchers, medical programme managers, faculty developers in medical education, faculty interested in technology enhanced learning, medical education leaders, learners all along the continuum. A mix of expertise (from inexperienced to expert) in the use of technologies in medical education will help promote stimulating discussion.
Structure of Workshop: The workshop will start with a brief overview of learning analytics and their use in education. The facilitators will then offer reflection on their experience, focusing on evidence-based approaches to assess the advantages and pitfalls in adopting learning analytics. Examples of using analytics include facilitating student engagement with workplace assessment to foster self-regulation; and gaining an understanding of the interaction with online learning tools to improve effectiveness. Small group work around selected case studies will explore advantages and pitfalls of learning analytics. Together, facilitators and participants will draw tips for adopting analytics in their practice.
Intended Outcomes: Participants will familiarise with main definitions and issues in learning analytics, become aware of key developments, and gain insight into challenges and solutions from colleagues who are researching and applying learning analytics in medical education. Participants will engage in an open debate of potential and pitfalls of big data and analytics. They will appraise their practice in the light of new landscape afforded by learning analytics, identify opportunities to adopt learning

analytics, and network with colleagues engaged in this work.
Level: All

4V: Conference Workshop: Causes and prevention of cognitive errors (diagnostic error). How will they inform our methods of teaching this to our learners? Is this possible? (299)

Location: Helvetia 5, 1st Floor, Swissotel
Date: Monday 27th August
Time: 1400-1530hrs

Presenters:
Dan Mayer, USA (Moderator)
Michelle Daniel, University of Michigan Medical School, Ann Arbor, MI, USA
Robin Hemphill, Virginia Commonwealth University, Richmond VA, USA
Sandra Montiero, McMaster University, Hamilton, Ontario, Canada
Geoff Norman, McMaster University, Hamilton, Ontario, Canada

Background: Diagnostic errors frequently cause adverse outcomes in medicine. The causes of most diagnostic errors and proposed methods of preventing them should be taught to our learners across the medical curriculum. The current debate is whether we can give our learners adequate training in recognizing potential cognitive 'traps' that lead to diagnostic errors? Or, should we explore "just in time" approaches like content-specific checklists? Do we need to put more of our educational effort into honing the learner's skills in 'pattern recognition' by increasing their experience in managing various cases? The workshop will present this debate through case presentations informing the discussion to explore competing approaches to this problem.
The audience will be engaged to discuss teaching techniques to reduce diagnostic errors through questioning the panel on past and current research. Using complex diagnostic cases will help share ideas for future research to elucidate the nature and solution of this problem.
Who should participate in the workshop? This is aimed at medical educators at all levels of medical education (UGME, GME and CPD). It will help researchers interested in studying clinical reasoning and cognitive error prevention in diagnosis.
What will they gain from participating? Appreciation of the controversy between teaching cognitive science and causes of diagnostic errors ('debiasing' and 'diagnostic time outs') compared to 'just in time learning' and content specific checklists. The discussion will clarify how these perspectives could improve clinician diagnosis and what unforeseen consequence might occur. Create unique mechanisms to teach techniques to reduce diagnostic error in various educational environments. What current

research is most likely to inform the optimal education our learners require to prevent diagnostic errors?

At the completion of the session, participants should be able to:

1. Describe and contrast attributes of System 1 and System 2 thinking
2. Describe and differentiate and analyze the pattern of the major categories of diagnostic error
3. Discuss potentials for mitigating errors, including "diagnostic time out", "debiasing processes", "just in time" approaches and content specific checklists.
4. Describe systems factors increasing the risk of diagnostic error

4W: Conference Workshop: Developing Continuing Education and Professional Development Programs to Optimize Practice (2441)

Location: Helvetia 7, 1st Floor, Swissotel
Date: Monday 27th August
Time: 1400-1530hrs

Presenters:
David Wiljer, University Health Network, Toronto, Canada
Sanjeev Sockalingam, University Health Network, Toronto, Canada
Sophie Soklaridis, Centre for Addiction and Mental Health, Toronto, Canada
Maria Mylopoulos, The Wilson Centre, Toronto, Canada
Ivan Silver, Centre for Addiction and Mental Health, Toronto, Canada

Background: Continuing education (CE) and continuing professional development (CPD) have traditionally been limited in changing clinicians' behaviours and patient outcomes. The burgeoning field of healthcare quality improvement (QI) offers a unique model for moving CE/CPD towards enduring practice changes. While the relationship between CE/CPD and QI has been explored more broadly in medical education and through general programs, such as the AAMC Aligning and Educating for Quality (ae4Q), practical application and integration of QI and CPD remains an ongoing barrier. Current trends in CPD have been toward developing master adaptive learners and the development of expertise in new basic sciences, namely quality improvement (QI) and patient safety. The following workshop will focus on advances in the areas of CPD self-assessment, adaptive expertise, motivation to learn and engagement of patients and families in effectively bridging the gap between QI and CPD to achieve mastery.

The workshop will begin with participant reflection on current strengths and limitations of CE/CPD activities offered in participants' settings. Following this reflection, we will present data on the need for evolving current CE/CPD practices and for integrating QI within existing CE/CPD. We will also explore the construct of adaptive expertise and how it can be used to advance CE/CPD to address complexity and ambiguity encountered in practice. Finally, we will provide practical strategies for

self-assessment and engaging patients in assessing current practices. In small groups, participants will apply presented frameworks to build practice improvement opportunities involving both clinicians and patients into their current CE/CPD activities. We provide cases to discuss local program and learning system approaches to aligning CPD and QI and will provide frameworks for preparing practitioners for future learning. We will conclude with a summary and opportunity for further participant questions.

Upon completion of session, participants will be able to:
1) Apply process and practice improvement into continuing education initiatives and consider the role of the patient in achieving change
2) Identify useful frameworks, barriers and solutions to integrating practice change into CPD to promote mastery and adaptive expertise
3) Reflect on how existing CPD can integrate self-assessment and practice improvement to assist professionals development

4X: Conference Workshop: Learning from Failure? How should we prepare newly qualified clinicians and clinical environments to enhance patient safety? (900)

Location: Osaka, 3rd Floor, CCB
Date: Monday 27th August
Time: 1400-1530hrs

Presenters:
Kevin Weiss, Accreditation Council for Graduate Medical Education (ACGME), Chicago, USA
Jane O'Hara, Leeds Institute of Medical Education, University of Leeds, UK
Trudie Roberts, Leeds Institute of Medical Education, University of Leeds, UK
Robin Wagner, Accreditation Council for Graduate Medical Education (ACGME), Chicago, USA
Robin Newton, Accreditation Council for Graduate Medical Education (ACGME), Chicago, USA

Background: Engagement in patient safety is essential in healthcare, and lack of clinician engagement is an important 'patient safety gap'. To close this gap, new clinicians should engage in patient safety activities during their first year of clinical practice. Leaders of the clinical learning environment (CLE) need to ensure that new clinicians actively engage in and promote the CLE patient safety system, by: (1) understanding how the CLE supports a positive safety 'culture', (2) recognizing and reporting patient safety issues, (3) participating in the analysis of patient safety events, and (4) understanding how the CLE translates patient safety event reports into improvements. Promoting the importance of patient safety needs to begin in undergraduate education. However, the CLE and wider healthcare culture are crucial in shaping student and trainee understanding and engagement with patient safety. Understanding what contributes to safe care and

how adverse events occur is key to systems-based improvement, but this can be difficult in environments that have historically attributed mistakes to individuals. How mistakes are reported, acted on, and judgements of accountability made, will all influence the engagement of students and trainees in safety. Thus, the role of the CLE in supporting this engagement is central to learning and improved patient care.

This workshop will present work from both the UK and US, to ensure that engagement with patient safety is fundamental to the training of healthcare professionals. The recent case of Dr Bawa-Garba in the UK will be discussed, with reflection on the implications for supporting students and trainees to raise concerns, reflect on failure, and engage in patient safety.

Attendees will be encouraged to examine approaches to integrating patient safety into their own curricula.

Who should attend: Healthcare educators involved in clinical training.

Structure of the workshop: A mixture of short presentations by experts and audience interaction and discussion.

Outcomes: At the end of this workshop the attendees will:

1. Understand the importance of education and the CLE in promoting patient safety
2. Recognise the value of leadership in this area
3. Have explored models of reporting and responding to patient safety events

Level: Introductory

4Y: Conference Workshop: Making workplace-based assessment work: leveraging tensions in assessment for learning (872)

Location: Samarkand, 3rd Floor, CCB
Date: Monday 27th August
Time: 1400-1530hrs

Presenters:
Pim Teunissen, VU University Medical Centre and Maastricht University, Amsterdam & Maastricht, Netherlands
Erik Driessen, Maastricht University, Maastricht, Netherlands
Marjan Govaerts, Maastricht University, Maastricht, Netherlands
Suzanne Schut, Maastricht University, Maastricht, Netherlands
Miriam Wijbenga, Maastricht University, Maastricht, Netherlands
Carolin Sehlbach, Maastricht University, Maastricht, Netherlands

Background: The number of tools for workplace-based assessment (WBA) in under- and postgraduate medical education have steadily increased over the past decade and with it conceptual models for their use have evolved. Research findings, however, indicate a mismatch between assessment theory and practice. WBA procedures can become tickbox excercises, merely being perceived as summative assessment rather than assessment for

learning. This workshop will focus on these challenges by asking what practitioners and educationalists can do to make WBA work for learning.

Sharing their practical and scientific experience with this topic, the workshop moderators and participants will co-produce WBA principles that effectively support learning in clinical practice.

Who should attend: This workshop is aimed at anyone involved in WBA, from undergraduate to postgraduate levels. We expect students, residents, faculty and educationalists to benefit from insights in how WBA can work in clinical practice.

Structure of workshop: The workshop will use the following approaches: small group learning, round robin design, and moderated plenary discussion. We will build on the participants' experiences with and knowledge of WBA. The majority of the workshop will be interactive. After a brief plenary introduction by the moderators, a round robin design will be used to enable small group discussions about different WBA-related topics. Topics include tensions between assessment for and of learning; assessing what counts vs. what can be counted, as well as do's and don'ts for trainees and preceptors. Discussions will be moderated to ensure a variety of ideas and topics are addressed. A plenary discussion will allow synthetisation of outcomes and conclude with take-home messages.

Intended Outcomes: Participants will be able to:
- better understand how inherent tensions in WBA affect assessment practices
- understand under what circumstances WBA can optimally support workplace learning,
- know what role individual trainees and preceptors can play in making WBA work for them.

Level: We recommend some WBA experience for attendance, as the workshop spans from introductory to advanced level.

4Z: Conference Workshop: How to break barriers? International faculty development collaboration (945)

Location: Guangzhou, 2nd Floor, CCB
Date: Monday 27th August
Time: 1400-1530hrs

Presenters:
Che-Wei Lin, Taipei Medical University Wan-Fang Hospital, Taipei, Taiwan
Barry Issenberg, University of Miami Miller School of Medicine, Miami, USA
Benjamin Berg, University of Hawaii, Manoa, USA
Gen Ouchi, University of The Ryukyus, Okinawa, Japan
Chien-Chih Wu, Taipei Medical University, Taipei, Taiwan
Wen-Cheng Huang, Taipei Medical University, Taipei, Taiwan
Background: We have successfully implemented a faculty development collaboration among simulation educators in the Taiwan, Japan and the United States. This interactive workshop will describe the process of creating and fostering international partnerships for the development of simulation faculty. A model for collaboration and cooperation between different countries and cultures will

be shared. Successful approaches that support these types of international activities will be discussed and evaluated. In addition, we will facilitate discourse and analysis of potential difficulties and barriers to globalization of faculty development efforts in simulation education for healthcare providers. Small group sessions will be used to promote g discussion of topical areas and personal experiences. The session will culminate by having participants conceptualize and outline an international collaboration model for their own institution.

Who should attend: 1. Faculty from institutions that would benefit from international collaboration to improve faculty development programs. 2. Faculty from institutions who will support faculty development efforts in other countries. 3. Participants who would like to learn, discuss and apply successful approaches from an international faculty development collaboration and exchange program.

Structure of Workshop:

1. Faculty and course introduction; 2. Large group activity 1: Interactive presentation of an example for international cooperation; 3. Small group activity 1: Develop Goals and expectation for an international collaboration for supporting faculty development; 4. Large group activity 2: Faculty share additional regarding its international collaboration and efforts including implementation of a faculty development course, addressing barriers and logistical concerns; 5. Small group activity 2: Participants work on their own personalized planning and share with others; 6. Large group activity 3: Discuss strategies to address anticipated challenges to develop a one's own model; 7. Wrap upIntended Outcomes

After this workshop, participants will be able to:

1. Describe the process for establishing international collaboration in simulation education
2. Analyze opportunities and barriers to international collaboration efforts
3. Evaluate methods for overcoming barriers to international collaboration

Level: Intermediate

4AA: Conference Workshop: Use the map: a practical workshop on curricular mapping for faculty development and CPD programming (3316)

Location: Nairobi, 2nd Floor, CCB
Date: Monday 27th August
Time: 1400-1530hrs

Presenters:
Robert Parson
Paul Hendry

Background: Curriculum mapping (CM), traditionally a process applied to UGME programs, can be adapted for use for any educational program including Continuing Professional Development and Faculty Development. Mapping can be used to demonstrate attention to accreditation standards, institutional priorities and

categorize sessions thematically, according to evaluation method, learning methods, level of difficulty and more. Online mapping tools can be adapted for local context and enable the creation of a searchable database of course information. We recently completed a reverse mapping project for programming over the previous 2 years and will share our experience and maps with participants.

Who should attend: This workshop will be of interest to faculty development planners and those involved in curriculum design at all levels including for continuing professional development in the broadest sense.

Structure of Workshop: A brief introduction will serve to frame the benefits of curriculum mapping for faculty development and continuing professional development. Sample mapping results from our local mapping endeavour will be used for illustration. Participants will break out into small groups to complete a curriculum mapping grid based on courses they are familiar with. Their course "grids" will be added to a large scale map that will demonstrate how comprehensive mapping is used. The full group will be guided to interpret the maps to identify gaps or redundancies and learn how mapping can inform planning. Attention to evaluation strategies and learning outcomes (level of evaluation and degree of impact) will be highlighted with suggestions of how mapping can help elevate the level of evaluation outcomes. A meta evaluation exercise will allow participants to apply accreditation criteria.. The exercises will be transferable for use in their own work environments. Application of maps and meta evaluation should demonstrate evidence of quality assurance and enhance accreditation outcomes.

Intended Outcomes: At the end of the session participants will be able to:

1. Describe and create a searchable curriculum map
2. Apply the design principles to construct map for their unique program
3. Identify gaps in their programming by utilizing their curricular map.

Level: Intermediate

4BB: Conference Workshop: Online assessment with the students' own devices: An evidence based and practical approach to eAssessment (1484)

Location: Mexico, 2nd Floor, CCB
Date: Monday 27th August
Time: 1400-1530hrs

Presenters:

Eeva Pyörälä, University of Helsinki, Centre for University Teaching and Learning, Helsinki, Finland
Sanna Siirilä, University of Helsinki, Services for Learning and Teaching Technology, Helsinki, Finland
Daniel Folger, University of Helsinki, Faculty of Medicine, Helsinki, Finland
Teemu Masalin, University of Helsinki, Faculty of Medicine, Helsinki, Finland
Jussi Merenmies, University of Helsinki, Faculty of Medicine, Helsinki, Finland
Colin Lumsden, University of Manchester, Manchester Medical School, Manchester, UK

Background: The University of Manchester and the University of Helsinki are active in fostering mobile learning in medicine. Since 2011, the Manchester project has integrated iPads into clinical environment and developed digital work-place assessment. The Helsinki project started in 2013. Today the mobile learning cohorts cover the biomedical and clinical study years. Both units have combined mobile devices with active learning (problem-based learning and the flipped classroom) and developed online assessment with the students' own devices.

Who Should Attend: This workshop provides an evidence-based and practical insight into developing online assessment with the Bring Your Own Device (BYOD) strategy. We invite all those who are at the outset of or in the middle of fostering formative and/or summative online assessment in their units to share experiences and learn from and with us. The workshop is targeted to all health-care professions, both at graduate and postgraduate level, specialist training and continuing professional development.

Structure of Workshop: The workshop is interactive and facilitates active learning. We provide a short overall view of online assessment based on a BYOD strategy and have an online vote on the assessment practices in the participants' units. The Manchester project presents the (UoM) FORM², an online assessment system designed for comprehensive assessment in clinical placements. The Helsinki project compares strategies and tools for online summative examination and reports experiences of organising the International Progress Test (IPT) and the European Knowledge Test (EKT) online. The workshop participants analyse in groups the advantages and challenges developing formative and summative online assessment and adopting a BYOD strategy in assessment. The workshop is concluded with a discussion and a take-home-message.

Intended Outcomes: At the end of the workshop, the participants will be able to:

1. Outline the principles of formative and summative online assessment,
2. Analyse the advantages and challenges of using the students' own devices (laptops, tablet computers and smartphones) in online assessment,
3. Recognize the requirements for developing online assessment in their units.

Level: introductory/intermediate

4CC: ePosters: Engaging with Learning - game-based, problem-based & practice-based

Location: Kairo 2, Ground Floor, CCB
Date: Monday 27th August
Time: 1400-1530 hrs

4CC1 (2363)
Pedagogical Approach of the Family Health Specialization Course of the Federal University of Pelotas, Brazil

Authors
Anaclaudia Gastal Fassa, Federal University of Pelotas, Pelotas, Brazil
Maria Elizabeth Gastal Fassa, Federal University of Pelotas, Pelotas, Brazil
Elaine Tomasi, Federal University of Pelotas, Pelotas, Brazil
Luiz Augusto Facchini, Federal University of Pelotas, Pelotas, Brazil

Presenter: Anaclaudia Fassa, Federal University of Pelotas, Brazil

Background: The strong expansion of the family health strategy teams in Brazil led to the creation of the Open University of SUS, constituted by Public Universities, to offer the Specialization Course in Family Health on a large scale. The course of the Federal University of Pelotas aimed at training the family health professionals of the SUS, promoting the capacity of management and organization of primary health care services (PHC), the institutionalization of health monitoring and evaluation, citizenship and social participation and the qualification of clinical practice
The course is structured around an intervention in the service, focusing on the improvement of the work process and clinical practice. Based on the strategic planning, the student identifies the problems of his health unit, prepares an intervention project on a programmatic action typical of PHC, develops the intervention and evaluates it. The course requires only one face-to-face meeting for the presentation of the final paper and the activities are asynchronous, valuing the distance learning strategy, the professional's link with the service and promoting reflection on the practice.
2300 health professionals were trained over a 5-year period throughout Brazil. Collective health materials for intervention were developed as questionnaires for situational analysis; sheets with aims, goals, indicators and actions for the planning of interventions; clinical forms and automated spreadsheets for individual and population monitoring and interactive clinical cases. The interaction with the colleagues and the personalized attention of the supervisor made possible the deepening of the themes and the exchange of experiences. The materials provided great autonomy for the student.
This pedagogical approach focused on the training of the professional through the transformation of the service, improving the quality of attention and, in many situations, spreading the ideas to the team and even other health services of the municipality.

Reflecting on practice provides meaningful learning; - Prepared learning environment, with instrumental materials for the intervention, facilitates transformations in the work processes; It is crucial that students provide examples of good practice by disseminating them in their services and municipalities.

4CC2 (1736)
Using the "Flash Teaching" Model for Prevention of Facial Pressure Injuries during Nursing Training and Education

Authors
Ching-Uen Huang
Shun-Cheng Chang
Fu-Yu Wang

Presenter: Ching-Uen Huang, Taipei Medical University Shuang-Ho Hospital, New Taipei City, Taiwan

Background: Facial pressure injury (FPI) is a common and difficult clinical problem, especially in chronic and long term patients. Effective protection education is an indispensable part of nursing staff's pressure injury prevention implementation measures. Using "Flash teaching" model to improve the shortcoming of traditional teaching method. Clinical staff may memorize key points in short period of time, which helps them to implement the use of clinical protection, and reduce the severity of FPI.
In the past, due to shift work, hospitals or wards need to gather nursing staff for continuous education, which is difficult in practice and the outcomes, promotion and implementation respectively, from the education is often poor. "Flash teaching" is a method, which key teaching points are made into pictures, by using these pictures, learners memories are enhanced. Teachers go to wards, give a 15-minute teach section between shift-change. Teaching materials are transferred into PDF, uploaded to intranet on each ward for reminder learning. Furthermore, training seed staff in each ward to perform Flash Teaching regularly can reinforce the memories.
"Flash Teaching" was held on wards which needed to face FPI on daily practice, there were total 213 staff and seed staff trained. The average pre-education test score was 65, the post score was 90, the average satisfactory score was 4.65. The FPI incidence (2013-2015) dropped from 5.1% to 2.9%, the injury severity also improved from Grade 3 to 1. Teaching method has great impact on learning outcome. Through innovative "Flash Teaching", the traditional group teaching was embarrassed, the new method not only utilizes limited time period but also gives nursing staff clear images; seed staff have provided consistent clinical teaching and assistance, FPI incidence and severity have been reduced effectively.
Understanding the basic problems and difficulties; with imagination, teaching is unrestricted by time and space, yet it is innovative and effective.

4CC3 (2457)
Photo Challenge: An Educational Innovation to Stimulate Effective Learning in Ophthalmology

Authors
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Tayakorn Kupakanjana, Thammasat University, Pathum Thani, Thailand
Picha Thunpimon, Thammasat University, Pathum Thani, Thailand

Presenter: Sakchai Vongkittirux, Department of Ophthalmology, Faculty of Medicine, Thammasat University, Pathum Thani, Thailand

Background: The learning process in Ophthalmology emphasizes visual disease manifestations, which can be traced to aspects such as epidemiology, pathophysiology, clinical manifestations and management. However, contemporary teaching methods of lecturing are often insufficient for facilitating learning. Additionally, instructors find it difficult to evaluate the knowledge and understanding of students after lectures.
To stimulate effective learning, Ophthalmology residents from the Faculty of Medicine, Thammasat University, invented an activity called Photo Challenge. Fifteen residents from three years of training were randomized and divided into five groups to compete in a quiz and discuss different aspects of the disease depicted in the photo. Qualified ophthalmologist instructors score the team's performance on quality and completion of discussion and provide feedback on the conformity, rationale and omissions of the discussion as a team.
Ophthalmology residents participating in Photo Challenges favored the activity and benefited from engaging in the learning experiences as well as being given opportunities to practice clinical thinking processes by verbally approaching the clinical diagnosis from important findings and management of the disease. Instructors are able to assess their students' degree of success in learning outcomes and provide instant feedback.
Photo-Challenge activities, unlike the traditional photo quiz, are engaging for learners and enable them to demonstrate knowledge and skill in clinical thinking, applicable to everyday practice and, in addition, evaluate themselves after the quiz. Instructors are able to emphasize knowledge and guide clinical thinking relevant to the learning outcomes after each session. It can be noted that the Photo Challenge is evidently more suitable for producing intended results than traditional photo quiz in Ophthalmology studies.
The Photo-Challenge's success demonstrates a counterpart of a teaching method that emphases visual detection of clinical signs and clinical thinking as learning outcomes, in context of Ophthalmology learning.
Photo Challenge is an educational innovation is suitable for Ophthalmology learning and is effective for students to achieve learning outcomes as well as gain straightforward assessment from instructors. This teaching method can also be applicable to other studies where photographs are an important element in the learning process.

4CC4 (1149)
Pedagotchi 2.0 – a playful learning concept to train clinical decision making

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Presenter: Lorenz Grigull, Medical University, Hannover, Germany

Background: Children learn whilst playing. For adults, work and play have been segregated. Recently, the terms playful learning or serious gaming (SG) have been introduced. Both describe forms of learning with games or by concepts derived from the game world. In medical education, SG is not very common yet despite its potential to provide engaging learning experiences. To train the important clinical decision making we developed a SG for medical students embedded in a blended learning concept.
After focus group discussions we scripted the screenplay for the game. For students, a game should increase knowledge, competence, and include challenges. Besides, rewards and feedback should be provided. From the educator point of view the system should be easy-to-manage, technically flexible and open for a range of medical subspecialties. Likewise, master-characters for patients (various age-groups and diseases) were created and an excel-based platform for authors developed. The game was settled in the emergency department. On smartphones or tablets students chose a case, explore the past medical history, perform a clinical exam and order blood tests, sonography or X-ray. Finally, the student (-player) is requested to word a diagnosis and possible differentials before deciding upon the clinical placement, e.g. hospital admission or ambulatory care.
Despite broad knowledge base, many students express difficulties to judge clinically upon a scenario. Therefore, they appreciate the playful opportunity of a blended-learning concept to improve decision making. Our SG offers the opportunity to transform students into active learners within a game world that provides various media content and instant feedback. From the teachers' perspective, important diseases and classical clinical presentations can be taught and knowledge gaps can be identified.
SG offers the opportunity to expand the way we teach clinical decision making in medical education. Embedded in a blended-learning concept it might improve the students' understanding for clinical decision making. For medical teacher, SG offers opportunities of interaction with the students and transparency of the learning process.
Games are fun and instructive. Serious gaming works to teach clinical reasoning.

4CC5 (1912)

The Pitch for 'QUITCH': Harnessing Mobile Technology to Improve Patient Safety

Authors

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Presenter: Shereen Ng, Department of General Medicine Tan Tock Seng Hospital, Singapore

Background: Multiple batches of fresh medical graduates rotate through the Department of General Medicine with very little knowledge of hospital safety protocols. The ongoing challenge is to ensure the timely delivery of hospital specific patient safety knowledge upfront so patient care errors are minimized. As mobile applications and games are now ubiquitous and attractive, we developed a web-based game on a mobile application ('QUITCH') to teach patient safety. However, does this translate to effective patient care?

A list of must-know information on daily ward duties and hospital-based safety policies has been translated into a series of 80 multiple-choice questions on the application with a gaming element. All new rotating residents will be enrolled with access to the game on their mobile devices. Each set of 8-10 time-sensitive questions are 'pushed' daily for the first 14 days of their rotation. Residents compete against their peers to reap attractive rewards, such as badges and points, to get on the 'QUITCH Leaderboard'. Relevant bite sized explanations and material are linked to the questions. The faculty reviews the progress and reinforces important concepts with the residents in a face to face session after the game.

Quantitative and qualitative data are collected on reception, perception and engagement towards learning through mobile gaming. The results will be triangulated to see whether this translates to better patient care. Prescription errors from High-Alert Medications (insulin, opioids) are being collected in an ongoing Clinical Practice Improvement Program (CPIP). We will compare the medication error rates before and after the implementation of this project.

Data collection has being ongoing from Jan 2018 till Jan 2019 for each batch for 40 learners (approx. 240 learners). We look forward to the data which will be available by August 2018.

Harnessing technology with mobile learning and constantly innovating our teaching methods are key to sustaining the attention of the busy resident, and ultimately to improve the care to our patients. It is our firm belief that learning through gaming via 'QUITCH' will enable us to do this.

4CC6 (226)

The Application of Gamification in Clinical Teaching - Courses of Quality Management

Authors

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Presenter: Ching-Shiang Chi, Tungs' Taichung MetroHarbor Hospital, Taichung, Taiwan

Background: It is important for medical staffs to use scientific management tools to improve patient safety. However, medical staffs often felt very difficult on the operation and application of quality management. The purpose of this project was to apply gamification in clinical courses.

Quality management and education team made e-learning materials on the hospital platform and Youtube, so learners can learn anytime, anywhere. Teachers have adapted teaching videos into short and interesting videos. Staffs must complete the online learning and homework before the class. In the classroom, teachers implemented the game using staged descriptions, demonstrations, exercises, and confirmations. Team competition, group discussion and brainstorming were conducted. Through designed question, members understood how to make the process more effective in solving problems and internalized quality control practices from the process. After the course, FB was used to conduct the follow-up discussion which provided further self-learning suggestions to staffs.

Before implementing gamification, the willingness to learn was only 45%. After conducting 3 gamification courses continuously, the willingness was raised to 91%. Members actively formed 12 interprofessional teams. Medical staffs applied the acquired skills to their daily work and got 9 awards through teamwork and improvement tools in external quality competitions in 2017.

Gamification was a method rather than a goal. Games which need to be designed according to different staffs were used to increase interpersonal communication, deepen the depth of the courses and enhance team cohesion. Immediate feedback from clinical teachers engaged learners in setting specific goals and expectations. Medical staffs involved in improving medical quality and patient safety could reduce medical risks. We reformed teaching methods to enhance the professional competence and confidence of staffs in quality management. Through well-designed games, staffs understood the meaning and purpose of the work by solving problems and internalized the skills of quality management.

Using multiple teaching methods and diverse approaches to promote learning, staffs can be active, cooperative and studious. Gamification made clinical teaching more interesting and meaningful.

4CC7 (1985)
Use illness script theory to teach clinical reasoning skills to nurse practitioners- a pilot study

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Hung Yao Chen

Presenter: Hung Yao Chen, China Medical University Hospital, Taichung, Taiwan

Background: The clinical reasoning is an essential ability of caring patients for nurse practitioners (NP).
So we developed a case- based approach for developing NP's clinical skills by using illness script theory and conducted a randomized control trial to determine if this method was effective.
A total of 42 trainees were enrolled in this study in 2017 and divided randomly as experimental, and control group, 21 trainees in each group. Five trainees in the experimental group dropped out because of their personal event. For the experimental group, the clinical reasoning skills, and illness script theory were introduced first, and then start to discuss clinical cases, following a sequence of chief complaints, medical history, and physical examination. The trainees formed their own clinical hypothesis first and then asked the information from the tutor. Finally, the trainees wrote down their differential diagnoses and tried to order the relevant laboratory and image study to confirm the diagnosis. Simultaneously, the control group underwent traditional class-based training program. The effectiveness of intervention was assessed using the Diagnostic Thinking Inventory (DTI) and Objetive Standardized Clinical Exams.(OSCE).
There was no statistically significant difference on total DTI scores between these two groups , but the total DTI scores of experimental group increased 6 points after training. Trainees in the experimental group had higher flexibility in thinking (86.15 vs 80) , and similar in the memory structure scores (77.92 vs 75.88).The total OSCE scores of these two groups after training were close. (63.31 vs 61.12) But the trainees in the experimental group had better performance in disease diagnosis (8.13 vs 5.17), and clinical management (4.23 vs 2.98).
Although there was no prominent performance in the experimental group, the ability of disease diagnosis and management in this group slightly empowered after the case-based training program. This implied that this approach might work but there was inadequate training time (only 12 hours).
The new teaching method is better than traditional class-based training program for developing clinical reasoning skills. Adequate training hours is important.

4CC8 NOT PRESENTED

4CC9 NOT PRESENTED

4CC10 (3405)
The correlation between demographic variables and virtual patient integration in the medical curriculum

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Presenter: Eleni Dafli, School of Medicine, Aristotle University of Thessaloniki, Greece

Background: The opportunities Virtual Patients (VPs) provide in modern medical education led to a wide trend towards VP creation and use among academic institutions. Aristotle University of Thessaloniki in an effort for a comprehensive evaluation of various parameters of the VP integration process aimed to add meaningful knowledge considering the full adoption of VPs.
The study included the collection of quantitative and qualitative data, using on line available questionnaires, for the medical students' evaluation (n=219). Descriptive statistical analysis and factor analysis were performed.
A correlation of age, sex and year of study with the evaluation of the medical students' clinical experience with VPs was observed. Male young students of the pre-clinical years showed a significant preference in VPs. Generally, students of the pre-clinical years show a high preference in the adoption of VPs as learning activities. A decrease of interest for VPs' curricular adoption in the next years of study was observed, something that was reversed again in the last (6th) year of study.
The preferences of medical students concerning the type of use and integration of VPs in the medical curriculum are presented, sorted according sex, age and year of study.
The virtual clinical encounters used in this study appear to be particularly well suited for learning and assessment for medical students of pre-clinical years of studies, who have had limited clinical contact.

4CC11 (3514)

Virtual patients in training against medical error: does group dynamics influence outcome?

Authors

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Presenter: Gulmira Abakassova, Karaganda State Medical University, Karaganda, Kazakhstan

Background: Erasmus+ CBHE project "Training against medical error" (TAME) aimed to use virtual patients (VP) scenarios for clinical PBL with senior year students to help them gain expertise in prevention of medical errors. We looked into how group dynamics influence student perceived ability and experience after exposure to branched General Practice VP cases with medical errors. In the first phase of the project covering linear and branched paediatric cases, we showed that outcomes of branched cases could not be explained by case structure only. Medical teachers created clinical decision-making VP cases using open access platform OpenLabirynth. Team of GP teachers carefully analysed possible medical errors in their practice and designed the VP cases. The responses were collected from 60 students gathered into 7 groups after each case using non-anonymous online questionnaire. The survey aimed evaluating personal experience, perceived abilities, mental effort and emotional reactions. The factor analysis confirmed the presence of 5 factors with emotional reactions divided into positive and negative ones. MANOVA of factor scores produced no significant differences between cases, but there were significance differences between groups of students.
Cluster analysis revealed 5 reaction modes to cases: more than 50% of responses showed high positive experience, perceived ability and mental effort against low emotional reaction; in 30%, there were high emotionality, positive experience and mental effort, but low perceived ability; in <10% we saw only high positive experience with other factors being low; the least frequent modes included high or moderate emotionality against high or low positive experience and perceived ability.
Both MANOVA and cluster analysis confirmed our initial assumption that outcomes of branched VP cases depend on personal characteristics of learners, group dynamics and emotional reactions that they experience during case presentation, rather than the structure of case itself. The higher the level of emotional reactions the less students learn from the case.
VPs in training against medical error are accepted positively by medical students. More research is needed to analyse how group dynamics causes personal emotions influencing perceived ability of students after the case.

4CC12 NOT PRESENTED

4CC13 (3413)
Strategy of medical education in home care using immersive Virtual Reality

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Presenter: Alessandra Dahmer, UNA-SUS/UFCSPA, Porto Alegre, Brazil

Background: The use of Immersive Virtual Reality (IVR) in medical education remains a challenge for educators. The process to create educational resources applying this technology requires pedagogical knowledge as well comprehension regarding the digital resources provided by IVR. Therefore, the purpose of this work was to develop a teaching strategy using an Immersive Virtual Reality Game directed towards home care teaching for undergraduate medical students.

Firstly, a survey of all existing educational contents in regard to home care medicine has been carried out. The topics that proved to be the most difficult ones to be developed in the classroom have been selected. A physician selected the topics and those were discussed along with educators, designers, and game developers. The educational topics addressed refer to home cleanliness, psychological care of the caretakers, special care for bed-ridden patients and orientations for feeding patients in the home environment. The educational resource was available by wearing IVR goggles.

The transformation of a traditional educational topic into a serious game requires a multi-disciplinary team, which ought to include health professionals, educators, and computer experts. The discussions were held in order to achieve learning goals and simultaneously turn the game into a pleasant experience for users, resulting in the exchange of experiences among professionals, which may lead to an educational resource with a higher level of quality.

The IVR game developed may be used as a supplementary tool in the teaching-learning process involving undergraduate medical students with regard to practical activities in Home Care.

The use of technology in healthcare education must be encouraged among healthcare educators. The current generation tends to transcend traditional teaching resources, and IVR is suitable for learning contents in which the environment interferes the clinical conduct.

4DD: Posters: Adaptive Curriculum

Location: Hall 4.1, CCB
Date: Monday 27th August
Time: 1400-1530 hrs

4DD1 (141)
Evaluating the prescribing scheme for fifth years at Keele University medical school: a mixed methods study

Authors
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Presenter: Niamh McCarville, Keele University School of Medicine, Keele, UK

Background: The GMC's 'outcome for graduates' outlines that medical graduates should be competent in writing a safe, legal prescription from day 1 of foundation rotations. Despite junior doctors being responsible for up to 50% of prescriptions written in hospital, it is well documented that new graduates perceive themselves to be least prepared in prescribing. Due to numerous factors, prescribing errors are common and can have fatal consequences for patients. The EQUIP study of 2009, found that Foundation Year 1 doctors (FY1s) make errors in 8.4% of all prescriptions.
Throughout the UK, there is no uniform approach to allowing students the opportunity of transferring skills learnt in the classroom to the clinical environment in terms of prescribing. The literature does describe, however, a "pre-prescribing" scheme which was implemented at Edinburgh medical school. This involved the use of stickers to identifying student prescriptions and was trialled on 12 students. Focus group feedback proved positive, and students felt that not only did it contribute to prescribing ability, but also professional development as a whole. Three years ago, Keele Medical School introduced a transcribing scheme for final year medical students, commonly called 'the purple pen scheme', due to students identifying their prescriptions in purple ink. This allows students to transcribe prescriptions on hospital drug charts, with a qualified doctor countersigning it. The scheme was implemented following the development of a standards operating procedure (SOP), which includes certain pre-requisites, for example the student must be involved in the care of the patient.
Method: In this study, we are carrying out a mixed methods enquiry to evaluate students' prescribing patterns, student error rate in prescribing, and students' views on the impact of the scheme. We will do this by carrying out an end-of-placement questionnaire detailing frequency of prescribing and prescribing activities undertaken, an audit of student prescriptions on the wards which will critique them against the SOP and detail error rate, and focus groups exploring student views of the scheme and how it contributes to self-perception and preparedness for foundation years.

Results: Data collection will be undertaken between January and April 2018.

4DD2 (365)
The effectiveness of "Flipped classroom" in teaching cardiac auscultation to medical students: a pilot teaching program

Authors
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Chia-Yuan Liu
Min-Shu Wang
Yih-Jer Wu
Hung-I Yeh

Presenter: Chun-Wei Lee, MacKay Memorial Hospital, Taipei, Taiwan

Background: Learning cardiac auscultation is always a challenging issue of physical examination. We conducted a pilot teaching program for comparing the effectiveness of didactic lecture and Flipped classroom (FC).
Method: We divided the fifth year students into two groups, one is the conventional control group and the other is the FC group. The conventional control group will receive a didactic lecture first then we will bring them to see a patient. The FC groups we will provide the same learn material in advance, and then we will first bring them to see a patient following group discussion. The tasks when they are approaching a patient were to describe the cardiac auscultation in detail including timing, grading, shape, pitch, location, and radiation. A clinical teacher monitored the tasks. The students gave feedback anonymously. Knowledge on an implementation of cardiac auscultation was assessed in the final examination.
Results: The feedback was positive, emphasizing the benefits of FC in combining theory and practical steps to approach cardiac auscultation. The results of the written summative examination item were better and excellent in the FC group – the scores varied from 5 to 6 (scale 0-6). Flipped classroom seems to be a suitable method to combine theoretical understanding and practical steps to approach cardiac auscultation. Compared to conventional didactic lectures, medical students felt that FC is effective as a teaching tool. They also felt more impressive and confident in future cardiac auscultation.
Conclusion: New methods to train students and staff are sorely needed. Flipped classroom is shown to be better than the conventional didactic lecture in this pilot program in teaching cardiac auscultation. Medical students felt more satisfied and confident in dealing with cardiac auscultation. We are planning to expand this pilot study further in a larger cohort of medical students.
In our pilot, flipped classroom has shown to be successful as a novel tool for teaching cardiac auscultation. It was well received by medical students as a teaching method and effective in learning physical examination. It can be incorporated into routine teaching if proven successful in a larger cohort.

4DD3 (1426)
ABCDE... easy as 1,2,3?

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Presenter: Marjolein Linders, Radboudumc, Nijmegen, Netherlands

Background: The systematic ABCDE approach, acronym for Airway, Breathing, Circulation, Disability, and Exposure, is a widely accepted and universally used approach in the management of emergencies in both neonates, children, and adults. However, research about the most effective instructional design for this approach has not been conducted yet. Therefore, the aim of this study was to find the most effective instruction method to teach the ABCDE approach.
Method: A randomised simulation study was performed in which a total of 72 neonatal healthcare providers participated, divided over 10 neonatal advanced life support training days. Per training day, the instruction method for the ABCDE approach was randomised in either an instructional video or a conventional lecture. Subsequently, the group participated in multiple simulation scenarios that were video recorded. The adherence to the ABCDE approach was assessed afterwards by a researcher that was blinded to the received instruction type. The primary outcome of this study was the difference in individual adherence to the ABCDE approach between the two groups.
Results: A total of n=95 scenarios performed by n=72 participants were scored. Scores in the intervention group (n=34) were significantly higher compared to the control group (n=61), with a mean(sd) score of 35.7(17.9) and 25.9(17.3)% respectively (p = 0.011). Furthermore, there was a significant difference in scores between the nurses and paediatric residents/nurse practitioners, with a mean of 24.9(15.1)% and 39.9(18.2)% respectively (p<0.001). No difference in performance was found between the subdomains of the ABCDE approach.
Conclusion: In this study, video-based instruction is a more effective instruction method leading to better performance of the ABCDE approach in neonatal advanced life support training than a lecture. This finding could also be applicable to training of the ABCDE approach for paediatric and adult patients. A well executed ABCDE approach could enhance clinical performances and might lead to improved outcomes of patients in real life.
Based on this study, the use of video-based instruction in the education of the ABCDE approach is recommended.

4DD4 (2909)
A novel approach to collecting undergraduate medical student feedback using "TopHat" to increase student engagement

Authors
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Presenter: Shelina Sachedina, University Hospitals of Leicester NHS Trust, Leicester, UK

Background: Student feedback is a key driver for curriculum development and enables teachers to understand a student's experience of the teaching event and the learning environment. Historically, there has been a lack of motivation from students to complete feedback, as they perceive little personal gain from the activity.
Method: Medical student feedback is collected on a 3-monthly basis using standardized forms; these forms use Likert scales and 4 to 5 open questions. The results are distributed to the University Hospitals of Leicester (UHL) educational leads for review and action. Frequently students do not respond to the open questions which are either left blank or open to interpretation.
To improve the quality of feedback we designed interactive, face-face feedback sessions centered on the undergraduate clinical rotations. We used a forum that was based on UHL's Listening in Action (LiA) forum. This focuses on student's positive experiences and negative experiences. Students are then asked to discuss possible solutions to enhance their experience. Data was collected via 'TopHat,' an app which students have used in their pre-clinical years.
Results: We have conducted 10 face-face sessions (Phase 1). Several common themes have emerged from the data collected; mainly on timetabling and work-based assessments. Students have suggested solutions which are generally easily implementable.
We are now in the process, of implementing the changes and aim to inform students of these changes via a 'You Said, We Did' newsletter which will be posted on their electronic learning platform.
Conclusion: Overall, the student's experiences of Phase 1 sessions have been positive with student engagement and interaction being key to the process. By informing the students of the implemented changes, we hope to further increase motivation for providing feedback. Future projects include conducting Phase 2 sessions to identify if implemented changes have impacted on student's experiences.
Take-home messages: Students often lack the motivation to complete feedback. Creating an interactive online forum that encourages engagement empowers students to provide feedback. This ensures that feedback is more than a tick-box exercise.

4DD5 (3061)
Development of a Program to Inform Entrustment Decisions in Fourth Year Medical Students

Authors
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Margrit Shoemaker

Presenter: Diana Callender, Geisinger Commonwealth School of Medicine, Scranton, Pennsylvania, USA

Background: At Geisinger Commonwealth School of Medicine (GCSoM) students participate in a hybrid Longitudinal Integrated Clerkship/Block curriculum in the third (MD3) year with four campuses and multiple learning venues. In the fourth (MD4) year students complete subinternships, including a mandatory Internal Medicine (IM) subinternship, and rotations at clinical sites regionally and nationally. This distributed model has provided a challenge as we try to ensure that all students can perform the core entrustable professional activities (EPAs) for entering residency.

Method: We instituted three assessments in MD3 to facilitate acquisition of the competencies needed for residency. Early cohorts completed one formative (with limited feedback) and two summative objective structured clinical examinations (OSCEs). In 2016 we implemented two formative and one summative OSCE. Students self-assess, receive detailed feedback and generate individualized learning plans (ILPs) with faculty input on areas for improvement after each formative OSCE. In MD4 preceptors evaluate students on entrustment in select EPAs during the required IM subinternship. We are currently piloting a simulation-based assessment with select EPAs in MD4 year prior to their graduation.

Results: Although faculty and students found the individualized feedback helpful, at the end of the 2016-17, 2/99 MD3 students failed the summative OSCE while 16/99 students who passed were felt to not have achieved the expected level of competence in all domains. Preceptor feedback from MD4 IM subinternships also indicates that some students are not deemed entrustable in certain EPAs e.g., recognizing the need for urgent vs emergent care. We have taken steps to ensure that graduates have competencies needed for residency, however we need to further strengthen the MD3 process and integrate additional sources of feedback on student performance from MD4 into our entrustment decisions. We are planning a two-week MD4 capstone evaluation to integrate simulation-based EPA assessments with evaluations from IM subinternships, an interprofessional clinical rotation and validated tools assessing systems-based practice and other competencies.

Conclusion: Entrustment decisions require a combination of simulation-based and real-world training to evaluate students' performance in all domains of competence.

4DD6 (1665)
Adaptive E-Learning Environments for Health Professionals and Students: Results from a Systematic Review

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Sylvie Cossette, Montreal Heart Institute Research Center, Montréal, Canada
Marc-André Maheu-Cadotte, Montreal Heart Institute Research Center, Montréal, Canada
Tanya Mailhot, Montreal Heart Institute Research Center, Montréal, Canada
Marie-France Deschênes, Université de Montréal, Montréal, Canada

Presenter: Guillaume Fontaine, Montreal Heart Institute Research Center, Montréal, Canada

Background: Adaptive e-learning environments (AEEs) can provide tailored instruction by adapting content, navigation, presentation, multimedia, and learning strategies to each user's actions, preferences, knowledge, and competence. AEEs can have various levels of complexity, ranging from simple adaptive functionality (e.g. showing/hiding feedback) to artificial intelligence (e.g. personalized feedback using natural language processing). However, the effectiveness of AEEs for the education of health professionals and students is not yet established.

Summary of Work: A prospectively registered systematic review (#CRD42017065585) was undertaken to identify, appraise, and synthesize the evidence regarding the effectiveness of AEEs in improving knowledge, competence, and clinical behavior in health professionals and students. Eligible primary studies were identified through a search of six bibliographic databases from January 2005 to April 2017. Reference lists of articles and relevant journals were hand-searched for additional articles. Two reviewers screened articles, extracted data and assessed risk of bias independently.

Summary of Results: The search yielded 5,601 articles; 17 were included in the review. Studies were conducted with medical residents/physicians (n=8) and health professions students (n=9). AEEs included content (n=17), navigation (n=15), presentation (n=5), multimedia (n=8) and learning strategies (n=5) adaptation. Average training duration was 4.18 hours. Knowledge and competence were the most frequently assessed outcomes, and most studies (n=15) found positive results on learning outcomes in comparison with the control condition. Overall, four studies were scored as having a high risk of bias due to issues related to participant allocation and similarity of baseline characteristics. Most studies (n=11) had a sample size of less than 50 participants.

Discussion & Conclusions: Findings from this systematic review seem to indicate that AEEs are associated with positive learning outcomes in comparison with other educational interventions (e.g. nonadaptive e-learning environments). However, heterogeneity of study designs, interventions and outcomes was high. Moreover, reporting of AEE design was often incomplete.

Take-home Messages: Despite growing published works, more high quality studies are needed to further solidify the evidence base. Future research should focus on assessing AEEs with larger samples, and report more clearly on AEE design. Moreover, researchers should focus on higher-

level outcomes, such as clinical behavior and, ultimately, patient outcomes.
Adaptive Curriculum

4EE: Posters: Written Assessment and Final Exam

Location: Hall 4.1, CCB
Date: Monday 27th August
Time: 1400-1530 hrs

4EE1 (2552)
Early predictors of performance in medical school finals: a retrospective analysis of 4 cohorts at a UK medical school

Authors
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Presenter: John King, University College London Medical School, London, UK

Background: Qualification from UK medical schools rests on passing finals. Early identification of students at risk of failing finals can help institutions target support. We aimed to assess association between pre-clinical performance with final exam outcomes.
Method: A multiple linear regression model assessed the relationship between the year 2 and year 6 (finals) marks of four cohorts of students (qualifying between 2014 and 2017). A multiple logistic regression model assessed the relationship between failure at year 6 and at year 2, and, separately, students' BSc classification. All three models were adjusted a priori for gender, cohort year, overseas student status and participation in a clinical BSc subject. Pre-clinical and year 6 results were considered independent, given completely different exam topics and formats. Students with missing data were excluded.
Results: Year 2 and 6 data were complete for 1049 students; with 941 having available BSc classifications. Year 2 marks were independently associated with total year 6 marks; with 5 more marks (%) at year 2 correlating with 1.8 more marks (%) at finals (95% CI: 1.6 – 2.0; p<0.0001). Students failing year 2 were 4.8 times more likely to fail finals (95% CI 1.5 – 15.6; p=0.007). Students attaining a 2:2 or 3rd were 7.5 times more likely to fail finals compared with higher classifications (95% CI 2.9 – 19.3; p<0.0001).
Conclusion: Holding known predictors of performance constant (eg. gender, overseas status), failing year 2 exams or achieving less than 2:1 at BSc year is highly correlated with failing clinical finals. This contrasts popular belief that performance in clinical years may improve for those who struggle with science focussed pre-clinical years. Although other unknown factors may be stronger predictors of finals performance, this observational analysis used data readily available to institutions, and that could be used by medical educators to identify where to target and sustain support throughout clinical years to improve chances of qualifying.
Take-home message: Pre-clinical exam performance is predictive of finals performance and should be used to identify students in need of support in clinical years.

4EE2 (507)
Mandatory Licensing Examinations For Graduating Doctors In The UK – How Do Medical Students Perceive This Initiative?

Authors
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Presenter: Rafael Bica, UCL Institute of Education, London, UK

Background: The GMC has decided to implement by 2022 a licensing examination for graduates from British medical schools: the UK Medical Licensing Assessment (UKMLA). Design and implementation of this exam are currently being discussed with stakeholders, including medical schools, healthcare employers, and the general public. As subjects of the UKMLA, medical students may have unique perceptions about its possible impacts on education and healthcare. This project investigates these views and, based on them, makes recommendations that may contribute positively to the exam's design and reappraisal process.
Method: First-year medical students from University College London were interviewed. They are among the students who will be the first to sit the UKMLA, thus representing a key stakeholder group. Transcripts from interviews were coded. Emerging themes were identified and discussed in light of the current literature about licensing examinations and the UKMLA's ongoing implementation process.
Results: Thirteen students participated. They showed little previous awareness about the UKMLA and, generally, did not regard themselves as stakeholders who should play an active role in its implementation. They raised concerns about loss of diversity in medical education across the UK, overassessment-related stress, unfair questioning and a negative educational impact. The need for the UKMLA was not justified, as current exit-level finals from medical schools were perceived as adequate assessments for graduating students. Regarding possible consequences of the UKMLA, a pessimistic outlook prevailed, as they foresaw negative outcomes for the quality of medical education and healthcare delivery in the UK.
Conclusion: The data suggest that the GMC needs to promote broader awareness about the UKMLA, engage students on assessment design and implementation and address their concerns about negative consequences, thus improving the test's validity and acceptability. Students' disregard for their relevance as stakeholders on their own assessment warrants further studies about profession identity formation. The UKMLA's potentially negative educational impact will need investigation in due time. Strategies to appraise the test's impact on healthcare delivery need to be developed.

4EE3 (3637)
Coordination of the national licensing and the faculties' exams in medicine

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Presenter: Volker Schillings, IMPP, Mainz, Germany

Background: The IMPP is responsible for the organization and implementation of the written state exams in medicine, pharmacy and psychotherapy throughout Germany. Approximately 30,000 candidates are examined each year by the IMPP. We present the current status quo of written state exams in comparison to the faculties' exams in medicine and analyze ways of improving the correlation between them.

Method: The data were collected by means of a written questionnaire to the deans of 26 faculties (as of January 2017). The aim of the study was to identify the processes and the tools of the faculties' and state exams and to identify possible ways of correlating them in order to result in a better coordination between them.
96 % of the faculties already set up a central contact for exams and 76 % also provide experts for technical issues.

Results: The result-reports and/or statistical analysis drawn up and transmitted by the IMPP, in particular the university-specific item analysis, are used to compare the faculties nationwide. They are also used to analyze the strengths and weaknesses of the faculties. In addition, 62 % of the faculties create further analysis of the results. The use of classification catalogues as well as the use of blueprints for the production of exams is very heterogeneous. The most common used classification catalogue at the faculties and the IMPP is the NKLM (The German National Competence-Based Learning Objectives for Medicine). Approximately half of the faculties carry out computer-based exams while other faculties are planning to introduce this type of exam. It is obvious that computer-based exams are going to be a standard instrument for the faculties while centralized computer-based state exams are still in a conceptual phase.

Conclusion: The survey results in the desire for closer coordination between facultative internal exams and state exams as well as their competence-based orientation. Furthermore, the focus is on the increased use of computer-based exams and the associated possibilities for improving case-related and practice-oriented examination questions.

4EE4 (1377)
An eye-tracking study: Does the domain of clinical reasoning MCQs predict learners' generation or cueing of answers?

Authors
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Presenter: Jia Rui Kwan, Lee Kong Chian School of Medicine, Singapore

Background: Traditionally, arguments for open-ended questions (OEQ) describe its ability to encourage generation of answers as an advantage over multiple-choice questions (MCQs). Generation is deemed superior to cueing as studies show that information is better retained. However, different domains of questions, divided into diagnostic, investigation and management in this study, may be approached differently, with a possibility of generating an answer in MCQ. This study aims to investigate if the domain type can predict generation or cueing of answers in clinical reasoning MCQs.

Method: Sixteen year 4 medical students from Lee Kong Chian School of Medicine were recruited for this study. Equal number of participants were asked to answer multiple-choice and open-ended versions of the same 23 questions. Eye-tracking and concurrent think-aloud methods were used to determine if an answer was generated or cued. Number of participants who generated answers for OEQs measures the population's knowledge of the question and serves as baseline for number of participants who can generate an answer for that question. Fewer participants who generate answers for MCQ in favour of cueing when compared to the OEQ baseline represents proportion of candidates who preferentially cue answers.

Results: For familiar diagnosis questions, a comparable number of participants per question generated answers between MCQ and OEQ. Fewer participants per question generated answers for investigation and management domains, with one exception where participants generated answers for an investigation question. Questions were also approached differently according to familiarity. Participants could not generate answers for unfamiliar questions, but were able to answer them by cues provided by MCQ.

Conclusion: Studies would suggest that MCQs are answered by the cues rather than an option being generated. This study found that this is not true for familiar questions assessing a clinical diagnosis. An outlier result in the investigation group in an ECG question also points to the possibility of such questions being approached differently.
Some MCQs are not approached as expected but rather more similarly to an OEQ. Knowing how learners approach different domains of questions will improve the efficiency of learning through assessments.

4EE5 (1320)
Using Automatic Item Generation based in cognitive models for medical education assessment

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Presenter: Paulo Marques, University of Minho, Braga, Portugal

Background: Nowadays multiple-choice items are the standard for assessment in all dimensions of medical education. Despite being an efficient validated method, the development of each item is, still, a complex and time-consuming process, and for that reason a very expensive process.
With the increasing demand for large number of multiple choice items by medical schools, the current approach to item development struggles to meet this high demand. An innovative solution to this challenge is the use of automatic item generation (AIG) to develop new multiple-choice items.
AIG uses computer technology to generate new questions based in cognitive and item models, created by content specialists.
Method: To validate AIG as an assessment method, a prototype was created (with a cognitive model, an item model and the necessary software), that is capable of generate multiple-choice items with a correct answer and 3 distractors to assess the knowledge in hypertension diagnose, classification and treatment. Afterwards a pilot test with 42 medical students was made, with 50% of both AIG and items developed with the classical approach. After each item, the student had to identify the method of development of the item (AIG vs human generated).
Results: The students had results in both types of items with no significant differences, we also concluded that the students weren't capable of effectively identify an item generated by our software ($\chi2$ (1, n = 420) = .298, p = .585).
Conclusion: AIG is a relatively new and unknown technology, that requires a lot of development and further validation, but, with no doubt, it will be a technology that will shape the future of item development in medical education.

4EE6 (2938)
Medical students' performance in early written assessments as a predictor of global academic achievement

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Presenter: Núria Mascarenhas, Life and Health Sciences Research Institute (ICVS), School of Medicine, University of Minho, Braga, Portugal

Background: Higher education students are subjected to several stressful events, namely assessment tasks, during their academic years. Research suggests that stress and anxiety are major causes of cognitive dysfunction, resulting in poor academic performance.
To test the hypothesis that Medical Students' performance' in early written assessments is a predictor of global academic achievement.
To determine the ideal time-points/moments to intervene in order to prevent stress collateral effects.
Method: The electronic register (medQuizz®) of 96 students' assessment (from 1st to 3rd curricular year of study) was analyzed.
Students were grouped in quartiles according to their score on each specific exam. Then they were grouped in quartiles according to their average grade of the first 3 years of study. The variation of grades and quartiles of score were evaluated for each assessment. Repeated Measures Anova was performed to verify whether there were any statistical differences between the average position in each quartile (for every exam). Linear Regression was performed between the average score of the 1st year and the average score of the following years.
Results: There is a variation of grades and quartiles of score, with no clear distinction between quartiles on the 1st year, mainly amongst the middle scorers (Q2; Q3). A constancy of quartile score positioning was verified on the 2nd and 3rd year. The introduction of new curricular units is related with a marked decrease of the academic performance in every quartile of score. There is a differentiated recovery of the quartiles. Grouping the students by decile of scores showed that within each quartile there are subgroups with different behaviors. 81% (r2=0,810) of the triannual average score is predicted by average score of the first year of studies. The intervention potential depends on the student and time-point, in question.
Conclusion: By grouping the students in decile or score percentiles, one should consider the development of developmental potential curves and an anti-stress program.

4EE7 (2617)
Assessment of Prescribing Skills using SBA and VSA questions

Authors
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Presenter: Chee Yeen Fung, Imperial College London, UK

Background: Prescribing is a key clinical competency and is largely assessed in the Single Best Answer (SBA) questions or practical examination stations in UK finals examinations. SBA questions allow efficient sampling of the curriculum, but do not assess the student's ability to prescribe. Conversely, practical exams can assess prescribing skills, but often only cover a limited sample of the curriculum. The Very Short Answer (VSA) format using automated marking, may allow efficient assessment of undergraduate prescribing skills.
Method: Year 3 medical students participated in two formative prescribing assessments via an online platform. The first comprised of 20 VSA questions where students had to write a prescription, and the second contained the same questions in an SBA format, where they selected the most appropriate prescription. Students had access to the British National Formulary for both tests. Both the VSA and SBA assessments were computer-marked and the scores were verified by an examiner. In the VSA, students had to get all components parts of the prescription correct in order to gain the mark.
Results: 246 students participated in the study. There was a moderate correlation between the VSA and the SBA results (r = 0.651, p <0.0001). Students performed significantly better on the SBA questions than the VSA questions (mean = 58.37% and 30.56% respectively, p <0.0001). Of the incorrect responses submitted in the VSA, 58% were due to students prescribing an incorrect drug, 10% were due to prescribing the incorrect dose and 7% were due to prescribing the incorrect frequency. The average marking time for each VSA question was 3 minutes 8 seconds for all 246 students.
A significant proportion of students were unable to prescribe correctly, despite being able to select the most appropriate prescription from a list of possible responses. The VSA format highlights an important and inherent weakness of the SBA format in terms of generating a prescription.
Conclusion: Assessing prescribing skills in the VSA format using automated marking with examiner verification allows effective assessment of the ability to write a prescription across a wide sample of the curriculum.

4EE8 (2318)
Writing Multiple Choice Questions based on Bloom's Taxonomy: the Answer is in the student approach

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Josh Kurtz
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Presenter: Sally Santen, Virginia Commonwealth School of Medicine, Richmond, VA, USA

Background: Multiple choice questions (MCQs) remain the most frequently used method to assess student learning in medical school. It is generally believed that well-written MCQs require examinees to engage higher levels of cognitive reasoning such as application or synthesis of knowledge. The purpose of this study was to describe the variation in student approaches to answering MCQs, and how it affected their Bloom's categorizations of MCQs as lower order or higher order.
Method: We invited five students to review MCQs from preclerkship exams and 1) determine if the questions were higher- or lower-order and 2) to discuss the cognitive processes they used to answer each MCQ, while reflecting upon how these processes led to their Bloom's categorizations.
Results: Consistency among our five students to categorize the questions as higher- or lower-order over 90 exam items was low (Krippendorf's alpha= .37; CI= .18-.54). meaning that for any given question, some students approached the question as a lower-order task (knowledge and comprehension), while other students worked through the problem as a higher-order task (application, analysis, synthesis, and evaluation). There were four themes that affected the variability:1) Pedagogy: The manner in which the material was taught and the students learned the material;2) Student Confidence with Material: When students were confident in their ability to correctly answer an item, they consistently classified those items as lower-order; 3) Images and Graphs: Students felt that if a MCQ included an image which had been previously shown in lecture, it should be considered a lower-order item; and 4) Question Format: vignette items were generally considered higher-order, so long as the question could not be answered by reading the question stem alone.
Conclusion: Our findings suggest that many factors influence the examinees' experience and therefore, examinees' cognitive approach to answering MCQs. The question remains whether Bloom's can be objectively and consistently applied when categorizing MCQs depending on the faculty's and students' approach to learning and testing.

4EE9 (67)
Analysis of Question-Text Complexity for Equality Monitoring

Authors
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Steven A. Burr

Presenter: Daniel Zahra, Plymouth University Peninsula Schools of Medicine and Dentistry, Plymouth, UK

Background: To explore the utility and feasibility of text-analysis for evaluating the impact of question complexity, indexed by measures such as word count, sentence length, and readability, on student performance on single-best-answer multiple-choice medical knowledge questions.
Method: Vignette and question text from single-best-answer multiple-choice questions (MCQs) used in summative assessments of first-year Bachelor of Medicine / Bachelor of Surgery applied medical knowledge were pooled. The text of each question was then analysed using both Microsoft Word's native readability statistics calculator and the koRpus text-analysis package in R to create markers of complexity for each question. These included word count, number of sentences, average number of words per sentence, Flesch Reading Ease, and Flesch-Kincaid grade level. These indices were correlated with mean item scores for entire cohorts and demographic subgroups within cohorts.
Results: Analysis using koRpus proved robust and reliable, and produced complexity measures comparable to those calculated by Microsoft Word. No consistent statistically significant relationships were found between indices of complexity and item performance overall or for demographic sub-groups, but the methods show promise as a means of routinely analysing and monitoring this potential cause of variation in assessment performance at the student and demographic sub-group level.
Conclusion: Given the potential impact of question complexity and other linguistic features on item performance, it would seem beneficial to incorporate some degree of standardisation or review of these when constructing MCQ assessments. The current work compared two different methods of assessing these properties, and found that readily available tools such as Microsoft Word provide comparable information to specialist software, enabling this level of scrutiny to be incorporated easily into routine practice. Furthermore, the application of such text analysis techniques may help institutions understand demographic variation where they find it, or rule out one possible cause thereof.

4EE10   WITHDRAWN

4EE11 (2477)
Multiple choice question writing as a remediation strategy

Authors
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Irene Lee, Duke-NUS Medical School, Singapore
SiangHui Lai, Duke-NUS Medical School, Singapore

Presenter: Scott Compton, Duke-NUS Medical School, Singapore

Background: This pilot project addresses a universally important question in education: What are effective and efficient strategies for remediating learners once a specific deficit in content knowledge has been identified?
Method: This is a pilot study testing the feasibility of a proposed intervention that consists of writing multiple choice questions (MCQs), correct answers, distractor responses, and associated explanations as a remediation process for addressing specific deficits in content knowledge. The MCQ intervention was chosen as a means to promote student engagement with content using higher-order cognitive processes, ensuring students made comparisons and contrasts between similar constructs, which, in turn, assists students to mentally construct representations of information in context with prior knowledge.
We conducted a randomized, pretest-posttest control group study of medical students studying for the USMLE Step 2CK to investigate the feasibility of an MCQ writing intervention as a remediation strategy. We specified the following outcomes to be considered as evidence (for or against) the feasibility of conducting the intervention on a broad scale: 1) student compliance with the MCQ protocol, and 2) differences between intervention and control group students' gain-scores on assigned remediation-identified subsections of the Comprehensive Clinical Science Examination (CCSE) taken 3 weeks apart.
Results: Of 13 students allocated to the MCQ intervention, 9 (69.2%) were compliant with the protocol. In aggregate, they contributed 65 questions. In an intention-to-treat analysis, the mean gain-score on remediation subsections of the CCSE between MCQ and control group (n=14) students was 88.2 versus 101.0 (p=0.298), respectively. Yielding results to an as-treated analysis yielded mean gain-scores of 77.9 versus 103.3 (p=0.046), similarly. Insufficient evidence was established to warrant the large-scale implementation of a remediation strategy based on writing MCQs to enhance clinical knowledge test performance. Further investigation is continuing to better understand the student experience and to control for potential confounding factors.
Conclusion: Writing MCQs may not be an effective remediation strategy for improving test performance on broad-based clinical knowledge topics.

4EE12 (2611)

Open book examination and its effectiveness compared with traditional-style closed book examination in stroke rehabilitation medicine course for medical students: randomized controlled trials

Authors

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Presenter: Anon Sathapornsathid, Medical Education Center Ratchaburi Hospital, Ratchaburi, Thailand

Background: Open book examination is assessment method that test medical students's ability to find and use information for problem solving thus encouraging high-order thinking skill. However; Open book examination has never been used with medical students at Ratchaburi Hospital before.

Method: 26 fourth year medical students received the reference paper to study before class. In classroom, the instructor will give interactive lecture that encourage the student to discuss about content, interesting case, practical point and new research on stroke rehabilitation. After class, students were divided into 2 groups of 13 by randomization. First group was tested with open book examination, the second group with closed book examination. Questions were the same in both groups focus on clinical application, also questionnaire for student opinion about open and closed book examination and preference.

Results: Students in open book exam group received a better score in examination than closed book group (71.7% vs. 62.4%, P< 0.05), but students prefer traditional closed book examination (61% vs. 39%). From opinion, many students think that doctor can not open book in most of actual working time so closed book examination is still essential. Open book examination is suitable for analysis of more complicated case that require critical thinking skill. For both type of examination, student have to study and memorise some important information to apply it effectively. Open book can be used to promote student ability to find and use information for problem solving and delivering well-structured solutions. But closed book examination to assess what medical student have learned without additional resources is still important.

Conclusion: Student in open book examination group receives better score in examination focus on clinical application but most of medical students still prefer closed book examination.

Take-home message: Medical education center should consider the use of open book examination together with the traditional closed book examination for medical student to have more confidence to apply knowledge with patients.

4EE13 NOT PRESENTED

4EE14 (94)

Comparing the use of Modified Angoff and Cohen Methods in Standard Setting of High-Stakes Graduating Examinations

Authors

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Joel Rhee, University of Notre Dame, Sydney, Australia

Presenter: Michael SH Wan, School of Medicine, University of Notre Dame, Sydney, Australia

Background: Both modified Angoff and Cohen methods have been used to set the pass mark of the Multiple Choice Questions (MCQ) examinations. Angoff methods are labour intensive and Cohen method is relatively simple to apply. We compared these standard setting methods in the final year high-stakes examinations of the graduate-entry Medical Program.

Method: In 2016 and 2017, cohorts of final year medical students, comprising of 120 students each year, sat the 110-item MCQ paper as part of their year-end summative examinations. A multi-disciplinary panel of clinicians set the pass marks for the papers using the modified Angoff method. The modified Cohen mark was calculated according to the cohort's performance scores.

Results: Pass marks derived from the modified Angoff method for the 2016 & 2017 cohorts were 51.6% and 50.5% respectively. The modified Cohen mark was calculated at 60% of the 95th percentile of each student cohort, corrected for guessing. The Cohen pass marks for the 2016 & 2017 cohorts were 51.5% and 53.8% respectively.

Conclusion: Modified Cohen methods using the cohort performance scores calculated at 60% of the 95th percentile gave very similar pass marks as the modified Angoff method in the high-stakes summative MCQ examinations. This is an encouraging finding. As modified Cohen method requires only simple calculation post examination, this might be a more efficient method in standard setting of high-stake examinations.

Take-home message: Modified Cohen method could be used in high-stakes summative examination to set the pass mark of written MCQ papers. Past cohorts data could be used to verify this method compared to any current standard setting methods.

4EE15 (1229)
Statistical modeling allows analysis of factors impacting student performance on the USMLE Step 1 examination

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Presenter: Robert Carroll, Brody School of Medicine at East Carolina Univeristy, Greenville NC, USA

Background: Passing the USMLE Step 1 examination is required to practice medicine in the USA. Performance on this examination is multifactorial, making advising students for preparation strategies and analysis of their performance challenging.

Method: A multivariate equation incorporating academic performance of the BSOM Classes of 2015, 2016 and 2017 was developed and used to prospectively calculate a 'projected' USMLE Step 1 score for the Classes of 2018 and 2019 (testing dates summer 2016 and 2017). Data included performance on 4 NBME Subject examinations (Physiology, Microbiology, Introduction to Clinical Diagnosis and Pathology) a Comprehensive Basic Science Exam and course examinations in the pre-clerkship years. Variables were examined for multicolinearity. Actual USMLE Step 1 scores for the Class of 2018 (N = 73) and Class of 2019 (N = 78) were compared to the 'projected' scores.

Results: Correlation of the actual and the projected Step 1 scores was 0.87 (P < 0.05) for the class of 2018 with predicted performance within 5 points for 48% of the class, and within 10 points for 72% of the class. For the class of 2018, the correlation was 0.86 (P < 0.05), 42% of the class scoring within 5 points and 71% of the class scoring within 10 points. Six weeks of preparation yielded the best outcomes, as less than 6 weeks resulted in a score 4 points lower than projected, and 6 and 7 weeks of study both resulted in a score 1 point lower than projected expected. There was no difference in performance between students using commercial board preparation course and a self-directed study approach.

The multivariate equation allowed a successful prediction of our student's performance on the USMLE Step 1 examination. For our students, 6 weeks of preparation yielded the best outcome. Students using a commercial board preparation course did not perform any differently than students using a question-driven self-directed approach.

Conclusion: Statistical modeling approaches can predict student performance on the USMLE Step 1 examination with good accuracy, allowing better advising of students preparing for this examination.

4EE16 (659)
The Journey to STEP 1: A Preparation Mindset

Authors
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Presenter: Sonya Ford, American University of Antigua College of Medicine, Coolidge, Antigua

Background: The American University of Antigua College of Medicine's mission is to provide students who would otherwise be unable to receive a medical education with the tools to become successful physicians. One tool provided assists students in preparing for their Comprehensive Basic Science Examination (CBSE) and STEP 1 examination. The American College of Physicians (2017) says, "It is essential to be prepared both physically and mentally for the examination" (page 1). The lack of adequate preparation, study habits, and time management affects examination results of medical students. Although students learn differently, focusing on effective study strategies, time management, self-testing, and self-regulated learning influences academic performance on examinations (Stegers-Jager, Cohen-Schotanus, & Themmen, 2012; Ferguson, James, & Madeley, 2002; West, Kurz, Smith, & Graham, 2014). As such a comprehensive Action Plan program was developed.

Method: Students utilizing the Action Plan were referred to the program through the Appeals Committee, faculty, or self-referrals. The Action Plan was designed to create a preparation mindset assisting students preparing to sit for their examinations. Developing this plan involved assisting students with: (1) becoming active self-regulated learners, (2) using minimal, but appropriate resources, (3) understanding how disciplines are integrated into systems, (4) recognizing strengths and weaknesses, (5) practicing multiple-choice questions (MCQs) to validate content mastery, and (6) developing a time management/study plan.

Results: From Fall 2016 to Spring 2018, participation in this voluntary program increased from thirty-seven percent (37%) to sixty-three percent (63%). Of students utilizing the Action Plan who sat for their examinations, sixty-six percent (66%) passed Step 1 examination and eighty-two percent (82%) passed CBSE.

This program showed that student internal motivation, along with following an individualized preparation plan, enhances student potential to pass examinations.

Conclusion: There appears to be a correlation between the preparation plan focusing on self-regulated learning/practicing MCQs/time management and examination outcomes.

Students who become active self-regulated learners, use minimal, but appropriate resources, understand how disciplines are integrated into systems, recognize their strengths and weaknesses, practice MCQs to validate content mastery, and develop a time management/study plan are more effective in improving their examination performance.

4FF: Posters: Anatomy/Ultrasound

Location: Hall 4.1, CCB
Date: Monday 27th August
Time: 1400-1530 hrs

4FF1 (1315)
Students' perceptions of drawing as a tool to learn anatomy and histology

Authors
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Presenter: Maarit Hölttä-Vuori, University of Helsinki, Medical Faculty, Dept. of Anatomy, Helsinki, Finland

Background: Students need effective learning strategies in medical studies. At the University of Helsinki, students are delivered iPads and they take notes digitally. Learning by drawing is important in learning anatomy and histology. While drawing, students process and integrate information into personal representations. The aims of this study were to explore (1) How students perceived learning by drawing in histology and anatomy, (2) What was their position in increasing drawing assignments.
Method: The data were collected in 2018 with an online questionnaire sent to the first and second year medical and dental students. The response rates were 54% (1st year) and 58% (2nd year), altogether 227 answers. We asked students how much they used drawing as a tool and which drawing methods they employed in studying histology and anatomy. We further inquired their views of drawing tasks in examinations and teaching activities and whether drawing should be practiced.
Results: Majority (>70%) of the students reported they used drawing as a learning tool for studying anatomy and histology often or sometimes. The traditional pen and paper method was the most commonly employed, despite having iPads. Drawing assignments in examinations were positively perceived. Only 15% of the students considered them unnecessary. Half of the respondents wished that teachers would draw more, and that drawing should be practiced during the courses.
Drawing was a widely employed learning strategy in anatomy and histology. Drawing tasks in examinations were considered useful. Digitalization has had little effect on the drawing method, as the pen and paper were reported as the most common drawing tools. It is noteworthy that half of the students expressed a wish for the teacher to draw more and to have more practice on drawing. This indicates that including drawing assignments in anatomy and histology course design would be beneficial.
Conclusion: First and second year medical and dental students widely use drawing as a tool for studying anatomy and histology. Both students and teachers should practice drawing in teaching and learning activities and assignments.

Take-home message: A picture is worth more than a thousand words.

4FF2 (3544)
Implementation of transition course to dissecting room: a step towards introducing "Principles of professional behaviors and respect to cadavers" to fresh medical students

Authors
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Presenter: Mahboobeh Khabaz Mafinejad, Tehran University of Medical Sciences, Tehran, Iran

Background: Despite the importance of cadaveric dissection in teaching medical students, it has always been associated with many challenges, including concerns about the incidence of non-professional behaviors in fresh students. The transition course to the dissecting room was conducted to facilitate the adaptation of medical students to deal with the cadaver.
Method: The program was designed by conducting several meetings with experts from various fields of anatomy, medical ethics, and medical education, as well as reviewing literature. The program began with an initial explanation of the program objectives. After showing the film, points related to principles of ethical and professional behavior related to the presence in dissecting room were discussed and analyzed by experts. In order to provide an opportunity to contemplate students' views, some of the experiences and opinions of the students participating in the program were presented and reflected. At the end, a valid and reliable questionnaire (r=0.89) was completed.
Results: Of the 193 questionnaires distributed, 129 were filled; mean age 18.15 years, 49.2% female. In general, 93.8% of students believed that the program provided a good opportunity to think and reflect on the principles of professional behavior in cadaveric dissection. 89.9% of students acknowledged that the program had been effective in increasing their motives to respect those who donated their bodies to science. In addition, the results of the survey showed that 92.2% of the students believed that they would use the acquired ethical points of this program in the future.
Findings indicate that it is necessary to describe the principles and rules of professional behavior in the dissection sessions for fresh medical students. In other studies, it is also pointed that it is important and necessary to hold sessions to prepare students to deal with the

cadaver. Another study showed that the majority of students believed preparation sessions were very effective to overcome psychosocial issues.

Conclusion: Transition course to the dissecting room could change fresh medical students' attitudes regarding observance ethical and professional behavior related to the presence in dissecting rooms.

4FF3 (1882)
Three-dimensional Printed and Virtual Airway Models Enhance Knowledge Acquisition and Learning Experience: A Randomised Controlled Study

Authors
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Presenter: Brian Ho Han Khai, Lee Kong Chian School of Medicine, Singapore

Background: Anatomy curricula in modern medicine have advanced beyond rote identification of structures, with a focus toward clinically significant anatomical relations and applied knowledge of anatomy. Concurrently, the pedagogy has also evolved to feature three-dimensional (3D) printing and virtual 3D models as innovative educational modalities for anatomy. The use of these modalities are currently in evaluation for their ability to deliver content efficiently, balance academic performance from different learners, and optimize the learning experience. Our study evaluated both of 3D printed and 3D virtual models in teaching segmental anatomy of the tracheobronchial tree to undergraduate medical students.

Method: We developed airway models using multi-material 3D printing of segmented airways from human thoracic computed tomography scans. A double-blinded randomized controlled study compared knowledge acquisition with 3D printed models (3DP), 3D virtual models (3DV) and 2D atlas printouts (2D); this was followed by a subjective learning experience survey.

Results: Thirty-one medical students participated (21 males, 10 females). Between-groups and between-sexes differences in test scores were observed ($p<0.09$). Females in the 3DV condition were found disadvantaged relative to females in 3DP ($p<0.05$) and males in the same (3DV) condition ($p<0.05$). Learning experience was rated better using 3DP ($p<0.001$) and 3DV ($p<0.01$) compared to 2D conditions.

We have developed a multi-material 3D printed airway model and evaluated its use in anatomy teaching. The results suggest that the 3D printed models improved academic performance relative to traditional atlas models (2D) without disadvantaging female learners, as was the case for 3D virtual models. Learning experience in both 3D modalities was found superior to the 2D modality. These findings support the inclusion of 3D modalities, especially 3D printing, in the modern anatomy classroom.

Conclusion: 3D modalities enrich anatomy learning beyond the reach of an atlas, both in terms of knowledge acquisition and learning experience.

4FF4 (1621)
Augmented Reality Anatomy: exploring the use of Augmented Reality in the teaching of anatomy in medical schools

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Presenter: Shi Min Sophia Wong, Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore

Background: The time dedicated to teaching anatomy has been decreasing in medical schools worldwide, causing tangible negative effects in the medical sphere. Various innovations in teaching have been developed to combat this, among them the use of Augmented Reality (AR). AR consists of virtual elements superimposed on our physical environment. Current anatomy AR applications, however, mostly detect a 2D image to trigger off the 3D virtual overlay. A more revolutionary application of AR would involve virtual overlays on 3D specimens: useful in the study of anatomy, in which 3D visualisation is key.

Method: An AR for teaching anatomy was developed using the free AR creation platform, HP Reveal. This AR programme was then compared against Virtual Reality (VR) and traditional anatomy teaching methods in an evaluation study involving junior medical students who have yet to learn anatomy, and senior students who were revising anatomy.

Results: T-tests showed no significant difference in the effectiveness of AR and VR in teaching or revising anatomy, and in imparting knowledge of both the Head & Neck and Heart anatomy, with the former considered more complicated and the latter, simple. Survey questions revealed that students' opinions of AR and VR compared to traditional teaching methods were mixed. Students perceived VR to be more user-friendly, and hence generally preferred over AR for anatomy education. However, students liked the use of physical anatomical specimens in AR, as it allowed interaction with the specimen, and observation of fine, realistic details of anatomical structures.

Conclusion: The lack of any significant difference found regarding the effectiveness of AR and VR suggests that, with further development of the AR to become more user-friendly, AR has the potential to become a more effective teaching tool than VR. Continuing work on this project should include comparing the effectiveness of traditional teaching methods against AR and VR. The AR creation process should also be automated, and the AR programmed to be able to work with any specimen of the same organ.

Take-home message: AR is a fast developing field, and future advances in the technology will make this possible.

4FF5 NOT PRESENTED

4FF6 (539)
Exploring medical students' attitudes towards anatomy teaching

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Presenter: Daniel Sims, Brighton & Sussex Medical School, Brighton, UK

Background: Anatomy remains a core component of all undergraduate medicine programmes and consists of a multi-modal approach to teaching. However, anatomy curricula at various medical schools differ and employ varying approaches to anatomy teaching. Quantitative research has been conducted to demonstrate the superiority of one approach over another in terms of exam results and depth of understanding. But little research has been conducted into how medical students prefer to be taught anatomy and whether there are common themes in attitudes held by medical students about the individual teaching approaches.
This study aimed to determine whether there are any common themes regarding medical students' attitudes towards the various teaching approaches in anatomy teaching, and whether these attitudes differ at varying stages of the medical degree and between different UK medical schools.
Method: This study used a mixed methods approach. The aim was to carry out three focus groups at each of the participating medical schools; one focus group each for first years, second years and final years. The results of the focus groups were analysed thematically and went on to guide the development of the 'Attitudes in Anatomy' questionnaire, which drew on ideas used in the 'Anatomy Learning Experience (ALE)' questionnaire. The questionnaire provided a quantitative insight into the differences, if any, of attitudes of medical students towards teaching approaches in anatomy. Comparisons between the teaching approaches, year groups and the four participating medical schools were collected and analysed.
Results: Results from the focus groups and questionnaire will be presented at the conference.
Studies have suggested that those who develop the anatomy curricula and those who are the primary learners from the same curricula may have conflicting attitudes and perspectives about what constitutes the best approach to teaching this core subject.
Conclusion: It is hoped these results will be able to inform possible changes to undergraduate medical school anatomy curricula.

4FF7 (506)
Anatomy Education In Nigeria: The Viewpoints of Medical Students

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Presenter: Auwal Ahmed Musa, Usmanu Danfodiyo University, Sokoto, Nigeria

Background: Adequate knowledge of anatomy is indispensable in diagnosis, interpretation of radiological investigations and safe treatment of patients. There are arguments about dissection and its significance, best methods of teaching and learning anatomy, time allocated to teaching anatomy and the nature of anatomy curriculum. Since students are at the receiving end in anatomy education, knowing their views on anatomy education can help in the design of anatomy curriculum and its teaching. There is paucity of data in Nigeria concerning the views of medical students about anatomy.
Method: This is a cross sectional study that assessed the viewpoints of medical students on anatomy as a course, dissection, methods of learning and teaching of anatomy and its method of assessment. Anatomy has a good outlook with our students, although very few among them are willing to take up a career in anatomy. Our students are seriously lagging behind in newer methods of learning anatomy. Mentoring improves students performance and interest in anatomy.
Results: Majority of the students (83.4%) enjoy anatomy course. Only 28.2% of our respondents are willing to consider anatomy as a career. Overwhelming majority of our respondents believe that dissection sessions are important avenues of teaching and learning anatomy. However, despite the popularity of the internet with students, only 39.9% of our students use it as a tool in learning and understanding anatomy. 93.3% of the respondents agree that the newly introduced mentoring programme in the department is very helpful in their learning and understanding of anatomy.
Students consider anatomy as an important subject in medical training.They agree that dissection is an important avenue of learning and teaching anatomy. There is need to increase students' interest in career in anatomy by providing mentoring programmes in Anatomy departments as only 28.2% of our respondents are willing to consider anatomy as a career. Students should be encouraged to embrace new methods of learning anatomy.
Conclusion: Students need to embrace newer methods of learning anatomy and even with the shortage of anatomy teachers, very few students are willing to take up a career in anatomy.

4FF8 NOT PRESENTED

4FF9 (108)
Stripping for anatomy: Student attitudes on the use of ultrasound in pre-clinical medical education

Authors
C Smith
A Sharp
A Dilley

Presenter: Claire Smith, University of Sussex, Brighton, UK

Background: Living anatomy with ultrasound imaging has been taught in pre-clinical medical education at Brighton and Sussex Medical School (BSMS) for several years. Handheld ultrasound is used increasingly in clinical practice and clinicians consider it important to incorporate it into early medical education. Quantitative studies have shown its value amongst medical students, however qualitative studies of student views are missing from the literature.
Method: This study set out to determine student attitudes towards living anatomy with ultrasound. At BSMS each system based module has at least one ultrasound session which is taught by faculty and anatomy demonstrators. Second, third and fourth year medical students accustomed to ultrasound anatomy teaching were invited to audio-recorded focus groups facilitated by an anatomy demonstrator. Thirteen students attended the groups. The focus groups were approved by the Research Governance and Ethics Committee at BSMS. The students gave informed consent for participation in the study. The focus groups were transcribed and analysed using thematic coding.
Results: The main themes that emerged included feelings around undressing for learning, incidental pathological findings, and transabdominal pelvic ultrasound. Themes extracted from the transcribed audio revealed an acceptable expectation that the students would undress for the sessions, frustration at those who routinely refused to undress (except for religious reasons), pressure on males to be the model (sometimes to the detriment of their education), body image worries in females and no concerns of finding pathology. Transabdominal pelvic ultrasound was acceptable to all students; the main concern being an incidentally discovered pregnancy. The findings support stronger implementation of the expectation that every student will be the ultrasound model and inclusion of pelvic ultrasound in the curriculum. The findings also recommend for a longitudinal implementation of ultrasound throughout medical education.
Conclusion: In summary, students value living anatomy and ultrasound but feel they are missing out when being the model.

4FF10 (477)
Interinstitutional Point-Of-Care Ultrasound Workshop for Enhancing Performance Capacity: Learners' perspective

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Background: Point-of-care ultrasound (POCUS) is well recognized as a useful tool, a guidance for diagnosis and management decision-making in emergency setting. Due to lack of confidence in diagnosis and training experience in ultrasound, the utilization is under expected.
This study was to evaluate outcome of interstitutional POCUS workshop.
Method: Firstly, we used questionnaire to evaluate the participants about previous ultrasound experience and their perspective of POCUS course. We provided a one-day POCUS workshop, including lecture and hand on sections. The outcome was real cases discussion, which the participants encountered and performed POCUS. Each cases were validated and discussed with the POCUS instructor at ER department.
Results: There were 35 participants, age between 25-31 years. 85.7% of them indicate frequent need of POCUS. 94.3% of them reveal lack of experience in POCUS, since medical training and after graduation. All of them noticed gaining more confidence after attend the workshop. 100% of the participants suggest the course should be taken since undergraduate.
7 cases were discussed. For example, a case with RUQ abdominal pain. The POCUS was performed by one of the participant, an ER doctor, revealed a gallstone and questionable thickened gallbladder, correlated with information provided from the workshop.
The findings leaded to suspicious diagnosis of acute cholecystitis. The images were reviewed and discussed at the ER department, showed subcostal approach of the ultrasound transducer, probably the cause of difficulty in measuring the gallbladder wall. The approach was adjusted and the diagnosis of acute cholecystitis was made confidencially. The operation performed few hours later confirmed the diagnosis.
Conclusion: These findings present value of POCUS training, which helps diagnosis and management in emergency setting.
POCUS is a worthwhile procedure, frequently used after graduation. Adding POCUS in the undergraduate curriculum might be helpful.

4FF11 (3543)
Developing an objective assessment of medical students' ultrasonography skills early in the Curriculum

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Background: A few medical schools in the Middle East have started teaching ultrasonography (US). Medical schools in Europe and America have been introducing ultrasonography earlier in the curriculum over the past decade. Designing assessment for such skills is a challenge when the taught competences are tailored to serve a new paradigm.
Method: First-year medical students at Qatar University learned ultrasonography as an adjunct to physical examination in our system-based course. They had a formative assessment during the course and summative at the end of semesters. Assessments were objective structured clinical examinations (OSCE). Evaluation of the assessment is reported here.
Results: Students, examiners, and external evaluators provided feedback. 101 of 119 students responded. 91% rated the assessed competence as fair. All examiners found students' performance to be robust. 3/4 examiners found the competence appropriate for the students' level. Evaluators highlighted strengths of the assessment encounter and provided recommendations related to training of examiners.
The OSCE checklist was based on competences aligned with the modular objectives of the curriculum. Communication, patient safety, technical skills, and interpretation were assessed. Students' feedback highlights and supports the notion of programmatic assessment and the crucial role of formative encounters as strongly recommended in assessment literature. Development of OSCE to assess US skills requires a test blueprint. Starting with a set of target competencies is crucial to the measurement of students' performance. The Value of programmatic assessment lies in the collective benefit of the different educational encounters that enhance feedback to the learners.
Conclusion: Assessment of ultrasonography skills early in the curriculum requires careful planning; to consider integration of formative occasions that follow educational encounters and precede summative assessments. Assessed constructs should align with the educational objectives and fit into the overall outcome competencies.

4FF12 (1178)
A case-based abdominal ultrasound class for German fifth-year medical students

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Background: The German Catalogue of Learning Objectives (NKLM) suggests including teaching basic ultrasound skills in undergraduate medical education. In order to improve one's sonographic skills, practice as well as useful feedback of a competent teacher is needed. A crucial impeding factor is the limited availability of clinical teachers to supervise hands-on sonography classes. Furthermore, practical sonography classes usually rely on the participants to perform ultrasound on each other, thereby focusing almost entirely on physiological findings. For demonstration of pathological findings, teachers tend to rely on lectures in which the findings are presented out of the clinical context.
Method: We conceived an interactive, case-based sonography class teaching orientation, topography and typical pathological findings of the liver, gall bladder, kidneys and spleen. The class consists of two three-hour sessions with six participants per physician teacher. Each case begins with reading a clinical history and physical examination as well as laboratory results, followed by a series of screenshots of typical sonographic findings for the underlying disease. Through topographic orientation, students learn to identify the section level and to describe the pathological findings. Finally, the students reach a diagnosis through synthesis of findings in clinical presentation, laboratory and imaging.
Implementing this concept as a voluntary class for 35 students was feasible.
Results: According to preliminary data, students' confidence in their ability to identify the addressed pathological findings increased. Furthermore, students reported that orientation in a sonographic screenshot improved through repeated discussion of criteria to identify the section level.
Conclusion: Our concept might be a useful addition to sonography classes in the context of both limited resources for clinical teaching and the intention to improve students' clinical reasoning. This new concept allows students to learn about pathological sonographic findings in the realistic scenario of a clinical case, enabling them to practice their clinical reasoning skills. This concept is adaptable to larger groups and will be evaluated in a lecture format as a next step.
Take-home message: Teaching pathological sonographic findings in a case-based manner can be a useful addition to practical sonography classes.

4FF13 (2536)

Point-of-care ultrasound for Medical Education: UBI's initial experience

Authors

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Background:
Ultrasonography is today the most comprehensive of medical modalities, desired by all those involved in the different moments of the formative process, care and clinical research. The multiplicity of its applications extends from conventional comprehensive ultrasound to point-of-care ultrasound for medical teaching. The nature of its methodology allows to deepen the medical education of the basic sciences, it revalues the physical examination when being guided by image and contributes to identify great part of the pathologies. Its characteristics re-emphasize the value of the art of communicating and enhancing the patient-physician interaction.

The process of implementation of point-of-care ultrasonography for the 6th year undergraduate medical students of the University of Beira Interior is described and the interim results of the satisfaction surveys are analyzed.

Method: The students were divided into groups of 20. Each group attends a course with 20 hours, one hour dedicated to basic concepts of ultrasound and 19 hours of hands-on sessions in 4 blocks: head and neck, heart and pleuropulmonary, abdomen and genito-urinary, vascular / nervous and skeletal muscle. The course is assessed by an OSCE. We use 4 echographers and emphasise on communication and narrative observation.

Results: The students respond to an online satisfaction survey that, during an interim analysis, reveals high levels of satisfaction. Ultrasound performed by physicians who directly assist patients, deepens clinical observation, accelerates and simplifies clinical decisions, it is justified to implement medical teaching of this modality as a form of learning but also as a basic preparation for a greater differentiation during working life. We present the experimental model of ultrasound teaching to the medical students. The intensive and dedicated commitment of the teachers allows to teach the totality of students of a medical course, centered in a methodology of practical teaching. The model is well accepted by students.

Conclusion: Point-of-care ultrasound is now indispensable in modern clinical practice. Its teaching during pre-graduate training should be predominantly "hands-on", one of its objectives is the doctor-patient rapprochement through the demonstration of an examination physical and medical knowledge well structured and in depth.

4FF14 (368)

Virtual or physical? 2D or 3D? The impact of resource design on learning outcomes in veterinary anatomy and diagnostic imaging teaching

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Presenter: Sarah Channon, The Royal Veterinary College, London, UK

Background: Spatial understanding of anatomy is a key requirement for understanding medical images - which are essentially 2D images of 3D objects. Appropriate design and implementation of teaching methods and resources is important in terms of developing such spatial understanding and allowing students to learn to mentally apply 2D images to 3D structures and vice versa.

Summary of Work: We created a physical library of plastinated anatomical transverse sections of equine fore and hind limbs and an accompanying virtual library of matching diagnostic images (CT, MRI, ultrasound). We evaluated both resources by studying the effect of their use as part of a structured learning exercise on anatomy learning and diagnostic image interpretation. We considered the influence of student spatial ability on these outcomes. We also gathered student user feedback on the resources.

Summary of Results: The online resource is freely available via Creative Commons license for use by students and educational institutions. Our results indicate that resource type affected student learning gains in specific areas, with largest improvements in anatomical knowledge in the group using the online resource incorporating diagnostic images. 'High spatial' students appeared to benefit to a higher degree from the use of 3D physical specimens.

Discussion and Conclusions: Our results support the notion that integrating clinical relevance such as diagnostic images into anatomy teaching enhances anatomy learning outcomes. Spatial ability of students appeared to influence the degree to which a student benefitted from a particular resource. This is key in the age of personalised learning and suggests that identifying strengths and weakness in particular personal skills/attributes may assist both staff and student in the selection of appropriate resources and/or learning activities.

Take Home message: Choice of teaching method is important and 'one size' may not 'fit all' when deciding on which resources to use to support learning. A multimodal teaching approach may therefore be valuable. Staff should be mindful of ways to reduce cognitive load when students with low spatial skills are studying three dimensional structures.

4GG: Posters: Selection and Widening Access

Location: Hall 4.1, CCB
Date: Monday 27th August
Time: 1400-1530 hrs

4GG1 WITHDRAWN

4GG2 (2710)
Why are predictive validities of admission tests so low?

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Presenter: Stefan Zimmermann, University Medical Center Hamburg-Eppendorf, Hamburg, Germany

Background: Cognitive tests for admission to medical school such as the MCAT and the UKCAT are used to complement school leaving grades. However, in most studies these tests correlate poorly with study success. We analyzed the predictive validity of the German Natural Science Knowledge Test HAM-Nat for study success and the effect of its combination with school leaving grades.
Method: From 2012 to 2015 a total of 1565 medical students were enrolled at the University Medical Center Hamburg-Eppendorf (UKE). Half of them were admitted by quotas independent of admission tests ("excellent school leaving grades", "waiting list", and "foreign nation (not EU)"). The other half was selected using the HAM-Nat in which 3511 applicants participated.
Results: Within the total group of applicants the correlation between HAM-Nat and school leaving grades was virtually zero, within the group of admitted applicants it was highly negative (r=-.52) due to compensatory selection. The HAM-Nat´s relation to study success was r=.21 when school leaving grades were controlled, and r=.30 after correction for range restriction in the predictor variables. However, the simple fact of being admitted by entrance test or "excellent school leaving grades" as compared to the quotas "waiting list" and "foreign nation (not EU)" strongly predicted study success.
Discussion: The correlation between the HAM-Nat and outcome in this study is disappointingly low. We provide four possible explanations:
1. Self-selection into the pool of applicants based on self-appraisal and expectations about the test leads to a validity-effect that is not detectable with psychometrics.
2. The high selectivity causes a depletion of variance in predictor and outcome measures.
3. The need to differentiate between very good candidates provokes an overshooting test difficulty which does no longer improve predictive validity.
4. The outcome measures lacks validity.
Conclusion: The value of a test for student selection is not fully reflected in its predictive validity coefficient. The response of potential applicants to the mere existence of the test exerts a validity enhancing effect on its own. Therefore, selection tests might be underrated if judged by test-outcome-correlation alone.

4GG3 (2001)
Association of Different Medical Student Selections and Mid-term Testing in Year One of Medical School

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Presenter: Anant Khositseth, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Background: Medical student selection is one of the important process in order to achieve the programme learning outcomes.
Conventionally, we select our first-year medical student through the central selection according to the high score in two sets of examination including (a) medical aptitude, ethics, and relevant thinking process (30%) along with (b) testing of basic knowledges. The top-rank score students will be enrolled in our programme. Alternatively new method of selection includes biomedical admission test (BMAT), average grade in high school, English proficiency, and multimini-interviews (MMI) was introduced to our programme.
Method: One-hundred and forty-seven first-year medical students (conventional group) were compared with 22 first-year medical students (new process group).
The entering examination scores in the conventional group was correlated with the average grade at mid-term examination, r 0.4339, p <0.0001). The results of mid-tern testing were compared in both groups. All data were shown as median and interquartile (IQR).
Results: The average grade in conventional group was not significantly different that in the new process group (3.4 (3.04 – 3.57) vs 3.47 (3.2 – 3.57). The subjects including Biology, Mathematics, Physics, Chemistry, and English were graded as A (4.0), B+ (3.5), B (3.0), C+ (2.5), C (2.0), D+ (1.5), D (1.0), and F (0). There were no significant differences in Biology [3.0 (2.5 – 3.5) vs 3.0 (2.5 – 3.5)], Mathematics [3.0 (2.5 – 3.5) vs 3 (2.5 – 3.5)] , Physics [3.0 (2.5 – 3.5) vs 3.0 (2.0 – 3.5)], and Chemistry [3.5 (3.5 – 4) vs 3.5 (3.5 – 4)]. As expected, the English score was significantly higher in the new process group [3.5 (3.5 – 4.0)] than in the conventional group [4.0 (4.0 -4.0)]. The development of the new process was intended to select the students' competencies including knowledge, inter- & intrapersonal capabilities, and critical thinking rather than the high score in knowledge. Long-term follow for the ultimate outocmes is exciting.
Knowledge testing was comparable in both groups
Conclusion: Medical selection process should not concentrate only on high score examination but other competencies is also important.

4GG4 (892)
How is first impression related to MMI-results and to OSCE- examinations two years later?

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Presenter: Dietrich Klusmann, University Medical Center Hamburg-Eppendorf, Hamburg, Germany

Background: The first impression is a shortcut for figuring out traits like trustworthiness, dominance and competence in others. A host of social psychological studies show that first impressions emerge fast from little information and without introspection. Agreement between judges is substantial, but correlations with actual trait measures are low. In this study the proportion of variance in multiple mini-interview (MMI)-ratings explainable by the first impression of competence is estimated.
Method/Results: In an 8-station MMI for medical student selection two judges in each station answered the question "Does this applicant appear to be qualified for studying medicine?" within 30 seconds of the first encounter, subsequently they rated overall performance in the 5-minutes MMI-task. Most interesting are the cross-correlations: first impression of rater 1 with performance rating of rater 2, and vice versa, because these are only influenced by the fact that an impression rating has been made, not by within-rater dependency of the actual rating. Two outcome measures were used: OSCE stations with a psychosocial aspect and supervisor ratings based on a general practice clerkship.
First impression ratings formed a scale (α= .71), just as mean MMI-performance ratings did (α= .69). The correlation between first impression and MMI-performance was r=.46 if both ratings were made by the same rater and r=.37 if made by different raters. The correlations of both measures with two psychosocial OSCEs were about r=.20. Predictive validity of MMI-performance ratings did not improve significantly when first impression variance was controlled. Results for supervisor ratings were mixed.
Conclusion: First impressions about the qualification of applicants partly explain the consistency of the MMI-performance ratings across raters and stations. This is not an artifact of repeated measurement: Even when within-rater dependency is controlled, substantial shared variance remains. First impression information might be used for the improvement of MMI- performance ratings.
Take-home message: First impressions about the qualification of applicants are rated consistently across stations and correlate with MMI- performance ratings.

4GG5 (3450)
Comparing the ratings of Academic, Non-academic and Lay Person at Multiple Mini-Interview

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Background: Multiple-mini-interviews (MMI) require a large number of assessors due to the number of stations required to reach the desired reliability. Most MMI use academic as assessors. This post as a challenge to resources, cost and time. Previous study recommended using various type of assessors to increase the breadth and experience of the candidates. This study compared agreement in ratings between academic, non-academic and lay-person in assessing candidates' performance at an MMI for medical school admission.
Method: The performance of 11 candidates in 10 stations was recorded. Each station has a specific scenario to test a specific non-cognitive attribute of competent medical doctors. 10 assessors from each group then assessed the candidates individually in three different settings, using the same checklist for each station.
The Inter-rater agreement was analysed using Intraclass Correlation Coefficients (ICC) by two-way random average measure at 95% confident interval. Inter-rater agreement was done among academic, non-academic, lay-person and overall agreement of all assessors for the MMI.
Results: Academic has the highest mean score (68) with lowest standard deviation. This is followed by Non-academic (62) and Lay-person (61). The ICC of academic shows average measure of 0.79 (range 0.53-0.93). Non-academic average measure is 0.87 (range 0.70-0.96). Lay-person average measure is 0.88 (range 0.75-0.96). Overall ICC for all assessors shows an average measure of 0.95 (range 0.90-0.98).
Conclusion: The high mean score of academic indicates they are more generous in scoring compared to the other 2 groups. The low standard deviation for the academic means they mark deviations in performance quality on a finer scale than the others. The overall average of the scores for all assessors is highly reliable, suggesting that despite their apparent differences in scoring, the assessors were able to separate different level of performances. The Inter-rater agreement for academic, non-academic and lay-person shows high agreement amongst the assessors in each group regardless of the candidates. This indicates that other group of assessors besides academic, may have a role in student selections. We recommend training for calibration among them before the interviews as well as involving them in the construct of stations.

4GG6 (2054)

Comparison between the Multuple Mini Interviews and the conventional interview in selection of students of the Joint medical programme (between Srinakharinwirot University and University of Nottingham)

Authors

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Background: The Joint Medical Programme (Srinakharinwirot University, Thailand and University of Nottingham, UK) has recruited students by direct admission since 2003. Basic medical knowledge (paper exam) and interview were used for selection process. Change from the conventional interview to multiple mini interviews (MMI) began from year entry 2016 onward. Once enrolled, the students attend the 6-month preparatory course, when they study basic science for medical for medicine I and II subjects, before commencing their preclinical study in UK.

Method: The study aims to validate the new MMI interview process against the classical interview for student admission. MMI was used to evaluate various aspects of candidate characteristics including social accountability, ethical integrity and empathy, critical and scientific thinking, communication skill, creativity and problem solving. Thirty nine students selected by conventional interview (2013-2015) and 59 students by MMI (2016-2018) were compared in term of knowledge, psychological/personality test and English ability.

Results: The results were separated into two parts, before (the entrance marks) and after the interview (post-entry marks). There was a positive correlation between pre-entry knowledge and MMI interview score $r= 0.276$, $p < 0.005$ whereas the classical interview was not. A significant improvement of the knowledge (paper exam) marks was observed in the MMI when compared to the conventional interview ($p<0.001$). The post-entry basic medical science knowledge assessed in the preparatory course was similar between both conventional and MMI cohorts. Psychological/personality test regarding emotional quotient, human relationship, responsibility, reasoning and resilience showed no significant difference. This study is beneficial to review the admission process of the Joint medical programme which is very crucial part of the programme evaluation. Overall, the student knowledge and personality was similar following the change to MMI. All students had the IELTS score higher than 7.

Conclusion: The MMI significantly correlates with pre-entry knowledge and learning skills of the students. The MMI measures different characteristics of students and is less stressful as compared to the conventional interview.

4GG7 (1145)

Comparison of marks in a national examination of high school students with their academic achievement at the end of a medical course in a PBL curriculum

Authors

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Background: The National Examination of high school students (NEHS) assesses the quality of high school teaching in Brazil. Students may use the marks obtained in NEHS along with those obtained in entrance tests to enter a medical course. The academic achievement in terms of cognition, abilities, and attitudes of students at the end of the medical course who used the marks obtained in NEHS in comparison with students who only took the entrance test is unknown.

Method: We compared the marks obtained in the NEHS (n=9) with those obtained in the Organized Structured Clinical Examination (OSCE), the marks obtained in the Progress Testing (PT), and the mean marks obtained in the disciplines of the clerkship at the 12th stage of the medical course at UNAERP (n=45).

Results: The mean marks in the disciplines of the clerkship was $7 ± 0,31$ for students who used NEHS marks, and $7.3 ± 0.41$ for those who did not (p=0.042). No difference was observed regarding the mean marks in the OSCE and in the PT in the students who used the NEHS marks in comparison with those who only took the marks of the entrance test.

Conclusion: Students who used NEHS marks together with entrance test had a lower academic performance during high school, which affected academic performance at the end of the medical course in terms of abilities and attitudes.

Take-home message: Should the NEHS marks be used in entrance tests for medical courses?

4GG8 (2620)

Percentile equating of school leaving grades obtained at different school systems to enhance prediction of study success at medical school

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Background: Academic achievement measured as school leaving grade is the best single predictor for success at medical school. Nevertheless, the grading practice can vary between different states or school types. Therefore chances for admission do not depend solely on individual merit, but also on grading policies why the relation between grades and study success is reduced. In December 2017 the German Constitutional Court judged the practice to naively treat all school leaving grades as equivalent to be inconsistent with the constitution.
Method: We calculated percentiles for school leavers for each of the 16 German federal states which all exhibit different educational systems. Leaving grades from secondary school were rank ordered depending on the distribution of all grades within the state in which they were acquired. Thus, we took into account the states' stringency or leniency and recalculated the predictive validity of school leaving grades on study success at the University Medical Center Hamburg-Eppendorf (UKE).
Results: Without the equating procedure only 4.7% of all school leavers from the "stringent" state Lower Saxony, but 10.8% of those from the "lenient" state Hamburg were shortlisted for entrance testing at Hamburg medical school in 2015. With percentile equating 9.0% from both states would have been preselected resulting in a 33% reduction of applicants from Hamburg and a 47% increase from Lower Saxony.
The prediction of study success at Hamburg Medical School strongly depends on the state of origin. A given grade predicts higher study success when obtained in Lower Saxony as compared to Hamburg. When using percentiles instead of grades the prediction of study success was equivalent for both states.
Conclusion: Percentile equating of final grades equalizes the chance to get a placement for applicants from different states or school types. At Hamburg medical school, the use of percentiles instead of grades would ensure that grades predict study success independent of the federal state.
Take-home message: Percentile equating improves the fairness of medical school selection based on academic achievement from educational systems with different routes to the university entrance qualification and non-equivalent grading policies.

4GG9 (1545)

The relationship between socio-demographic factors and selection into UK postgraduate medical training programmes: a national cohort study

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Background: Entry into medical school is the first hurdle for students who come from a widening access background. Those who graduate then face selection challenges into postgraduate education and training. To the best of our knowledge, there has been no research looking at the relationships between individual characteristics and allocation into the first stage of postgraduate medical education in the UK. To address this gap in the literature, the current study examines the relationships between applicants' socio-demographic characteristics and outcomes on the UK Foundation Training selection process.
Method: A longitudinal study of 8467 trainees who accepted a place for the first stage of UK postgraduate medical training in 2013-14 was examined using the UK Medical Education Database to access linked data from different sources, including medical school admissions, assessments, and postgraduate training. Multivariable ordinal regression analyses were used to predict the odds of applicants being allocated to their preferred Foundation schools.
Results: After adjusting for Foundation Training application score, no statistically significant effects were observed for gender, socio-economic status (as determined by income support) or whether applicants entered medical school as graduates. BME status and (UK) place of medical qualification were strong predictors of allocation to preferred Foundation school. Applicants from white ethnic backgrounds were significantly more likely to be allocated to a higher choice foundation school than Black or Asian applicants (p<0.001) (79% vs 47% and 56% first choice, respectively).
Conclusion: The Foundation School selection process does not appear to discriminate against applicants from lower socio-economic groups. However, after controlling for the effect of the application score, those from ethnic minorities appear to be disadvantaged. This finding may be linked with the geographical preferences. The foundation schools in London area and the south of England are very competitive compared with the rest of the UK. Yet a higher proportion of the UK medical student population from BME backgrounds live in London and the South-East of England. The data provide some interesting findings relating to "push-pull" factors in medical careers decision making and choice of Foundation School.

4GG10 (1359)
Differences in Academic Performance of Students Entering Faculty of Medicine, Universidad de Chile, Through Special and Regular Admission

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Background: Special admission methods contribute to increase diversity, enrich teaching-learning processes and give applicants a fair admission opportunity, contributing to equity in higher education. The Faculty of Medicine of Universidad de Chile implemented a Special Admission System in 2013, which is focused on students of high vulnerability who, even having an outstanding academic performance, do not reach the score on University Selection Test to enter via regular admission. However, as equity in access improves, conditions must be created so that those who come from socially unfavorable contexts can remain in the system and complete their professional training successfully.
Method: To define whether Special Admission students are adapting to the academic demands of the University, we analyzed the records of the academic trajectory of the students of the 8 undergraduate programs of the Faculty of Medicine of the University of Chile who entered on the 2013-2017 cohorts by Regular and Special admissions and we compared their results throughout their training. The average number of grades was analyzed descriptively by entry cohort, semester and undergraduate program in each of the entry systems and mean difference hypothesis tests were performed to evaluate the statistical significance of the observed results.
Results: The grade averages of the students that enter through Special Admission are lower in all the undergraduate programs and for all the analyzed cohorts. The differences are higher on the first semester of each undergraduate program, and the averages are leveled between 2nd and 4th semester for most programs.
Conclusion: We conclude that, although there is an important difference in academic performance of students who enter through Special and Regular Admission at the beginning of their academic trajectory, students who enter through Special Admission manage to adapt to the academic requirements of their programs.
The next step is to complement this study with qualitative analysis of the phenomenon, to see how and to what extent this transition is supported by the institution, together with the student's personal growth and effort.

4GG11 (1288)
Thriving in Medical School: Is it Really in the Genes?

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Background: Excelling in medical school is attributed to numerous factors which have been thoroughly investigated in the literature. However, there is little data on socioeconomic conditions of students and whether these will affect academic performance. We aim to see if there is a correlation between parents' profession and the student's cGPA.
Method: 160 medical students from Year 1 to Year 5 at Alfaisal University filled out an online questionnaire. Students were asked whether any of their parents were medical doctors. Other factors including age, gender, pre-university GPA and additional socioeconomic variables (including type of high school attended and first language) were assessed.
Results: Results showed that 14% of students had both parents working as medical doctors, with an average cGPA of 3.64. 31% of students had one parent as a medical doctor with an average cGPA of 3.49. The other 55% did not have medical doctor parents, with an average cGPA of 3.42. cGPAs of students with both parents as medical doctors were significantly higher compared to those who did not have any parents in the medical field. Doctors tend to exert a supportive influence on their children due to their past experiences. Students would also look up to them as mentors.
Having one or both parents as medical doctors is associated with better academic performance in medical school, irrespective of age or gender. Nonetheless, other variables such as the level of high school students attended and the students' first language have an impact on the overall capabilities of those students.
Conclusion: Although a correlation has been discovered, this topic needs to be explored further by looking into other socioeconomic factors including ethnicity, median household income, and urban background. These results could provide valuable practical implications for student selection and academic support during medical school.

4GG12 (565)
Medical demography in Spain: numerus clausus in Medical Schools and positions of Postgraduate Training

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Background: We have analyzed the admission numbers to Medicine Degree in Spain, numerus clausus (NC), and its relationship with the offer of postgraduate specialization positions (MIR).
Method: Data have been obtained from official sources (Ministry of Education, Health, Spanish Medical Doctors Association (CGCOM) and Deans National Association).
Results: In 1977, the total number of medical students was around 22,500, studying in 23 schools. In 1978, NC officially started and these numbers decreased and stabilized around 5,000 in 1990 with 25 schools. MIR positions rose from 2,000 in 1979 to 4,000 in 1990. Then, NC reached a minimum of 4,300 in 2000, with 3 more schools, whereas postgraduate positions increased up to 4,700 also in 2000. In 2006, NC increased again reaching 6,700 in 2015, while MIR positions peaked at around 6,500 in 2011 and decreased later down to 6,000 in 2015. However, 15 more medical schools were opened since 2006, most of them private. In spite of a supposed shortage of doctors, the number of people taking the MIR exam rose from 10,000 in 2001 to 13,500 in 2011, close to the 13,244 that will examine in February 2018. Foreign non-UE doctors are also allowed to enter (4%), and a number of doctors repeat the process to re-specialize (5-10%), thus diminishing net positions to newly Spanish graduates.
The high number of medical schools is causing problems in the access to hospital training when different universities have to share the same hospital for their students. Since most of the new schools are private, the equity in the access to medical studies is also in danger.
MIR positions have varied independently of NC, which suggests lack of planning from health and education authorities.
A significant number of medical graduates stay out of postgraduate specialization training because of a lower number of MIR positions.
Conclusion: While MIR positions may have reached a maximum, the lack of a national planning and the continuing opening of new medical schools is risking the obligatory postgraduate training that all medical graduates need.

4GG13 (3145)
The use of an e-assessment as an additional postgraduate selection tool for pediatrics

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Background: The medical educational region East-Netherlands has developed an e-assessment as an additional tool to the letters of application and curriculum vitae for the postgraduate selection of residents in pediatrics. This e-assessment was developed in three Delphi rounds by the five directors of the pediatric residency program, three pediatric counselors, four residents, the director of pediatrics, one member of the human resource management (HRM) team and one member of an extern HRM counselor. In this study we describe the additional value of the use of this e-assessment.
Method: We quantitatively evaluated the postgraduate selection procedure since 2008, when we started to use the e-assessment as additional tool. We evaluated the strength of the e-assessment, and its additional value in the selection procedure.
Results: From 2008 till 2017 we received 279 letters of application and curricula vitae for a position as pediatric resident. Due to the first selection of these letters of application, 63 candidates dropped out. 216 candidates made an e-assessment. Of these, 118 candidates were invited for interviews, from which 52 candidates started as resident in our medical educational region. Of these 52 candidates, eight were invited for the interview because of the results by the e-assessment; from the other candidates, 41 were selected by both the letter of application as well as the e-assessment and three were selected especially by their letter of application. As well the letter of application, as the e-assessment was statistically important ($P<0.001$) for the selection of candidates for the interviews. However, neither the letter of application ($p=0.059$), nor the e-assessment ($p=0.76$) was decisive for the candidates who got the interviews.
Conclusion: An e-assessment may be an additional selection tool to the classical tools of letter of application and curriculum vitae. About 15% of the residents would not have been selected for the interviews for the application of the postgraduate residency program without the e-assessment.
Take-home message: An e-assessment may be an addition selection tool for the postgraduate training program.

4GG14 (1064)
The Importance of Clinical Shadowing: Perspectives of Admissions Committee Members

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Background: Many premedical students shadow physicians in preparation for medical school. Admissions officers argue that adequate exposure helps students determine if medicine is the right fit for their professional interests. However, students are commonly left to their own devices to determine what kind of exposure is preferred, and how much exposure is enough. We collected admission committee members' opinions about shadowing to determine how this experience contributes to understanding applicant preparation and readiness for medical school.
Method: A 17-item survey instrument was administered to our medical school's admissions committee members regarding their definitions of shadowing goals and outcomes for the experience, and suggestions for beneficial shadowing placements. Twenty-two of 26 members completed the survey. Survey items were comprised of check boxes and narrative responses that were summarized. The project was approved by the Institutional Review Board.
Results: The most commonly specified purpose of shadowing was understanding daily responsibilities of physicians (10/22 responses). Observing physician/patient interactions was listed as a key goal of shadowing by 8 of 22 respondents. Approximately 65% of the respondents thought shadowing was important for both gaining insight into what doctors do as well as providing the necessary reality testing to determine if medicine was a good personal career choice. All respondents explored an applicant's knowledge of the profession at interview by asking a question such as "Tell me about a clinical experience. What did you learn?"
Seventy-seven percent of respondents thought shadowing should be required of all applicants, but that a requisite number of shadowing hours should not be stipulated. Instead, they advocated for demonstration of applicants' abilities to think critically about what they had seen and offer an insightful interpretation of their experience. Recommended shadowing venues included exposure to inpatient and outpatient settings in surgery, emergency medicine, and primary care specialties.
Conclusion: This project helps clarify the rationale for recommending medical exposure through shadowing to applicants. By detailing narrative responses, this project can help guide medical school applicants in their preparation for medical school.

Take-home message: Guideposts for expected outcomes of shadowing experiences should be developed for and disseminated to prospective students.

4GG15 (3479)
Medical Students as Primary School Teachers: A Widening Participation Initiative

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Background: Medical schools in the UK have traditionally focussed on the school years immediately prior to university entrance in their Widening Participation (WP) initiatives. There is growing evidence that professional aspiration and social capital must be developed much earlier in pupils if they are to apply successfully to medical or dental school. In line with psychology theory on ages of development of attitudes and values we determined that primary school age pupils (ages 5-11) should be targetted, and that development of their self-image as scientists, scholars and professionals would be useful as they prepared for secondary education and a greater degree of choice about their lives.
Method: Following initial approaches to the headteacher, we developed a student-led partnership with Stoke Park Primary School, an aspirational school situated in a low socio-economic status (SES) area of North Bristol. Pupils there were drawn predominantly from white UK low SES backgrounds, a group especially underrepresented at universities. Working with the Year 5 lead teacher, we used the National Curriculum to plan lessons on healthcare related subjects which addressed relevant learning objectives, and which also allowed pupils to take on investigative scientific roles and practice public speaking and presentation skills.
Results: Feedback from a pilot session involving 27 Year 5 pupils indicates that all were enthused by the sessions, particularly by opportunities to practice clinical skills, and ask questions about the subject and the experience of training as a doctor. Many expressed a desire to work in healthcare. Medical students reported that the planning, presentation and communication aspects enhanced essential skills for their own academic progress.
The curriculum-based model provides opportunities for ongoing, positive interaction with the same pupils, with the aim of reinforcing the development of a scientific, professional self-image. Further sessions have been planned accordingly to build on the pilot session. The model can also be easily expanded to other WP schools.
Conclusion: A curriculum-based, student-taught WP approaches in Primary School is a good model for effective educational and aspiration-raising outreach that also provides valuable development opportunities for medical students as educators.

4HH: Posters: Interprofessional Education - Undergraduate

Location: Hall 4.u, CCB
Date: Monday 27th August
Time: 1400-1530 hrs

4HH1 (1836)
Performing a Nurse-Shadowing Program for Medical Students to Learn Inter-professional Collaborations

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Background: Physician-nurse collaboration has been associated with the quality of patient care outcomes that they provide. Previous evidence showed that medical students' exposure to the role of nurses on the healthcare team provided a positive understanding of interprofessional collaboration. The purpose of this study was to describe the learning of interprofessional course with a Nurse-Shadowing program for five-year medical students in a teaching hospital of Northern Taiwan.
Method: A follow-up open-ended question was mailed to all medical students (n=50) who had participated in an interprofessional course with a four-hour nurse-shadowing program. The nurse-shadowing program was primarily created to nursing students to shadow practicing nurses. All 50 medical students wore the uniform of nursing student and were assigned a nurse to shadow from a variety of specialty wards (oncology, surgery, internal medicine, etc.). The nurses were given instructions to engage participants in observing and assisting nursing tasks on a regular shift, to answer any question that they had. The categorical response of the open-ended question was performed by the content analysis.
Results: All students (100%) reported that the nurse-shadowing program was an appreciated part of the medical education and an increase in their knowledge what nurses bring to the healthcare team and an increased understanding of the nurses' role. They noted the high nursing workload on the team. They learned that an increased knowledge in patient care and the interprofessional collaborations on the health care team. 48 students (98%) reported that they significantly increased their respect for the knowledge, the role, and skills of nurses. Majority (80%) reported that nurses had better communication with empathy than physicians. Some students (45%) noted the difference of the authority power from different uniforms; that they felt less respect from patients and/or caregivers when they wore nurses' uniform.
Conclusion: Finding suggested that medical students increased their understanding in the interprofessional collaboration through this program. They enhanced their reflection how to respect and work together with nurses after the program.

We will examine the longer effectiveness of this program and to determine whether it positively impacts long-term attitudes toward nurses.

4HH2 (2979)
Development of a national interprofessional communication skills and teamwork curriculum for undergraduate medical education

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Presenter: Maryna Gornostayeva, The German National Institute for state examinations in Medicine, Pharmacy and Psychotherapy, Mainz, Germany

Background: Effective interprofessional collaborative practice enhances the quality of patient care, promotes greater patient satisfaction and job satisfaction among members of the health care team. International Frameworks describe thesignificance of interprofessional education for inteprofessional practice. Different health policy-makers in Germany support the integration of interprofessional skills in the current curricula.
On this basis, a project was initiated that aims to support this integration and to develop a national, interprofessional communication skills and teamwork curriculum for medical students. The project is supported by the Robert Bosch Foundation.
Method: To provide a uniform framework for IPE at the medical faculties the interprofessional thematic topics for obligatory curricula integration were defined. Expert-groups representing different health care professionals, e.g. nurses, pharmacists, physiotherapists, psychotherapists, physicians and medical students identified in more than 10 workshops crucial interprofessional job-related fields in a multi-step procedure. These fields were classified according to symptoms and diseases, settings, reason for referral and problem oriented prototypes. Consecutively a blueprint was developed based on the relevant findings.
Existing best-practice examples of teaching and assessment of interprofessional skills are collected, edited following a certain standard and classified according the above-named categories.
Results: A draft curriculum was developed based on the results of the expert groups and available evidence on interprofessional practice. The draft consists of 50 teaching units distributed among 8 days á 6 teaching units and 2 teaching units for assessment. Relevant occasions

from every day job-related situations, e.g. handover, discharge management etc. were defined as a main category. These occasions were allocated to four Core Competencies: teamwork, roles and responsibilities, communication, ethic and values.

All the best-practice examples with related teaching materials and background information are uploaded on the online-platform (toolbox).

Conclusion: The draft curriculum provides the possibility to create a uniform framework of IPE for the medical faculties. The medical faculties can organize their teaching individually based on different diseases, settings and problem prototypes and place their own faculty-specific focuses. The toolbox supports the faculties and should enable lecturers to exchange best practice examples.

4HH3 WITHDRAWN

4HH4 (2553)
Exploring the experiences with student participation in the development of interprofessional health education courses

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Background: A growing body of evidence indicates that students can contribute to the design and impact of the health education program they study in, because they hold a unique expertise in the 'curriculum in action'. The literature focusses on involvement of students in curriculum development of monoprofessional courses and is sparse in interprofessional education. Purpose of this qualitative study is to explore the experience with students´ participation during the development of interprofessional health education courses.
Method: Several interprofessional courses were jointly developed by a group of faculty teachers and students from different undergraduate health professions programs. The courses were implemented in a medical, a nursing and a physiotherapy curriculum. Two focus groups were conducted, one with involved faculty teachers (n=5) and one with the participating students (n=5). Both groups discussed separately about motivation to engage in interprofessional curriculum development, experiences they made during the process and the role of students. Transcriptions of audio-records were analysed quantitatively according to Kuckartz (2016) .
Results: The faculty teachers reported, the students enriched the discussion with their specific view and had a positive impact on the outcome of the courses planed. They also effected positively the dynamics in the interprofessional planning group and the motivation of faculty teachers. Students reported, they improved personal skills, such as communication skills and they increased self-confidence. Overall, several pre-conditions

for successful students participation were identified: e.g. 'give detailed information about the expected students activities and cultivate an atmosphere which allows students to express their opinions.
Results: Student participation benefits the design of interprofessional health education courses. The benefits range from the quality of the courses, the dynamics in the interprofessional planning groups to the professional development of the involved students. Students' view and input can contribute to the quality of the courses especially in an interprofessional context where the needs of several stakeholders should be taken into account. Involving actively students from multiple health education curricula enhances the process and outcomes of developing interprofessional health education courses.

4HH5 (3422)
Interprofessional student simulation training in ABCDE of Sepsis - a collaborative pilot study

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Presenter: Johanna Hästbacka, University of Helsinki, Finland

Background: Medical students in Helsinki have some simulation training incorporated in the curriculum. The simulations focus mostly in the medical substance despite some discussion around teamwork and communication. Since non-technical skills (NTS) are crucial in building patient safety, we aim to increase opportunities for the students to practice NTS. For that purpose, interprofessional training would be beneficial.
Method: Participants received pre-reading material about sepsis. A short introduction to non-technical skills was given, followed by a short lecture. The lecture presented sepsis definitions and an ABCDE-approach modified for sepsis. Five simulation scenarios were performed during three separate occasions. Medical students served in the roles of simulated patients and participated team simulations as doctors. The paramedics participated as ER nurses. Medical and paramedic teacher facilitated the debriefing together. Feedback with background questions and twenty Likert-scale questions concerning the lecture, simulation, debriefing and the inter-professional setup, was collected.
Results: Ten 4th to 5th-year medical students and nine 3rd to 4th-year Paramedic BSc students volunteered to participate in the pilot simulations. Of the participants 14 were female and five male, seventeen had at least some experience of simulation. Most paramedics had extensive previous experience of simulator training. Fifteen participants had had some earlier teaching concerning

sepsis. The respondents had gained new knowledge of sepsis (mean 4.89) and felt that ABCDE-approach works well in this setting (mean 4.84). All items questioning the particular value of inter-professionality were rated high (mean 5.0). Time allocated to simulation was viewed too short which created a slightly too busy atmosphere (mean 2.95).

Conclusion: All students, regardless their future profession, valued the inter-professional aspect highly. Despite great difference in previous experiences in simulations, the responses were very similar. Structured approach to diagnosing and treating sepsis seems to be easily implemented and serves as a good tool in teaching non-technical skills, given the allocated time is sufficient.

Take-home message: Both medical students and paramedics appreciate inter-professional training in simulations. Particularly non-technical skills should be increased in medical studies. Modified ABCDE approach works well in sepsis.

4HH6 (511)
Application of 'Design Thinking' to foster collaborative and innovative mindsets in medical students through interprofessional education

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Background: The quality of healthcare has not yet been improved to the same extent as the advancement of biomedical technology. This gap exists due to distinct features of the modern healthcare, including work culture. Lack of effective communication, for example, was associated with lower morale and higher work stress among healthcare personnel. We proposed that cultivation of collaborative and innovative mindsets in medical curriculum would maximize quality of patient care. Collaborative Design Learning (CDL), an intervention to foster collaborative and innovative mindsets, combines two theories which are growth mindset and constructionism. Growth mindset is the belief towards oneself that their intelligence can be improved with practice. Constructionism advocates that learning occurs most effectively when people actively connects different areas of their knowledge. These theories are brought into practice through Design Thinking, an iterative process to create inventions.

Growth mindset redirects individual's thoughts towards improvement strategy for future events. In the context of Design Thinking, students perceive failure as a prototype and, therefore, eager to take action by asking for feedback to improve their future prototypes. Constructionism also enhances learning throughout the workshop. Siriraj medical school has developed this intervention in

collaboration with Little Builders, a social enterprise also based in Bangkok.

Method: Our pilot CDL was delivered through a two-day workshop with medical students and their non-medical peers. They worked in a team of six members with two facilitators for each group to redesign patient's experience at the out-patient department.

Results: From after-workshop reflection, participants grew positive perception regarding feedback and recognized strength of team diversity. Furthermore, this workshop has gained attention from hospital administrators and had opportunity to be developed into an elective module in the medical curriculum at Siriraj Medical School.

Conclusion: This CDL has demonstrated potential to be the novel tool to cultivate collaborative and innovative mindsets in medical students.

4HH7 NOT PRESENTED

4HH8 NOT PRESENTED

4HH9 (2647)
Optimized interprofessional education and evaluation for undergraduate medical students: a case study of interprofessional collaborative practice conference in a medical center in Taiwan

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Presenter: Po-Kai Chan, School of Medicine, National Defense Medical Center, Taipei, Taiwan

Background: Interprofessional education (IPE) is a global trend in medical education that should be well designed and evaluated from undergraduate education to continuing professional development.

Method: Tri-service general hospital (TSGH) in Taipei, Taiwan holds interprofessional collaborative practice conference (ICPC) monthly to facilitate teamwork. This case study aimed to analyze the facilitators and barriers with the presage-process-product model adopted from BEME guidelines for current TSGH ICPC from a student's perspective.

In presage level, the ICPC was supported by the organization and multiple tools were introduced for IPE.

Results: Lack of preclinical opportunity for IPE, poor understanding of objectives and dissonance of session content made it difficult for undergraduate students to approach. In process level, the IPCP combined multiple concepts of holistic medicine and the facilitators played the Confederate role during simulation. However, the

combination of profession-specific and IPE objectives made it confusing, while lack of authentic interprofessional interaction and following up learning activities made it unrelated to undergraduate students. In product level, reaction and collaborative skills were evaluated through mobile interactive App(Zuvio) and learning profiles were designed. However, it was limited to students due to lack of instructors for reflection activity and feedback, while higher level, longitudinal, and qualitative studies were absent for outcome evaluation. Based on Learning-Oriented Teaching(LOT) model and other evidence, we proposed recommendations for IPCP to enhance motivation, to optimize curriculum content and to improve teaching-learning methods. In addition, customizing evaluation tools and qualitative studies for undergraduate students need to be carried out according to evidence and well-established guidelines. Further studies are required for verification of the effects of those optimization and evaluation tools.

Conclusion: The current TSGH ICPCs had provided great opportunities for IPE, but many works are needed for optimization so that the undergraduate students could benefit from it more. The study clarified the facilitators and barriers with the presage-process-product model for the ICPC in TSGH. The optimization for curriculum and evaluation tools based on well-established evidence and guidelines were also emphasized. To meet the needs of undergraduate students, the organization should take students' perspectives and previous evidence into consideration.

4HH10 (902)
The interprofessional training ward Zurich - a feasibility study

Authors

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Presenter: Gert Ulrich, Careum foundation, Department of Education Development, Zurich, Switzerland

Background: Interprofessional (IP) collaboration is frequently reported as a key factor for the future healthcare delivery, and IP training on real wards plays a major role in the IP education of health professions. Herein, students from various health professions are supposed to collaborate and learn together under supervision of experienced facilitators while taking care for real patients.

Method: Since May 2017, six institutions located in the Swiss canton of Zurich (Careum foundation, Department of Education Development, Zurich; University of Zurich, Faculty of Medicine; University Hospital Zurich; Careum Training Centre, Zurich; Zurich University of Applied Sciences, School of Health Professions; Institution for upper-secondary and tertiary education in the health care fields, Canton of Zurich) cooperate to allow future students in medicine, nursing, physiotherapy and

occupational therapy to be trained side a side on a training ward. The feasibility study aims to identify general factors and to develop a concept for establishing an IP training ward in Zurich (ZIPAS) following a Scandinavian model. The project organization is structured in three levels and includes a project team, a steering group and the sponsor group.

Results: The project is structured in several work packages:
- definition of learning objectives and IP competencies
- synchronisation of the involved health professions` curricula
- designing continuing education programs for the facilitators
- modelling personal and financial resources and costs
- designing a scientific evaluation programme
- coordination and recruitment of the students and facilitators
- integration of students` visions and ideas
- integration of public relation issues

Conclusion: Identifying relevant work packages and implementing a stable organizational structure were useful during the project. At the conference the strategic approach as well as barriers and supporting factors will be presented and discussed.

Take-home message: Identifying key topics and using a work package structure is useful when evaluating the feasibility of an IP training ward.

4HH11 (3040)
Interprofessional education using One-Stop Simulation for nursing, nutrition and pharmacy to strengthen clinical reality and enhance peer learning

Authors

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Background: To enhance the students' clinical care ability and increase interactions among different profession, we developed a one-stop simulation scenario for Interprofessional Education (IPE), aiming to participate and observe interdisciplinary care of patients, and we guide students to understand concepts of patient care between different professions by debriefing.

Method: For students of nursing, nutrition and pharmacy to experience interprofessional simulation scenario, our pre/post-test questionnaires to understand the students for interdisciplinary knowledge and roles. Besides, we

tried to use one-stop simulation scenarios for learners with the abilities to establish self-exploration and reflection by peer learning. It is designed at the same place of work, with the same standardized patient dealing with common clinical problem(DM patient with hypoglycemia).

Results: Twenty-four trainees compared the pre/post-test questionnaires on inter-disciplinary team learning. We found that there was a clearer understanding responsibilities and mutual cooperation in all categories through the one-stop simulation scenario. The feedbacks were impressed that students could observe peers of different professions after the same patient was treated. Finally, using debriefing to made the learning of IPE simulation more concrete. Besides, the survey showed the participants satisfied with the simulation scenario and the qualitative feedback also reported active discussion than the round-table discussion.

Conclusion: In the past, most of IPE simulation scenarios are mostly resuscitation scenarios or team discussions based on split-screen stage play. However, the design of our scenario mainly focuses on the clinical issues of nurse/nutrition/pharmacy for patients. The one-stop scenario stimulates learning motivation through peer learning and discuss in depth. In this training model, we found that students directly experience of the various types of work and roles in patients care. We also noticed students discuss actively for patients to achieve better quality of care in debriefing.

Take-home message: IPE using one-stop simulation scenario makes students directly observed and participated in to understand the patient care among different professions. The debriefing can help students to actively discuss and guide them to understand the clinical care priorities in all professions.

4HH12 (1946)
Inter-Professional Learning between Medical and Physician Associate students

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Jon Morris
Wyn Harris

Presenter: Wyn Harris, Swansea University, Swansea, UK

Background: Physician Associates (PA) will graduate from Swansea University for the first time in 2018. PA's have a varied clinical role working alongside doctors and other healthcare professionals in a wide range of settings. The aim of the project was to establish a link between PA and Graduate Entry Medical (GEM) students, promoting inter-professional learning, building relationships and establishing roles prior to commencement of clinical duties.

Method: 48 participants, (33 medical students, 10 PA students and 5 clinicians) attended a voluntary collaborative education event mediated by experienced clinical supervisors in October 2017. This consisted of an introduction, icebreaker and plenary with facilitated clinical breakout discussions between PA and GEM

students. Feedback was collected from participants and analysed.

Results: There was a 100% response rate from attendees, 95% were satisfied with the quality of the session, 88% stated that the case discussions were effective and 85% felt that their understanding of junior doctors and PA's roles in clinical practice had improved. Individual feedback suggested that the relationship and understanding of roles between PA's and GEM students had grown. However, some respondents noted a variation in supervisor's approach.

Results are encouraging, however Swansea medical school has comparatively small numbers of PA and GEM students, therefore similar events in other institutions would require increased resources and planning to accommodate cohort size. Time, space and budget constraints limited the activities and scale of this session.

Increased inter-professional learning and relationship building was achieved. Key points to improve this model include supervisor standardisation, clinical simulation sessions and other allied healthcare professional's involvement. Repeat activities and further development is needed.

Conclusion: A working model for inter-professional learning between PA and GEM students has been demonstrated.

Follow up studies and inter-professional development days would be necessary to establish a link between events and successful working relationships.

As PA's become increasingly active and involved members in the clinical environment, this project suggests that early collaborative team exercises are essential to achieving better standards of multidisciplinary health care delivery.

4HH13 (1453)
Using Case Study Methodology to Understand Contextual Challenges to Interprofessional Practice Learning

Authors
Veronica O'Carroll
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Background: Interprofessional practice learning (IPPL) for students enhances university based interprofessional education. However, IPPL opportunities are often limited and can be dependent on context and a range of situational factors. Case study methodology is suited to the complex environment of healthcare organisations, enabling in-depth study of "contemporary phenomenon within its real-world context". The flexibility of this approach offers the opportunity to generate multiple forms of evidence and use each source to strengthen, verify and add validity to the other. A single, intensive, instrumental case study using mixed methods was considered a valuable research methodology to investigate health and social care professions' attitudes and perspectives of IPPL for students.

Method: The study took place within one health board and associated local authority in Scotland, UK. A purposeful

sampling strategy was used to recruit a range of professions who regularly supervised students during acute and community care practice placements. An adapted version of the Readiness for Interprofessional Learning Scale (RIPLS) was used to measure attitudes to IPPL. Semi-structured interviews were used to gain insight into participants' perspectives of enablers and barriers to IPPL within their own practice areas.

Results: Results showed that attitudes to IPPL for students was generally positive. However, insight into professions' perspectives revealed that IPPL for students was limited due to resource and space constraints; appropriateness of more than one student at one time interacting together with service users, and missed opportunities for IPPL.

The flexibility of the case study approach enabled the researcher to explore beyond objective data and explore perspectives and experiences through multiple lenses. The study provided insight into the challenges which exist at the front line of health and social care within one health board and associated local authority. The findings from this case study may be transferable to other health and social care organisations.

Conclusion: A single model of IPPL may not be applicable in all contexts. Case study methodology in interprofessional research is a valuable way of investigating what types of IPPL work well in different contexts and situations.

4HH14 (1226)
Comparison of Medical Students' Interprofessional Attitudes Before and After Second Year

Authors
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Presenter: Jennifer Montemayor, Rocky Vista University College of Osteopathic Medicine, Denver, USA

Background: Medical graduates must possess the ability to effectively function on an interprofessional (IP) team, and recent work has been dedicated to the development of survey instruments designed to assess IP competencies, attitudes, appreciation, and values.

Method: With no prior, formal IP training, students participated in one required, observational activity during Year 2 involving an IP approach to patient case-management. A 22-question survey, adapted from the Interprofessional Attitudes Scale and the assessment tool from the Center for Health Science Interprofessional Education, Research and Practice, was administered before and after second year. IRB approval was obtained. Paired t-test analysis was performed.

Results: Approximately half of the class (n=78) responded to both pre- and post-Year 2 surveys. Results indicated positive responses which did not significantly change. Exceptions include significant increase in acknowledging the (1) value of IP training to appreciate other professionals and (2) importance of being able to anticipate needs of other team members. Two-thirds had

pre-med healthcare experience and were more likely recognize offering help to team members with their work is effective for improving team performance. There was increased reporting of prejudice about other health professions, which was further increased for females, those with pre-med healthcare experience, and those who attributed their responses to be influenced only by the required IP experience. Two-thirds reported other experiences than the required IP event influenced their responses, the majority through off-campus clinical experiences.

Pre-clinical medical students had generally positive IP attitudes which remained constant throughout Year 2. However, in a couple areas, results suggested increased appreciation for IP education and teamwork among some participants. Some of these findings were enhanced by those with pre-med healthcare experience and outside clinical experiences in Year 2. Interestingly, pre-med healthcare experience and the required IP experience appeared to increase prejudice or assumptions about other professions.

Conclusion: For curricular development considerations, other institutions may find it useful to be cognizant of the potential risk for students to develop prejudice or bias through IP education or clinical experience so that intentional opportunities may be created to address this effect.

4HH15 (2440)
Assessing Interprofessional Communication of Health Students

Authors
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Background: Poor communication among health profession is one cause of medication error, so inter professional communication is important factor in conducting collaborative practice. This competency should be trained and assessed during education of health students. The aim of this study is to know the correlation between inter professional communication assessed by students (self assessment) and by Tutor.

Method: This research is a descriptive analytic study with cross-sectional approach. Sampling technique is consecutive sampling. Communication skills measured using validated questionnaires as student's self assessment and tutorial score by Tutor. Inter professional communication skills questionnaires distribute to 30 health students (consists of medical students, dentistry students and nursing students). Health students fill these questionnaires as self assessment. Assessment from Tutor using check list as tutorial score. Data were collected and analyzed using Spearman correlation test.

Results: This study revealed there is significant correlation between inter professional communication skills assessed by health students and by Tutor (p = 0.024). The strength of the correlation between the two variables is moderate

(r = 0,412). Students have tutorial score as well as inter professional communication. The score of inter professional communication of medical students is the highest among 3 health students.

Conclusion: Health students should have the same inter professional communication skills in order to give effective care of patients in the future. Tutor who have assess the students need to have capability in conducting inter professional communication too as a role model. Assessing inter professional communication by self assessment of the students have correlation with the Tutor's score.

Take-home message: Improving inter professional communication not only important for the health students but also for the Tutor as a role model.

4II: Posters: Flipped Classroom

Location: Hall 4.u, CCB
Date: Monday 27th August
Time: 1400-1530 hrs

4II1 (3340)
The Effectiveness of Inter-professional Training by Flipped Teaching

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Presenter: Pei-Rong Li, Tungs' Taichung MetroHarbor Hospital, Taichung, Taiwan

Background: Clinical inter-professional practice can improve the quality of medical care. Inter-professional education (IPE) provides a training method for cross-professional collaboration. IPE mostly uses case lesson plan via discussion sessions. In recent years, the clinical medical education has gradually become a learner-centered teaching model. The aim of this study will be investigating the effectiveness of inter-professional training by flipped teaching in the intra-professional and inter-professional learning of different professions.
Method: The procedure of teaching activity includes 5 phases, pre-conference (provide case lesson plan and references), personal pre-test, inter-professional conference, post-test for inter-professional team, and interactive/ feedback. The "reaction evaluation" is a survey using the satisfaction questionnaire with a scale of five scales. The "learning evaluation" is the result of a pre- and post-test written examination. Differences were considered statistically significant when $P < 0.05$.
Results: Total numbers of participants were 31, including 12 dietitians, 13 nurses, 3 pharmacists and 3 doctors. The overall result of "learning evaluation" showed statistical significance, $p < 0.05$. Subjects were further allocated into three groups based on profession: dietitian, nurse, and medicine (pharmacist and doctor). The "intra-professional items (dietitian's items)" and "inter-professional items (non-dietitian's items)" in dietitians group, and "inter-professional items (non-nursing items)" in nurse group showed different statistically significance, $p < 0.05$. The overall average satisfaction for the training protocol was 96.5%.
Conclusion: Although previous studies about the effectiveness of IPE by flipped teaching reported some positive outcomes, this study could not to draw exact inferences about effectiveness due to small sample sizes. This study should be further included data collection about that provides insight into how IPE by flipped teaching affects changes in health care processes and patient outcomes. The result would provide better evidence of the impact of flipped teaching on IPE and healthcare outcomes.

Take-home messages: The inter-professional training by flipped teaching could effectively promote the medical staffs learning effectiveness.
The clinical staff felt satisfied and agreed with flipped teaching which enhance learning autonomy could contribute effectiveness of inter-professional training. It could be used as a reference for clinical education model.

4II2 (740)
Teaching to Learn: Using the 'Flipped Classroom' in Postgraduate Medical Education

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Presenter: Katherine Finucane, Department of Postgraduate Medical Education, North Bristol NHS Trust, Bristol, UK

Background: The peer-led 'flipped classroom' is beneficial to both learners and tutors. In this technique, learners undertake a period of self-directed study followed by delivery of a teaching session to their peers (1). This approach benefits from the informed insight of peers, and provides a supportive environment for learning (2). In addition, this gives peer tutors an opportunity to develop teaching skills, and receive constructive feedback. At North Bristol NHS Trust, second year postgraduate doctors (F2) are offered regular consultant-led teaching, delivered during themed 'Masterclass' sessions held once per month. A new peer-led teaching programme was developed to run in addition to consultant teaching.
Method: F2 doctors were asked to select topics of interest, and were allocated 30 minute teaching slots every two weeks. A senior medical educator was present during this time to provide constructive feedback to the peer tutors and quality assurance to the postgraduate education department. Feedback to tutors was given in a structured manner using a modified teaching assessment tool. Innovation in teaching style was also encouraged by offering an end-of-year prize for the best teaching session, voted for by the F2 group.
Results: Feedback from individual sessions has been very positive. The median Likert scores across all sessions were 5/5 and 4.5/5 for content and teaching style respectively. In particular, peer tutors appreciated the opportunity to teach and the comprehensive nature of feedback received on their teaching. Several responses indicated a preference for the peer-led sessions over existing consultant led teaching.
This approach offers an alternative to expert-led teaching which engages both peer tutors and learners. As part of an existing teaching programme this offers diversity and encourages development of innovative teaching skills. In particular, this provides a useful opportunity for providing structured teaching feedback.
Conclusion: The success of this programme demonstrates that peer-led teaching can be effective and highly valued in

postgraduate medical education, and we will continue to offer this scheme in addition to other regular teaching events.

(1) Foldnes,N.The flipped classroom and cooperative learning.Activ.Learn.High.Educ.2016,Mar;17(1):39-49.
(2) Rashid,MS.A near-peer teaching program... for final year medical students sitting the final OSCE.BMCMedEd.2011,Mar17;11(1):11.

4II3 (463)
Application of flipped classroom strategy in Pediatric dermatology learning: medical student attitudes

Authors
Arucha Treesirichod

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Background: The flipped classroom approach has been broadly applied to medical education. It reverses the traditional learning methods by providing online instruction outside the classroom and by moving activities into them. This pedagogy encourages students to engage in knowledge acquisition with the guidance of the instructor.
Method: Self-administered questionnaires were used to determine the attitudes following the pediatric dermatology class of the fourth year medical students toward the flipped classroom.
Results: Regarding the opinions of medical students toward the flipped classroom (n=205), the majority of them have agreed that it develops their self-directed learning skills (83.4%), increases their individual responsibility (81.4%), provides better retention of knowledge (81.0%) and improves the students' comprehension (80.5%). They disagree that the flipped classroom decreases the learner/teacher interpersonal relationships (62.4%) and the teachers' roles (73.1%). The majority of the students have indicated that the flipped classroom is better than conventional methods (75.2%) and should implement the flipped classroom into the clinical years (77.6%).
Conclusion: The key to the success is that students are able to take responsibility for their own learning. The positive attitudes of the student and teacher's roles are the most frequent factors which influence performance and learning in the flipped classroom. Advantages of this approach include increased opportunities for interaction between the students and teachers. The results indicate that medical students have an optimistic attitude toward the flipped classroom and can provide better opportunities in enhancing their self-directed learning skills.
Take-home message: The key purpose of the flipped classroom is student engagement, leverage technology and provide greater opportunities for active learning in class.

4II4 (553)
Using online immediate response system to promote in-class activities of flipped classroom in medical students

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Presenter: Yaw-Don Hsu, NDMCTSGH, Taipei, Taiwan

Background: Flipped classroom approach allows students to active learning. In previous studies, learners showed different ability and attitude in-class, leading to different interactive performance. To enhance learners' interest and ability in active learning, an online instant reaction system (IRS) is designed to help all students participate in-class discussions.
Method: Subjects were 32 medical students, assigned to two groups: the experimental group to learn flipped classroom with IRS in-class approach, while the control group to learn no IRS flipped classroom. Before and after class, all subjects completed a serial of questionnaires assessing motivation, attitude, satisfaction and course achievement.
Results: The t-test results showed no significant difference between the learning motivation, attitude and good course achievement of the two groups, but significant increase intrinsic motivation and attitude as well as their learning satisfaction between pre- and post-class in the experimental group.
It was found that the IRS could change learning behavior in-class of flipped classroom. It produces a good environment for all students to active to participate in teaching activity. The results show that learners are interested in participating in class discussion activities and enhance their intrinsic motivation of learning.
Flipped classroom is known as a good method for active learning, however, it is important to know how to provide a good activity and materials for learner discussion in-class. In this study, we found that using IRS in-class can effectively enhance learners' interests and communication.
Conclusion: Effective classroom interaction and discussion can let flipped classroom approach in success, and the IRS is one of good way to promote passive learner to active discussion and improve interaction behavior in-class. However, questions for discussion in short video must be well prepared before class.

4I5 NOT PRESENTED

4II6 (1223)
The effectiveness of flipped classroom on short knowledge retention at King Saud Bin Abdulaziz University for Health Sciences: A Mixed Method Study

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Presenter: Mesedah Alnahdi, King Saud Bin Abdulaziz University for Health Sciences, Jeddah, Saudi Arabia

Background: Research that investigates the effectiveness of flipped classroom (FC) compared to traditional class (TC) shows an increase in knowledge retention, while others have shown no difference. This pedagogical model was challenging for Middle East learning culture in which students are familiar with teacher-centered learning.
Method: This mix method study aims to assess the effectiveness of FC modality on short knowledge retention compared to TC and to identify the perceptions and challenges faced by students at KSAUHS, Jeddah, Saudi Arabia. We conducted this modality in Neurosciences Pharmacology course for (n=193) 3rd year medical students in 2017. An educational outcome, assessed by MCQs on the topic taught by TC and FC methods and validated questionnaire was given to FC students regarding their perception toward this method. After that, semi-structured interviews were conducted to find out the challenges students faced.
Results: The student knowledge was assess based on the result of post-test. There was a significant higher mean score of TC (4.1 ± 0.98) as compared to FC (3.6 ± 1.03) with p-value=0.01. No significant mean score difference was found within gender (p-value=0.77). The students' perception favored the flipped classroom in sharing more information, increase communication with their classmates and they considered it as a unique experience. Four themes emerged from thematic analysis of interview transcripts:(1) Perception about FC,(2) Challenges of FC,(3) Effect of Personal Characteristics, and(4) No Difference. Students performance was better on TC compared to FC particularly in interpretation and applying data (C2 level questions) with p-value<0.001. However, the perception of students for the flipped class was positive when comparing to the traditional way. The explanation for that some students noticed that it need more time and preparation to understand the learning objectives before they come to the class. Lack of students' motivation and orientation before conducting the FC could be reasons for this result. Lastly, it required sources to watch the videos and find some articles related to their objectives.
Conclusion: Future research need to focus on the way of delivering of FC and enhance students preparation to fit the aspect of in class activities.

4II7 (1728)
Effectiveness of flipped class and active class learning on undergraduate nursing student academic performance

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Background: Flipped class (FC) is an inclusive learning environment. Learning material is pre-assigned followed by face to face in-class sessions. Active class (AC) involves in-class discussion based on interactive sessions e.g. buzz group. In CONJ-KSAU-HS, the predominant teaching method is traditional class (TC) comprising of didactic lectures. This study was aimed to test comparative effectiveness of FC, ALC and TC on student's academic performance in Adult II course.
Method: The study conducted in CONJ-KSAU-HS, had a two groups pretest-posttest Quasi Experimental design. Students were randomly assigned in experimental group and control group. TEST 1 was held after 2 weeks teaching with traditional learning method (didactic lecture) in both groups. AC (unfolding case study with buzz group) was used in experimental group for 2 weeks followed by TEST 2. FC (pre assigned learning followed by in-class case study solving exercise) in experimental group was used for the next 2 weeks of teaching, followed by TEST 3. In the control group TC was used from week 1 to week 6 whilst covering same topics.
Results: TEST 1 scores provided baseline data. Mean scores (TEST 2 and TEST 3) were compared using ANOVA. TEST 2 scores were higher in experimental group (AC) compared to control group (TC) and the result was statistically significant ($p < 0.05$). TEST 3 scores showed no statistically significant difference in results of FC in experimental group and TC in control group.
Conclusion: It was observed that delivery of new concepts in active class session (buzz group) is well received and productive. This was reflected in higher academic performance in AC experimental group. FC on the other hand, did not yield in better academic performance. The results favor AC which is better suited in a stride to to shift teacher centered pedagogy with student centered pedagogy in a conventional teaching system.
Take-home message: Active class is more productive than Flipped class in a group of students accustomed to traditional pedagogy.

4II8 (1616)

The Innovative Flipped Clinical elearning Platform Facilitates the Objective Structural Clinical Examination Preparation

Authors

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Presenter: Florence Mei Kuen Tang, The Chinese University of Hong Kong, Hong Kong

Background: Staring from the Medical Year 4 in the Medical curriculum of Bachelor of Medicine and Bachelor of Surgery program, students are regarded as the junior clerkships who participate in the first year of the clinical practice will receive the clinical training in Surgery and Internal Medicine. The transition between preclinical and clinical training can be challenging and stressful for students as they need to apply learned knowledge and find solutions to clinical problems during the bedside training. While there is a restricted resource in face-to-face teaching students the proper way to take a patient's history, carry out physician examination, and counseling skills, students may not be confidently prepared for the clinical examination.

Method/Results: Our team will build up the web-based platform in micro-module flipped classroom for training clinical skill especially for the Objective Structural Clinical Examination (OSCE), which can be applied for interactive learning during medical teaching in the Faculty of Medicine. It also aims to equip students with the accurate pre-clinical knowledge and essential clinical skills for clinical examination and consultation.

The modern pedagogical methods – flipped classroom and micro-modules – are a combination of learning processes of e-learning activities with face-to-face periods in the classroom. It can be applied to strike a balance between the clinical skills training and clinical examination (CExam) assessment, which can facilitate medical students to improve their clinical competencies. The proposed new innovative micro-modules platform called flipped classroom micro-module CExam (Flipped CExam) platform. Our team has launched the micro-modules of clinical examinations guides to Blackboard for the clerkships to flip the classroom. As the lectures were in early July, there were high accession rates within this period and students are on and off to watch the Guides even at the end of Oct 2017. Nevertheless, the focus group interview has been performed on the clinical skills in the abdominal examination with the medical clerkships. All the feedback

were positive as they can have a better understanding of OSCE.

Conclusion: Overall, the Flipped CExam can facilitate students to understand how the clinical examination to be run.

4II9 (1186)

Peer Evaluation of Flipped Classroom Model Compared to Traditional Learning Method in Undergraduate Digestive System Education

Authors

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Background: Flipped classroom model (FCM) is a promising teaching approach in promoting knowledge acquisition above and beyond the traditional learning methods (TLM). However, it has been argued that there is lack of strong evidence and well-design studies for the effectiveness of this methodology in undergraduate medical teaching.

Method: In the 2017 fourth-year medical school classroom of Diseases of the Digestive System, students received FCM and TLM (23 modules each). For the FCM, students were provided on-line videos of 45 min with embedded quizzes before a face-to-face class (60 min) to discuss case-based problems using an interactive voting system (intervention). TLM was a lecture-based instruction (control). Students were evaluated at a multiple choice written test of 100 items (50% TLM modules). A minimum of 64% (>5 points of 10) of correct answers to questions were required to pass and scores were graded as A (10-8.5), B (8.4-7) and C (6.9-5). In addition, students satisfaction was assessed by an anonymous self-reported survey (Likert responses).

Results: From Sep/2017 to Jan/2018, 142 (67.6% female) students participated in the study. At the final exam, students achieved a higher number of correctly answered questions (36.8 ± 5.7 vs. 35.3 ± 6.6,p=0.04) and averaged scores (6.4 ± 1.4 vs. 6.0 ± 1.4,p=0.05) at the FCM section of the exam compared to TLM. In both sections, the number of fails were equal (17.6%), but students obtained better grades (A+B grade) at the FCM section (38% vs. 22%,p=0.02). In addition, paired t-test analysis revealed a better performance in the FCM section (p=0.001). Students (n=94) satisfaction scored better in FCM (rated excellent 47.8% vs. 8.5%, p<0.001). Students perceived that inverted learning may help them to achieve a better clinical practice performance (40.4% vs. 8.5%,p<0.001) and of benefit for professional practice (70% vs. 28%,p<0.01). The majority reported the methodology should be continued (82%).

Conclusion: Our results show that students exhibit better scores after implementation of the FCM. In addition, undergraduate medical students expressed strong

satisfaction with the implementation of the FCM, and prefer this method to TLM.

Take-home message: The FCM is an efficacious approach to achieve academic excellence in undergraduate Digestive System education.

4II10 (3671)
Conceptions of flipped learning and its relationship toward students' motivation and learning strategies

Authors
Fremen Chihchen Chou

Presenter: Fremen Chihchen Chou, China Medical University Hospital, Taichung City, Taiwan

Background: Flipped learning create a more active and competency-orientated learning context, and is now widely applied in medical education. Conceptions of learning, which are student's beliefs about knowledge and learning, are theoretically learning context specific, hierarchical and correlated to students' learning strategies and performance. A previous qualitative study revealed 7 conceptions of flipped learning (COFL) while comparing with traditional context. This study aimed to develop a questionnaire b to measure students' COFL and further explore the hierarchical relationship within the COFL and the relationship between COFL and motivation, learning strategies.
Method: We developed questionnaire items through literature review and iterative discussions with experts. 203 medical students who had experienced flipped learning participated this study to validate the COFL questionnaire, and 110 of them further responded to the established motivation and learning strategy questionnaires. Exploratory factor analysis and reliability analysis were applied to validate the COFL questionnaire. We also checked correlation between motivation and COFL, and compared low and high motivation student's COFL through ANOVA and t-test to clarify the hierarchical relationship between COFL.
Results: Exploratory factor analysis showed 6 factors were retained and one factor was deleted. The 6 factors were as the proposed COFL: learning as "preview," "review," "applying," "understanding," "extension of knowledge" and "seeing in a new way." The deleted factor was the conception "memorizing." There were significant correlations between COFL and motivations as well as learning strategies. Low motivation students had significant lower perception on high-level COFL. From low to high-level COFL were as the order we introduced the 6 factors.
"Learning as Memorizing," a low-level and passive conception of learning in literature for traditional environment could not be detected in flipped learning might reflect our expectation that flipped is more active. The hierarchical relationship within the COFL can be proved and differentiated by students' motivation. Students with higher COFL perceived better learning strategies.
Conclusion: Conceptions of learning is a worthy perspective for medical educators to investigate new models of learning context. COFL questionnaire is valid

tool to measure students' conceptions of learning in flipped learning environment.

4II11 (2255)
Flipped Learning Based on Peer Instruction Process Favorably Impacts Undergraduate Digestive System Education

Authors
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Onofre Alarcon
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Background: Flipped classroom method (FCM) promotes learning through a self-directed-learning phase with online videos and a subsequent classroom face-to-face phase used to assimilate and implement the acquired knowledge. During this phase, peer instruction has shown to engage students during the class through activities which enhances discussion and participation. The aim of this study was to compare the impact of FCM versus traditional learning method (TLM) on undergraduate Digestive System education at different academic courses.
Method: We compared the FCM at the fourth-year medical school 2017 classroom (intervention course) with the TLM applied in the 2016 classroom (control course). Students in the intervention course were provided with online videos of 45 min length with embedded quizzes before a face-to-face class (60 min) to discuss case-based problems using an interactive voting system. Students in the control course attended the traditional lecture (60 minutes) that was given by the same professors that produced the videos in 2017. To evaluate the efficacy, in both courses students were evaluated at a multiple choice written test of 50 items. A minimum of 64% (>5 points of 10) of correct answers to questions were required to pass and scores were graded as A (8.5-10), B (7-8.4) and C (5-6.9). Statistical analysis was performed by t-test and chi-squared test.
Results: The number of students attending the face-to-face class during 2017 was higher than in 2016 (median 142 vs. 30). At the final exam, the intervention course (n=148, 67.6% female) compared to the control course students (n= 133, 52.6% females) achieved a higher number of correct answers (36.8±5.7 vs. 33.8±5.6,p<0.001) and higher mean examination scores (6.4±1.4 vs. 5.9±1.3,p<0.001). The number of fails was similar in both courses (17.6% vs 24.8%,p=0.143). However, the percentage of A and B grades were higher in the intervention course compared to the control course (38% vs 16.6%,p=0.001).
Conclusion: Our results show that the FCM engage students and facilitate students the achievement of better scores and grades at medical school.
Take-home message: FCM is an efficacious teaching approach to improve grades and therefore gain knowledge in undergraduate Digestive System education.

4JJ: Posters: The Teacher and Challenges/Research in Medical Education

Location: Hall 4.u, CCB
Date: Monday 27th August
Time: 1400-1530 hrs

4JJ1 (969)
The experience of teacher learning community in physical therapy for ever-changing clinical educational system

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Presenter: Tsung-Yu Tsai, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan

Background: Clinical teachers are crucial for the effectiveness of clinical education. However, clinical teachers' training is mostly built upon conventional lectures and workshops, which provides limited effects on building teacher's identity and organizational climate. A learning community in a clinical teaching unit would benefit teachers' development and improve the teaching culture.
Method: We started the program, teacher learning community, since 2015 with strong support from the department head and hospital administrators. We scheduled monthly activities which included lectures, workshops as well as more casual activities for teachers to interact and share. We also incorporate major educational issues such as new assessment tools (DOPS, OSCE and mini-CEX) and curriculum development into the theme of activity.
Results: The community for the clinical physical therapy teachers in our hospital has been established for over 2 years and has recruited 18 members. Questionnaires were distributed to collect comments from the members and promising feedbacks were received. Members generally thought that they were more involved and the activities effectively helped individuals to solve their issues or problems. In addition, the overall teaching climate has also been improved.
Conclusion: Compared with other traditional teaching development activities, teacher learning community enhances a proactive environment, which improves the motivation and teaching climate among participants. Thus, the establishment of teacher learning community will be a good approach for the substantial development of clinical teachers.

Take-home message: Teacher learning community would be a very effective approach for individual clinical department to improve their teaching climate and teacher's ability.

4JJ2 NOT PRESENTED

4JJ3 (1176)
Transformation of educational philosophies and community of practice: A teacher's profile in EMI curriculum innovations

Authors
Miao Yang, Shantou University Medical College, Shantou, China

Presenter: Miao Yang, Shantou University Medical College, Shantou, People's Republic of China

Background: In higher educational institutions where English is not the first language of the students, EMI program (using English as the medium of instruction in academic subjects) is often implemented as a way to achieve internationalization and improve education. While discussions on the effectiveness of EMI programs have always focused on student learning, few research has paid attention to the experience of the EMI instructors.
Method: This ethnographic case study explores the trail of development of a novice medical teacher in an EMI medical curriculum over 10 years. It presents the teacher's profile by discussing the crucial landmarks in her professional development, based on data from encounters, conversations, observation, curriculum documents and teaching materials. To ensure an analytical description and interpretation of the case, the researcher kept research journals to remain self-critical ad reflexive. Meanwhile, the participant (the medical teacher) in the case study was asked for her feedback on the research output through the chains of conversation.
Results: It is found that the teacher has undergone profound changes on teaching philosophy, leading to great initiatives in teaching reforms in the EMI instruction. The changes first occur at interpersonal level through the mediation of faculty training and then at intrapersonal level as internalized and displayed by individual efforts in teaching practice. While the teacher enjoys autonomy as a module leader, she also has to deal with difficulties arising from the institutional structure.
The findings suggest that what is seemingly a change of Medium of Instruction (MoI) and a top-down curriculum innovation entails in fact a transforming of educational philosophies, and the remaking of the community of practice that emphasizes experience and hierarchy. It is this transformation of educational philosophies that may hopefully ensure the EMI program to achieve its ultimate objective of enhancing learning and achieving internationalization.
Conclusion: Curriculum innovation is a socially-mediated collaborative process which entails social-culturally situated learning at both personal plane and community plane. Without the remaking of the traditional community of practice, individual efforts will be limited to guarantee successful curriculum innovation in the long run.

4JJ4 (1493)
Identification with teaching, motivations to teach, and faculty development needs of part-time teachers vs tenured faculty at a health sciences school

Authors
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Presenter: Abigail Snook, University of Iceland, Reykjavik, Iceland

Background: Health science students rarely enter university intending to be a teacher, but many find themselves teaching students as part of their career. Little is known about part-time teachers' motivations to teach, identification with teaching, and faculty development needs.
Method: Following the AMEE Guide for developing questionnaires, a literature review and teacher interviews were used to create an online survey, which was emailed to part-time teachers (PT) and tenured faculty (TF) at a health science school at an Icelandic university. The survey consisted of a validated subscale on identification with teaching and items that assessed motivations to teach and needs with a Likert scale. The Icelandic adaptation was validated, and the subscale was verified (Cronbach's α=.80) with pilot testing. CFA, t-tests and Chi-square values were calculated.
Results: Seventy-eight TF and 160 PT completed the survey for a response rate of 37% and 25%, respectively. CFA identified two more subscales, 'connectedness' (α=.78) and 'appreciation' (α=.76), and comparative fit index was .9891 using the 3 subscales. All teachers, both part-time and tenured, were found to have similar identification with teaching, in-common motivations to teach healthcare professionals, and enjoyment of teaching. PTs desired more 'connectedness' with their colleagues (p<.001) and desired more 'appreciation' for their efforts to diversify their teaching methods (p<.05). Forty-four percent of PT strongly agreed they would have liked more pedagogical instruction before they started teaching, compared to 25% of TF (p<.05). PTs agreed or strongly agreed a teacher should invest time and energy in improving their teaching more (67% PT, 52% TF, p<.05) but admitted to never participating in teaching enhancing activities more (44% PT, 13% TF, p<.0001).
Conclusion: Healthcare professional education relies heavily on the participation of part-time teachers, who often lack pedagogical training and may feel disconnected from their university department. To engage and assist both part-time and tenured faculty to be better teachers, faculty development programs need to consider their unique as well as shared values and needs.
Take-home message: Faculty development programs need to address the common needs of faculty but also address the specific values and needs of part-time instructors.

4JJ5 (563)
Are you still happy and want to be a medical teacher?

Authors
Pinyok Srisansanee
Chawalit Chayangsu
Sunee Chayangsu
Jeerawat Kaewwinud

Presenter: Pinyok Srisansanee, Surin Medical Education Center, Surin, Thailand

Background: The shortage of doctors in rural areas causes the Ministry of Public Health of Thailand initiated the Collaborative Project to Increase Production of Rural Doctor (CPIRD) since 1994. All physicians in the regional center hospital have to perform the heavy duties that are both clinical practitioner and medical teacher. However, the pleasure of them has not been mentioned before.
Method: The cross-sectional study was conducted at Surin Hospital, an advanced tertiary care center and one of the main teaching hospitals in Northeastern Thailand. All 118 attending physicians were asked to complete the "Happiness in work as medical teacher questionnaire."
Results: Ninety-nine (83.9%) responded the questionnaire with 48.5% men, mean±SD ages of 42.6±7.8 years (31-62). Teaching experience was 6.5±3.2 years (0.5-16).The overall happiness of being a medical teacher was 3.26±0.83 (range1-5). Men had more happiness than women significantly (3.42±0.13 vs 3.12±0.11, p=0.03).If they have choices, 38.4% of respondents do not want to be medical teachers, especially women (58.8% vs16.7%, p<0.001). Main reasons were "overload of work/insufficient time" (60.5%) and "not good enough/lack of skills in teaching" (20.1%). However, the physicians who work in the major field like Internal medicine, Surgery, OB&GYN, Pediatrics, and Orthopedics had more desire to continue teaching than the physicians who work in the minor fields (71.9% vs 42.9%, p= 0.005).
Conclusion: Physicians at Surin hospital had a borderline happiness in being a medical teacher. Too much workload and lack of teaching skills were the main obstacles to burnout.
The appropriate assignment of regular duties and teaching work should be allocated for each physician including increasing of medical education training. Moreover, all doctors should be cooperative and supportive each other.

4JJ6 NOT PRESENTED

4JJ7 (3508)
"You're almost frightened of the tidal wave, you know you couldn't cope if it was": The stress of balancing teaching with service in general practice

Authors
Lindsey Pope
Susan Jamieson
Jill Morrison

Presenter: Lindsey Pope, University of Glasgow, UK

Background: UK General Practice (Family Medicine) is widely reported as being in crisis. Increasing workload and a decreased workforce have led to unprecedented pressure on GPs. To address this in the long term, undergraduate teaching and postgraduate training in GP is increasing. In the short term, this potentially adds to the stress and workload of teachers in practice and this study explored how GPs balance teaching commitments with their clinical service delivery.

Method: 17 semi-structured interviews were conducted with GPs who teach in multilevel learner practices in Scotland. These were analysed using a combination of Activity Systems Analysis (ASA) (Yamagata-Lynch, 2010) and Thematic Analysis. This approach enabled the tension between teaching and service delivery to be explored and its impact on clinicians to be better understood.

Results: There was a clear tension between teaching and service. Managing this tension caused significant stress for some of the GPs and their practice teams. ASA identified how the varying intended outcomes of teaching (e.g. the energy learners bring, income, maintaining quality of care and service provision) interacted with desired clinical outcomes. Furthermore, the use of this framework facilitated consideration of where the tension within and between activity systems existed (e.g the 'rule' of protected time for teaching v the pressure due to staffing shortages – 'division of labour).

Conclusion: While much of the recent literature and policy promotes a rapid expansion of teaching in General Practice, this study demonstrates the need to consider the implications of this in the context of a recruitment and workload crisis in GP. Through better understanding of the Activity System of teaching in GP, strategies for managing the teaching-service tension were identified and areas of ongoing tension described. These strategies and tensions existed both at local level and at the interface with partner organisations (e.g. medical school, postgraduate organisations).

Take-home message: In order for the current desire to expand teaching in GP to succeed, GPs need to be supported to effectively balance the tension between teaching and service delivery.

4JJ8 (2841)
Prevalence and factors influencing burnout syndrome among medical teachers in tertiary care non-faculty hospital: a pilot survey

Authors
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Presenter: Thanatchanan Thodthasri, Buriram Medical Education Center, Buriram, Thailand

Background: Our tertiary care non-faculty hospital is in the part of the Collaborative Project to Increase Production of Rural Doctor supported by university hospital. Mainly of physicians workload is to service both IPD and OPD patients, in addition to teaching ninety medical students in three clinical years with quality control of hospital accreditation. Because of workload, burnout syndrome may be common and underestimated among our physicians due to prolonged exposure to job stressors, emotional exhausted, and student expectation.

Method: 115 online-questionnaires were sent to medical teachers (response rate 76%). The questions consisted of baseline socio-demographic data, working hours per week, night shift work, teaching hours per week, leisure time, mindset of medical education program, working environment, partners of workload, experience in medical teacher, number of simultaneous jobs. And burnout will be assessed in three aspects of emotional exhaustion, depersonalization, decreased occupational accomplishment.

Results: Prevalence of burnout syndrome among old staffs (>40 year, 44.4%) is 42.7% more than in young staff 19.0% (< 40 year, 55.7%), male (62%) more than female (38%) with related to personality type A. Associated factors were longer years of medical service, habitual style, loss of teaching inspiration, number of simultaneous jobs. The percentage of burnout syndrome of each departments were OB-GYN 47%, medicine 31%, surgery 27%, pediatrician 20%, whereas a few in orthopedic 5.9%, rehabilitation 4%, family medicine 3.4% correlated to ratio of teachers and students, specialist stress at work. Self-reported depression was related to higher scores for all three domains. The most impact influencing factors were working hours per weeks, number of simultaneous jobs and mindset of medical education program, respectively. Burnout syndrome was common in tertiary care non-faculty hospital with multiple aggravating factors. Finding out the magnitude, causes and further exploration of these syndromes in other healthcare providers, and paramedics related to medical student may lead to improvement of medical education program, the quality of working environment and coped with emotional compromised of medical teachers.

Conclusion: Prevalence of burnout syndrome among our medical teachers is about 30% of all which maybe impact to medical education program.

4JJ9 (483)
Retention behind Resilience: How to cope with a hectic schedule in the medical workplace

Authors
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Presenter: Pei-Chun Lin, Far Eastern Memorial Hospital (FEMH), New Taipei City, Taiwan

Background: In Taiwan, clinical teachers in medical center usually have a hectic schedule involving clinical service, teaching and research. Burnout is common amongst these faculty members. We investigated the effect of resilience workshop on medical faculty members in need and hope through giving the skills can help them cope with the hectic schedule.
Method: We designed the resilience workshop as a faculty development activity placing off cites and taking half day to give a brief concepts about resilience and how Mindfulness-Based-Stress-Reduction (MBSR) can improve resilience by MRSR instructor. Questionnaire designed to approach participants' perception of mindfulness and resilience with feedbacks after workshop were collected.
Results: At first, we call for participation for those faculty members who think they are burnout. 33 faculty members from various departments including physicians, pharmacists, nurses and other paramedical staffs joined the workshop, and 85.7% are clinical-teachers. 97% of them were satisfied with their teaching performances currently, however, the most two reasons caused teaching fatigue and burnout were working and teaching time conflict (22.54%), and heavy teaching load (15.49%). Through the workshop, participants 100% agreed the skills could help them face the stress and enhancing their resilience. Moreover, providing exclusive teacher benefits such as free coffee or massage on Teacher's Day (27%), more MBSR lessons (26%), and offering career development lessons such as stress management (19%) were the most three recommended activities to enhance resilience by participants.
All participants found the resilience workshop entirely positive. It gave faculty members a space to discuss themselves, to share, and to learn from each other, subsequently increasing their sense of wellbeing and mindfulness. The workshop enabling teachers to respond positively while facing teaching fatigue.
Conclusion: Resilience is vital for medical faculty members. Burnout contributed by many factors including personal hectic schedule, individual and environmental factors. A system to provide supports in order to retain teacher's wellness and wellbeing is crucial for faculty resilience. Resilience workshop is an effective tool for faculty members to cope with hectic schedule in the workplace.
Take-home message: Practices led by MBSR instructor could enhance resilience and avoid teacher burnout.

4JJ10 (2089)
Stress Maintained by Medical Staff, Externs and Interns Affects Medical Students' Learning Abilities at Vachira Phuket Medical Center

Authors
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Presenter: Pornpirun Leeyangyuen, Walailak University, Phuket, Thailand

Background: Medical studies can be difficult and stressful since the students are required to tackle medical-related problems and be fully responsible for consequences. Stressful medical staffs can also be another factor that causes stress to medical students and affects their learning skills. This study aims to address the effects of stress maintained by medical staffs, externs, and interns on medical students' learning abilities.
Method: Questionnaires modified from self-stress assessment form by department of mental health of Thailand and Questionnaires about effects of medical staffs, interns and externs on medical students' GPA and learning satisfaction were distributed to 48 medical students between 4th to 6th year at Vachiraphuket medical education center. Personal data were also collected. The data was analysed by adopting one-way ANOVA (p = .05)
Results: Results showed that the participants had normal (71%) and severe stress(29%). The group that portrayed severe stress were females (=0.005) studying in 4th year (p < 0.005) majoring in Obstetrics and Gynecologic (p < 0.005). In addition, results demonstrated that stressful medical staffs negatively affect medical students' GPA and learning satisfaction (p < 0.005) while encouraging externs and interns positively affect students' learning satisfaction (p<0.005).
Conclusion: Stressful medical staffs relatively decrease students' learning satisfaction, encouragement, and GPA while stressful externs and interns do not significantly affect their learning satisfaction and GPA. On the contrary, encouraging externs and interns positively affect the students' learning satisfaction and motivate them to improve their GPAs.
Medical staffs that have reasonable and grounded stress as well as encouraging externs and interns are proper for medical students because they relatively assist in students' learning abilities and outcomes.

4JJ11 (2087)
Faculty Motivations and Barriers to Teaching in a Clinical Academic Department

Authors
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Presenter: Malgorzata Rajda, Dalhousie University, Department of Psychiatry, Halifax, Canada

Background: While teaching is a core activity of clinical departments in faculties of medicine, the degree to which individual faculty members self-identify as academics and/or teachers varies. Clinicians may identify only as practitioners or may be committed to teaching and other academic activities. Miller (2014) proposed a model for teacher identity formation that includes personal factors, training factors, and contextual factors (as well as reflection). The purpose of this study was to determine to what extent members of a clinical academic department self-identify with academic roles, to explore their perspectives as teachers, and to identify facilitators and barriers to teaching.
Method: 102 faculty members of the Dalhousie Department of Psychiatry in Nova Scotia, Canada, were invited to complete an Opinio survey on teaching in 2014-15 (35 completed responses) and 2017 (16 completed responses). Findings were evaluated using quantitative (frequencies) and qualitative means (thematic analysis).
Results: Although over 90% of respondents identified teaching as an important component of their work, approximately 25% of respondents did not self-identify as academic physicians despite having faculty appointments. Much of the motivation to teach arose from personal factors (sense of responsibility, enjoyment) while barriers were often contextual factors (competing service demands, tension between clinical expectations and teaching responsibilities). Respondents indicated they would benefit from practical support (such as protected time for teaching) and would value recognition and encouragement. Over half the respondents had training in medical education, and the majority were confident in their teaching skills. Approximately half of respondents expressed interest in department-supported faculty development to improve teaching skills.
Conclusion: Some clinical faculty who see teaching as integral to their professional role do not self-identify as academic physicians. Motivators for teaching were often personal factors, while contextual factors were more likely to be identified as barriers. Faculty development in teaching was valued by many, but participation was not universal. Currently, these findings are being used to address local barriers to teaching and recognize teachers more effectively.
Miller W. Developing a theory of clinical instructor identity using the experiences of medical laboratory science practitioners. Clin Lab Sci. 2014 Spring;27(2):97-104.

4JJ12 (3235)
Can A Picture Paint a Thousand Words?

Authors
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Cathy Fletcher, University of Liverpool, Liverpool, UK
Dr Kathryn Jarvis, University of Liverpool, Liverpool, UK

Presenter: Catherine Gordon, University of Liverpool, UK

Background: This work discusses the final stage of an interprofessional research project, the primary aim of which was to gain insight into the expectations of preregistration nursing and radiotherapy students and the potential link to student retention.
Method: Data was initially collected using specifically designed, traditional questionnaires in order to gain an insight into the academic, clinical and practical expectations of both cohorts of students at both the beginning of year one and the beginning of year two. Having analyzed the traditional data and identified the emergent themes using the Miles Huberman approach, the pictorial data collected in parallel with the narratives also required analyzing. This work describes the various stages of development of a systematic method of analysis of the pictorial data and discusses the findings using this non-traditional method in comparison with those identified using the original, traditional methods.
Results: The findings of the first stages of the project identified three main comparable themes (support, communication and confidence) with few contrasting themes. One of the major results of this final stage of the project was the design and development of a systematic and objective method of analysis of the pictorial data. Surprisingly, the findings from the non-traditional data provided a notably different insight into the student's expectations and experience.
Conclusion: The development of a robust method of analysis of pictorial data, once tested, provides the potential for application in a range of contexts.
The team plan to test their method further in the hope that they might use the method with confidence in the future. Questionnaires are a commonly and widely used data collection method for the collection of data in response to specific questions. However, with the development of a robust and objective method of analysis, this work indicates a potential to gather a more realistic insight into students' experiences.

4JJ13 NOT PRESENTED

4JJ14 WITHDRAWN

4JJ15 (198)
Productivity in medical education research: a challenge and opportunity in Thailand

Authors
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Presenter: Pairoj Boonluksiri, Hatyai Hospital, Songkhla, Thailand

Background: Medical education research requires different ways of thinking about knowledge compared with clinical medicine. All medical schools including affiliated hospitals have to emphasize on educational research for quality assurance. In Thailand, Collaborative Project to Increase Production of Rural Doctor (CPIRD) is affiliated with universities and responsible mainly for service plus clinical and educational research. So it is a challenge and opportunity to balance these duties.
Method: Medical education researches are collected via Thai Medical Education Database during 2001-2016. Categories are publication, presentation at national and international conferences (AMEE, OTTAWA, AMEA). Themes are categorized as curriculum, teaching & learning, assessment, and others. Objective designs are classified as description (what was done?), clarification (why or how did it work?), and justification (did it work?). Data analysis is performed to compare the productivity of CPIRD and universities.
Results: There are 1,979 titles found and only 5% are published. The trend of productivity increases rapidly in 16 years. Of 1,884 presentations, 47.8% are international which 60% are presented again at national conference. AMEE (91%) is the most common which 52.8% are performed by CPIRD. The most common theme is teaching & learning in undergraduate. There are statistically different in objective designs between universities and CPIRD (66.2%vs74.5% of description, 33.1%vs23.8% of clarification, and 0.7%vs1.7% of justification respectively, p-value 0.004). By interview for the barrier, it is related to insufficient skills, experience and less familiar with methodologies than clinical research. In addition, time management is somewhat difficult and no inspiration. Most researches are supported by volunteer.
Even though CPIRD has research productivity as many as universities, quality evaluation is limited due to lack of full papers appraisal. Most researchers are familiar with teaching & learning theme. Small publication might be under-reported from publication bias. International presentation like AMEE is an enhancing factor of productivity. It can inspire inexperienced staffs to do educational research.
Conclusion: Balancing service and educational research should be considered for medical schools including affiliated hospitals. Research management to increase capacity should be continuously supported for international presentation and publication.

4KK: Posters: Student in Difficulty/Student Engagement

Location: Hall 4.u, CCB
Date: Monday 27th August
Time: 1400-1530 hrs

4KK1 (205)
What factors determine academic achievement in medical education? Perspectives of Thai internists and dropout students

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Presenter: Navakorn Ingkapairoj, Buriam Hospital, Buriram, Thailand

Background: Although most Thai intellectual high school students select to study medicine, the academic achievement in their medical schools varies, some cannot pass the national licenses examination and drop out of their colleges. Exploring this is important for faculty development.
Method: 16 volunteer participants, all had an average high school GPA of more than 3.80 and excellent cognitive function (mean MOCA test 30, mean DSST 118 from 120 within 90 seconds), had been interviewed. 7 participants were graduated with average scores and 9 participants could not pass national license examination or passed by retest. We compared between two groups with basic vocational orientation, PHQ-9 depression screening test, Rey auditory verbal learning test (RAVLT) and their perspectives about educational obstacles.
Results: The learning skill from RAVLT between two groups was similar. Success at examination group was related to "Data" (average "Data" domain score 36.1±11.4 vs 29.0±8.1) or "Person" (average "Person" domain score 48.8±7.0 vs 41.0±9.0) type of basic vocational orientation. Meanwhile, the poorly performed medical student oriented to "Tool" (average "Tool" domain score 30.0±6.8 vs 15.0 ±7.7) type and had depressed mood (33.3% vs 14.3%). The issues like inadequate leisure time and stress were also important factors for academic achievement. Our study resonate different perspectives from other contemporary studies. The emotional wellbeing and occupational aptitude could affect academic achievement in medical students. In Thailand, six-years curriculum in medical school is required. The first three years of the curriculum aredevoted to preclinical studies and the clinical clerkship take place during the remaining three years. The effective time management skills and emotional coping skills are essential for continue academic accomplishment.
Conclusion: In addition to intellectual and learning ability, the academic achievement in medical students also depend on occupational aptitude, adequate leisure time and emotional coping skill. Because the intellectual high school students select to study medicine, this value create a culture of higher expectation and cause stress.Emphasis on the emotional wellbeing and vocational orientationis important.

4KK2 (1234)
Academic Risk Predictive Model in First Year Medical Students at Universidad Andrés Bello Viña del Mar Chile

Authors
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Presenter: Peter McColl, Escuela de Medicina Universidad Andrés Bello, Viña del Mar, Chile

Background: Academic risk detection is a very important task as it allows to opportunely support students and prevent delays in curricular advancement and/or dessertion.
Objective: Create a predictive model, which detects students at academic risk in the first semester of the first year of medical school.
Method: A cross-sectional study with 38 medical students and variables first measured were math-language-science Universitary Selection Scores (USS-M, USS-L, USS-S); Ranking Score (RS), High School Final Mean (HSFM). Then informed consent obtained and the following tests applied: MSQL, motivation (MOTIV), and learning strategies (LS); Kolb´s Learning Style Inventory; a Psychosocial Questionnaire, which identified psychosocial risk (PR) and family support (FS); Reading comprehension and speed. Final semester grades mean (FSGM) obtained. Correlation and linear regression, $p<0.05$ were used.
Results: 52.63% are at psychosocial risk. Group without psychosocial risk FSGM 5.73, and group at risk FSGM 5.63 (scale 1 to 7). Students with family support FSGM: 6.07 and group without family support a 5.65.
Kolb´s convergent style (CO), has the highest FSGM (6.12), compared to the others. Reading comprehension and reading speed were not relevant.
Correlation analysis: FSGM high linear correlation with USS-S (0.437), LS (0.357) and MOTIV (0.357). Linear regression model of the FSGM explains:
FSGM = -2.486 + 0.0033HSFM + 0.0017USS-M + 0.0045USS-S + 0.14MOTIV + 0.08LS - 0.15PR+ 0.33FS + 0.53CO, p=0.00002.
Determination Coefficient is 0.6830. The model explains 68% of the variability existing in the FSGM of the first semester.
The variables studied showed the ability to predict academic performance. Variables linked to the regression model: HSFM, USS-M, USS-S, MOTIV, LS, PR, FS and CO, were able to explain the variability of academic performance close to a 70%.
Conclusion: Several challenges arise: to validate the predictive model with a new cohort; to improve the Determination Coefficient by incorporating other variables

measurements and most important, to apply an intervention plan to the detected students.

4KK3 (1502)
What happened to my mind?

Authors
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Presenter: Kanoknan Intabtim, Budhachinaraj Medical Center, Phitsanulok, Thailand

Background: There is a huge difference between the pre-clinical (first to third) and the clinical (fourth to sixth) years in medical school. The fourth year of medical school is one of the most challenging and important periods since a large amount of time is spent with patients in steads of attending lectures. To deal with multiple responsibilities, social expectation, intensive training programs, and a culture of blame can lead to stress, low self-esteem and depression in medical students.
The objectives of "What Happened to My Mind" were to help the fourth year medical students resolve their inner conflicts through self-reflection and introspection, to develop a positive learning environment, and to identify the at-risk students in order to provide them with support.
Method: The fourth-year medical students at Buddhachinaraj Hospital were involved in this study and the moderators were the psychiatrists. The activities were divided into three sections: the small talk; the reflective writing including the unpleasant situations which they had experienced, how they perceived them, and how their attitude was changed; sharing their experiences to others. A cross-sectional descriptive study was performed. Data of the study were reported as the percentage and qualitative analysis.
Results: Data were collected from 34 (male=11, female=23) out of 60 fourth-year medical students. The results showed that the most emotional situations for the fourth-year medical students were emotional ties with the patients and their illnesses (47.1%), their academic concerns (26.5%), and being reprimanded by staffs, residents, and interns (23.5%), respectively. The emotion categories that occurred were sadness (50%), empathy (29.4%), feelings of guilt and disappointment (20.6%). Consequently, these resulted in determining to practice self-development (82.4%); however, there were two students who were subject to suffering from depression or adjustment disorder.
Conclusion: "What Happened to My Mind" is the activity which gives the medical students a good opportunity to do a self-reflection. Not only that the students gain their self-understanding, but the instructors can help promote the students' improvement and development. This activity should be regularly encouraged for every medical student.

4KK4 (1506)
Stress in relation to CanMEDS roles during clinical courses: a prospective study on medical students

Authors
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Tomas S Bexelius, Karolinska Institutet, Stockholm, Sweden

Presenter: Sari Ponzer, Karolinska Institutet, Stockholm, Sweden

Background: CanMEDS competency framework could be used to follow the development of medical students' professional roles. Our hypothesis was that stress and other emotions varied over time and were related to type of courses, specific CanMEDS roles, and socio-demographic factors such as age, gender and previous university degree. The aims of this study were to investigate undergraduate medical students' perceptions of stress and relate to their socio-demographic background factors and reported CANMEDs roles.
Method: Medical students participated in a prospective study and reported their experience of stress and what two CANMEDs roles they primarily had been engaged in during the last three weeks. The questionnaires were sent every third week, during the study period of 1.5 years when the students completed their courses in Internal Medicine (6th term), Scientific Project (7th term) and Surgery (8th term). Of 98 students who agreed to participate 74 were included corresponding to a response rate of 76%.
Results: The most frequently reported CanMEDS roles were 'Medical expert' (57%) and 'Scholar' (60%). Stress increased during the students' Scientific Project term coinciding with the highest proportion reported professional roles as a Scholar. No link between stress and socio-demographic factors, such as gender and age was found.
Conclusion: This study focused on undergraduate medical students' perceptions of stress during their clinical courses. The key finding was that activities related to different CanMEDS roles were more important in determining the level of stress than any socio-demographic background factor, including gender and age.
Take-home message: Students' stress was related to different learning activities rather than to their socio-demographic background factors.

4KK5 (1170)
Motivational Profiles of Thai Medical Students: Association with Exhaustion, Academic Year, and Performance

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Presenter: Wanna Ardonk, Buddhachinnaraj Medical Center, Phitsanulok, Thailand

Background: Motivation is one of the driving factors for academic performance. According to self-determination theory (SDT), intrinsic motivation is driven by inherent satisfaction and is self-determined while extrinsic (controlled) motivation stems from desire status, monetary reward, and/or avoiding punishment. The study aimed to identify the motivational profiles of Thai medical students using clusters of motivation types and investigate their associated factors.
Method: Medical students from 2nd to 6th year studying medicine at Naresuan University participated in the study (n=506). Students completed the Academic Motivation Scale (without the lack-of-motivation subscale) along with the exhaustion scale (possible full score: 30) from Maslach Burnout Inventory-Student Survey (MBI-SS). Academic year, gender and GPA were recorded. The K-means cluster analysis was used to categorize the respondents into 4 clusters of motivation: High Intrinsic-High Controlled (HIHC), High Intrinsic-Low Controlled (HILC), Low Intrinsic-High Controlled (LIHC), and Low Intrinsic-Low Controlled (LILC) in order to assess the relation to exhaustion, gender, academic year, and academic performance.
Results: The HIHC, HILC, LIHC, and LILC clusters constituted of 39%, 17%, 14% and 30% of the population, respectively. The distribution of students from different year levels between the profiles was significantly different (p=0.002). The percentage of pre-clinical year students (2nd-3rd) was the highest in HIHC whereas the majority of clinical year students (4th-6th) consisted in LILC. The exhaustion scores in HIHC (13.69) and HILC (14.36) groups were significantly lower than those in LIHC (17.33) and LILC (17.15), p=<0.001. There were no differences between clusters in GPA (p=0.215) or gender (p=0.341).
There were distinct patterns of intrinsic and controlled motivation. Although grades and gender were not significantly different among the motivation groups, intrinsic motivation was found to be an essential link to lower exhaustion. The difference in motivational profiles between pre-clinical and clinical years showed that academic programs in the latter might diminish both types of motivation.
Conclusion: The faculty could enhance students' intrinsic motivation by providing a learning environment with autonomy-supportive teaching or conducting an academic intervention to improve autonomous motivation.

4KK6 (953)
Medical Student Suicides in Thailand: The Analysis by Using Reported Cases in Thai Newspapers

Authors
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Presenter: Rungnapha Siriphonphaibool, Somdejphrajaotaksinmaharaj Hospital Medical Education Center, Tak, Thailand

Background: The instruction of medical in Thailand, It can be said that the major that students confront with stress all the time. When students study in the higher year will find the content that is difficult and medical students received a high expectation from the family and society. So, medical students are more concerned and the risk of severe depression until the suicide phenomenon many time in Thailand. Therefore researcher studies the causes of suicide in medical students. It also offers the strategy to prevent suicide of medical students.
Method: This is survey research since 2007 – 2017 by searching reported cases from "Matichon E-library Online Based" and using keywords to search are "Medical Student" and "Suicide" to find a phenomenon in each year and presents results through description analysis.
Results: Thai newspapers show 6 report cases. The result found 5 medical students success suicide, male suicide than more female 83.3%. The most suicide of medical students is jump from high place and jump to river (33.3%). The most places' suicide of medical students is public area (66.6%) and the causes of medical student suicide are study problems (100%).
However, the 10 years ago have the suicide rate of 6 medical students. This is a very low number when compared with the rate of suicide in all students of countries but these phenomena should not happen because medical students will be valuable human resources for future in public health system. If the instructor or medical school has a strategy to prevent the medical student suicide can make the positive impact to students.
Conclusion: Medical schools should have a strategy to prevent medical student suicide by using "meeting advisers" technique for monitoring, following and counseling to medical students to reduce the risk of suicide.
Take-home message: Medical school should push meeting advisers technique to be activity or policy of medical student and pushing the activity at least 3 times per year.

4KK7 (666)
Development and content validation of a structured scale for measuring interpersonal violence and bullying among students from health professions undergraduate programs

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Background: Interpersonal violence and bullying (IPV-B) seems to be common in higher education. This has drawn the attention of educators concerned with student adjustment and mental health. IPV-B also challenges the University broad responsibility to educate citizens committed to humanistic values.
Method/Results: We developed a structured scale for measuring IPV-B among undergraduate students in the health professions. An exploratory research identified different IPV-B events, including violence due to gender, sexual orientation and personal characteristics, as well as racism and social class discrimination. These findings underpinned the construction of an initial scale version with 83 affirmative items in a 5-point Likert Scale. Ten referees with professional experience in IPV-B or scale construction evaluated this version. Concordance between referees (Content Validity Index value: >0.80) was required for item maintenance in the scale. An adjusted scale version was subsequently assessed by undergraduate students (N=20).
Referee evaluation led to the exclusion of 27 items and the adoption of a 4-point Likert Scale. Referees agreed that the remaining items were pertinent, meaningful and presented in the right order, with sufficient clarity, coherence and comprehensiveness. Language, layout and instructions for answering were also regarded as appropriate. Students agreed that the scale was fully understandable (18/20) or nearly so (2/20), with all items easy to answer. Based on referee´s judgement and student´s opinion, a 56-item final version of the IPV-B scale was composed and is ready for further work.
This study covered the steps recommended for the construction and validation of structured scales. Further work with larger number of students will allow completing validation and evaluating the scale reliability. Measuring IPV-B using a properly validated and reliable scale is important, as experiencing IPV-B situations may affect student social adjustment and adversely influence learning.
Conclusion: Construction and content validation of a structured scale for measuring interpersonal violence and bullying in health professions undergraduate programs was feasible and produced promising results. Using such a scale may help detecting these undesirable events, evaluating the educational environment and favor the development of coping strategies and the definition of preventive actions.

4KK8 (3026)
Depression Factors During Internship In Medical Students

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Background: Feeling stressed for more than 2-weeks could lead to acute depression. Medical students are a high risk for depression due to high responsibility. This depression could lead to many further serious problems. To determine probable depression factors of 6th-year medical students.
Method: The Qualitative descriptive study was interpreted at medical college Maharaj Nakhonsithammarat hospital from April 2016 – April 2017. Inclusion criteria was 6th year medical students who were tested postitive with 2Q question test in Depression screening during the Internship period in major department. Questionaires were used to collect data from 6th years medical students in order to study depression factor while they were woking as interns in 6 major departments eg. Internal medicine, General surgery, Pediatric, Obstetric & Gynecology, Orthopedic & Emergency department. 2Q Depression screening question:
1. Have you been sad or depressed for the last 2 -weeks?
2. Have you been bored or not enjoying life for the last 2 -weeks?
Results: There were 89 students in the study with a mean age of 24±0.43 years old. Overall 24 (26.96%) students were depressed while they were in Internal medicine rotation which the major depression factors was The Morning-Noon conference. 20 (22.47%) students felt depressed while they were in rotation of general surgery which the major depression factor was the aggressive behavior of professors.
16(17.97%) students were depressed while they were in Emergency Department bacause of too much workload & nightshifts.
9 (10.11%) students were depressed while they were in Obstetric & Gynecology because they were not good at doing procedures eg. Amniotomy and Normal Labor. Department that had the lowest number of depressed students was Orthopedic because Students had the best life quality compared to other departments eg. kind staff, appropriate night shift, non stress case-conference.
Conclusion: Factors induced depression in medical students are different in each Department which depend on the environment for instance morning & noon conference, aggressive behavior of professors, night shifts, Co- Health providers such, free time to relax and personality factors e.g. marriage status, parents status, GPA National license examination, income.

4KK9 (509)
An active strategy of clinical skills learning - engaging students as partners in learning activities

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Background: This study is focused on adopting an active learning strategy with a teacher-student partnership to improve the clinical skills learning in the domain of cognitive skills in an undergraduate medical curriculum. The research questions explored were (a) Does involvement of students in constructing case scenarios for their clinical skills learning sessions with the faculty improve students' knowledge domain of clinical skills? (b) What is the students' perception of this teaching method?
Method: This study was carried out in a clinical posting of 4th year undergraduate medical students. 78 students were randomly assigned to 2 groups. The intervention group was involved with the faculty in constructing case scenarios (N=40) and the control group continued with the conventional teaching methods. (N=38). A convergent parallel mixed-method design was used in this study. At the end of their clinical rotation Key-Feature-Tests were used to assess their cognitive domain of clinical skills. Qualitative data was also collected from unstructured open-ended individual interviews.
Results: A comparative analysis of the results revealed that the intervention group scored significantly higher, mean 64.77 (SD 10.06), compared to the control group mean 58.32 (SD 10.47), with a statistically significant difference (p<.007). The qualitative exploration revealed four main themes: Learning strategies, Relationship with lecturer, Cooperative learning and Student responsibilities. The study revealed that there was a relation between student engagement, partnership and effective learning and substantiated the goals of constructivist learning. The themes that emerged in the study were in line with the main characteristics of constructivist view of learning that also corresponded to a "Rich environments of active learning" (REAL). The students also perceived that their experiences provided them a good platform to contextualize their knowledge and enhanced deep learning.
Conclusion: Based on the study, constructing clinical cases had shown important aspects of student engagement. It also proved to be an effective way for active involvement in learning while building a partnership with the faculty. Co-producing case construction is suggested to be an integrated method of clinical skills learning that can be utilized to improve the knowledge domain of clinical skills.

4KK10 (2453)
The role of medical students in implementing a curriculum in a new branch campus

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Background: In July 2017, Mayo Clinic School of Medicine, Rochester, Minnesota, opened a branch campus in Scottsdale, Arizona. Arizona's inaugural first-year pathology course was implemented concurrently with Rochester's course in January 2018. The Rochester course has a tradition of utilizing third-year medical students, who have previously taken the first-year course, as teaching assistants (TAs). Three third-year students were also sent to Arizona to facilitate implementation of the new course.
Method: Students and TAs were surveyed during the last week of the course to determine the effectiveness and comparability of course implementation. Surveyed TAs included two Arizona pathology faculty members and eight third-year medical students. Fifty Rochester students and 31 Arizona students rated their agreement from 1 (strongly disagree) to 5 (strongly agree) with statements evaluating their perceptions of TA mentorship and teaching performance.
Results: Student TAs compared to consultant TAs were perceived as improving student integration into the medical community (4.4 vs. 4.1), increasing awareness of upcoming medical school expectations (4.1 vs. 3.6), improving study skills (4.0 vs. 3.5), and promoting work-life balance (3.6 vs. 3.2). However, student TAs were less effective at explaining challenging concepts (4.4 vs. 4.8). Rochester and Arizona TAs thought course implementation went equally well (4.5 vs. 4.5) and that courses were equally well organized (4.2 vs 4.0).
Conclusion: Third-year medical student TAs were uniquely positioned to transfer Rochester's existing course culture to a new branch campus with its own distinctive features. Translating methods of evaluating clinical reasoning to a new campus was challenging. However, due to their previous course experience, student TAs on both campuses were better equipped to understand student challenges and found it easier to adapt existing material to meet student needs. Because the Arizona campus only has first years, those students especially appreciated mentorship from third-year medical student TAs.
Take-home message: Medical student TAs were effective at implementing a comparable preclinical course that integrates basic science and clinical information at a new branch campus.

4KK11 (1432)
The Utrecht Work Engagement Scale (UWES-S-9) has good psychometric indicators in the Portuguese medical student population

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Presenter: Rita Neves, School of Medicine, University of Minho, Braga, Portugal

Background: The Utrecht Work Engagement Scale (UWES) is a widely used self-report questionnaire of work and student engagement that assesses the three dimensions of the construct: vigour, dedication, and absorption. Student engagement has not been measured before in Portuguese medical students with UWES or other scales. This study evaluated the psychometric properties of the Shortened Student Version of this scale (UWES-S-9) among Portuguese medical students.
Method: Participants were Portuguese medical students from all the 6 years of undergraduate medical training who filled out the UWES-S-9 and the NEO-FFI questionnaires. The UWES-S-9 scores were analyzed for item sensitivity, reliability, and factorial, convergent, and discriminant validities. The UWES-S-9 was correlated with the NEO-FFI data for convergent validity.
Results: The response rate was 59 % (460 out of 781). Item scores proved adequate sensitivity. The subscales and total scale scores demonstrated good reliability ($\alpha \geq 0.83$), except for the subscale Absorption ($\alpha = 0.68$), where problems with item 8 ("I am immersed in my studies") were detected. A one-factor model showed adequate fit to the data (CFI = 0.95, TLI = 0.92), but both a three-factor and a second-order three-factor model demonstrated improved fit (CFI = 0.97, TLI = 0.95). However, item 8 showed lower scale and subscale loadings. Total engagement scores showed significant positive correlations with extraversion, agreeableness, and conscientiousness ($0.14 \leq r \leq 0.25$), and negative relations with neuroticism ($0.14 \leq r \leq 0.25$). No significant differences in engagement were found for gender and academic year.

Conclusion: UWES-S-9 has acceptable psychometric properties and is a useful instrument to measure student engagement, either as a one- or three-dimensional model in Portuguese medical students. The removal of item 8 would improve the overall scale properties. Therefore, we recommend a revision of item content to rephrase or remove it, or replace it by another item of the original UWES scale and further validation of the scale. Further studies with longitudinal designs could evaluate engagement stability in medical education.
Take-home message: UWES-S-9 is a suitable scale to measure engagement among Portuguese medical students.

4KK12 (1850)
Time and Communication: lessons learned from Year 1 student engagement team in an ASPIRE medical school

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Presenter: Mathurin Suwanwalaikorn, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Background: As an ASPIRE medical school, student engagement (SE) work at Faculty of Medicine Chulalongkorn University has contributed to numerous improvements, the most consequential of which is the brand-new 2017 curriculum. Having learned about this, the number of Year 1 students who decided to take part in SE work is larger than ever. This study aims to describe the journey of the Year 1 SE working group, the evaluation of our work and the differences of attributes between SE team members and the others.
Method: After the introductory workshop and recruitment, our SE team initiated three new communication channels to make the team more accessible, together with familiarizing the class with the SE concept. In order to evaluate our work, we presented what we had done to five Year 3-6 SE leaders after 4 months of working. With their suggestions, a questionnaire was developed and then distributed to 268 non-SE and 33 SE students separately.
Results: Non-SE respondents believed in SE work (48%) and would report problems to us (52%). They found that we could be easily approached (50%) and could practically solve the problems (28%). SE team was more statistically significantly enthusiastic in all four aspects.
Conclusion: At the time we launched this study, Year 1 SE team had just been working for four months and were not yet familiar with the faculty's working system. Many issues were still in the process of communication with stakeholders and had yet to be concluded. As a result, it is not surprising that only half of Year 1 students appreciated

our work. The better results from SE working team might be contributed from either the bias, the faith they had in the SE work, or both. Follow-up evaluation should be conducted when the raised issues were finalized so that success of our work can be truly identified.

Take-home messages: Some problems need more time to be resolved than students' expectation. Thus, communication to keep students informed of the ongoing process is essential.

The time of evaluation is crucial for valid result interpretation.

4KK13 (3178)
Student engagement at Karolinska Institutet – the role of the Medical Students' Society

Authors
Awad Smew, Karolinska Institutet, Stockholm, Sweden

Presenter: Awad Smew, Karolinska Institutet, Stockholm, Sweden

Background: The importance of student representation in medical education in Sweden is growing due to an increased need for student input, for example in regards to upcoming major national changes in medical curriculum. These higher demands on effective and reliable representation have led to larger student organisations, such as the Medical Students' Society at Karolinska Institutet – the student group currently in charge of appointing and managing all student representatives.
Method: In this descriptive study we aimed to investigate the extent and role of student representation within the medical programme at Karolinska Institutet. We gathered information on student representation by going through meeting minutes and board descriptions. We also analysed the records of the Medical Students' Society for current guidelines and statistics regarding student representation.
Results: In total, 75 student representative positions exist within the medical programme, on boards ranging from smaller working groups, to committees, and more formal decision-making bodies. In many of these, student attendance is mandatory in order for any decisions made to be valid. Apart from attending faculty meetings, student representatives also participate in Medical Students' Society meetings in order to report back to the student body, exchange ideas with one another, and gather student opinion on specific topics. Formal guidelines created by the board of the Medical Students' Society help to better introduce new student representatives to their positions.
Conclusion: The role of student representation is to represent the interest of all medical students. This is defined both by Swedish law, as well as by rules set out by the student organisations. Student representation is of great importance to the development of medical education and the day-to-day functioning of a medical programme. With higher demands and increasing numbers of student positions comes a greater responsibility for student organisations to formalise the process of electing student representatives and introducing them to their work.

Take-home messages: Engaging students as representatives helps develop the medical curriculum and provides an opportunity for professional and personal development. Formal guidelines help introduce student representatives to their positions.

4KK14 (734)
Enhancing the Student Engagement with Kahoot!

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Presenter: Panomkorn Lhakum, Medical Education Center Chiangrai Prachanukroh Hospital, Chiangrai, Thailand

Background: Medical education has complexities that create some difficulties for medical students. Many studies show that learning while having fun is a good way to enhance learning in light of some of those difficulties. Kahoot! is one option for that solution.
Method: We have studied Kahoot!. It will stimulate the attention of medical students and residents by providing independent participation. It uses online codes provided to access each person's mobile phone independently without using their real name. Participants must respond within a limited time frame. Whoever responded in the least amount of time and answers correctly would be the winner by online evaluation. Then, we would collect satisfaction questionnaire.
Results: The evaluation by data interpretation from Google form shows that all 40 respondents have played Kahoot! before. 54% of them are medical students. 95% of attendants have taken part in Kahoot!.They thought that Kahoot! was a good way of studying with fun ,knowing their weak points ,helping to improve learning, taking less time and gaining more knowledge from grading as follows;77%,95%,92.5% and 95%. Most of the participants were satisfied for improved knowledge from this learning resource and agreed with its future usage.
Conclusion: Kahoot! is a promising learning tool that can easily used to promote student engagement and metacognition in higher education classrooms with limited instruction or student training required. Student responses and our own experiences using Kahoot! in graduate and undergraduate classrooms indicate that students are very open and eager to use Kahoot!. The real-time feedback and reinforcement provides opportunities for professors in various disciplines to tailor their instruction based on student understanding on quizzes, which further engages all students. Kahoot! is a learning method that can promote medical reasoning with rapid responses, but without identifying poor scores publicly.The medical students and residents can know their own weaknesses and own strengths through the use of an educational and enjoyable program.

Take-home message: Medical education should be adapted to the era in which technology is a learning aid.

4LL: Meet the Experts: Assessment Clinic

Location: Merian, 2nd Floor, Swissotel
Date: Monday 27th August
Time: 1400-1530 hrs

Experts:

Richard Fuller, Jennifer Hallam, Matthew Homer (Leeds Assessment Research Group) **@LeedsARG**

In this session we want to help you make your assessments even better, and develop your assessment research ideas. We are offering a drop-in session with the first half (1400-1445) focusing on policy and practice (e.g. methods of standard setting, assessment quality, WBA development), and the second half (1445-1530) on assessment related research. Our main areas of expertise relate to the OSCE (including quality improvement); standard-setting; the theory, design and delivery of successful sequential testing; the use of item response theory in relation to written testing; and workplace assessment, including application of assessment for learning theory. No appointment necessary - however you can tweet us in advance to book a slot, or if you can't make it, please tweet us your assessment related questions and we will get back to you.

SESSION 5: SIMULTANEOUS SESSIONS

Monday 27th August
1600-1730 hrs

5A: Symposium: Educating health professionals for the e-patient

Location: Event Hall
Date: Monday 27th August
Time: 1600-1730 hrs

Presenters:
Lawrence Sherman, Academy for Global Interprofessional Learning and Education, USA
Ken Masters, Sultan Qaboos University, Oman
Anne Herrmann-Werner, University of Tübingen, Germany
Elizabeth Rankin, Canada
Dave de Bronkart (ePatient Dave), Society for Participatory Medicine, USA

Summary: The era of the Internet has fostered a new kind of patient: the e-patient. With access to the Internet, the e-patient takes patient engagement to a new level: e-patients perform a range of online activities, from simple Google searches to sophisticated searches in PubMed, accessing medical journals online, connecting with other patients through online communities, using email and telemedicine to communicate with health providers, viewing doctors' digital footprints, and accessing electronic medical records online.

Medical practitioners who use old-style, dismissive responses ("Stop Googling") or modern, well-meant but misguided approaches ("Use PubMed") run the risk of causing harm or doing little good. The e-patient's impact on the patient-doctor relationship can be devastating or productive, depending largely on how well-trained the doctor is to cope with the new environment. Medical students need to be trained in the new skill set required to deal with the complexities and potential of the e-patient. A small number of publications has addressed the issue (AMEE's 2017 Guide to the e-patient is one of them), but a greater awareness into the subject is required.

This symposium will present the overall issues and lay out the scope of e-patient activities. It will then highlight some practical teaching examples of preparing medical students, both pre-clinical and clinical, for the e-patient. It will then present perspectives from two e-patients, in which their paths illuminate some of the concerns and issues facing e-patients. This will provide a 360 degree insight into what is required from medical schools to train future health professionals for the e-patient.

Who should participate in the symposium? Any medical educators who wish to equip their students with the necessary tools to deal with the e-patient.

What will they gain from participating? An understanding of the activities and underlying issues and complexities introduced by the e-patient, and some insight into how to best prepare their students to work successfully with the e-patient.

5B: Symposium: How to implement IPE in medical curricula?

Location: Montreal, 2nd Floor, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

Presenters:
Elisabeth Van Gessel, University of Geneva, Switzerland
Petra Mèche, School of Health Sciences of Geneva, HES-SO, Switzerland
David Gachoud, University of Lausanne, Switzerland
Giatgen Spinas, Swiss Institute for Medical Postgraduate and Continuous Education, Switzerland
Jörg Goldhahn, Swiss Institute of Technology, Zürich, Switzerland
Christian Schirlo, University of Zürich, Faculty of Medicine, Switzerland

Summary: By the end of undergraduate training, medical students should be able to demonstrate appropriate collaborative competencies to work effectively in clinical environments. This expectation can be found in most, if not all, competency-based frameworks developed for doctors-in-training. In these circumstances, medical schools around the world should consider the integration of interprofessional education (IPE) in their curricula, since IPE can effectively prepare learners for the demands of collaborative practice. This symposium aims to examine key issues relating to how IPE can be implemented in medical curricula. To set the scene, a synthesis of the state of the research evidence about IPE implementation will be presented. IPE case studies in the form of an example of the implementation of IPE in an existing (packed) curriculum, and the implementation of IPE in a new medical curriculum will be presented. The last part will engage the audience in discussion of IPE implementation issues.

Who should participate in the symposium? Educators in the health professions interested in either implementing IPE in their curricula or setting up new IPE initiatives in their institutions.

What will they gain from participating? Participants will access the current research evidence about IPE implementation in health professions' curricula. Then, they will be presented with typical examples of IPE implementation.

5C - Simulation Education In and Across the Health Professions: It's More than Just Doctors and Nurses!

Location: Sydney, 2nd Floor, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

Organised by the AMEE Simulation Committee:
Gabriel Reedy
Nancy McNaughton
Walter Eppich
Barry Quinn, King's College London, UK
Sean Cross, South London and The Maudsley NHS Foundation Trust, UK
Maria Tassone, The Michener Institute of Education at UHN, Canada
John Tegzes, Western University of Health Sciences, USA

Summary: Healthcare simulation has emerged as a powerful educational strategy, but educators often lack the expertise and perspective to maximize its potential for training and developing health professionals. Simulation represents an interactive and experiential approach that provides learners an opportunity to practice in ways that mirror their clinical work. Although simulation is often associated with acute medicine and operating theatre practice, the scope of simulation-based education continues to expand. The AMEE Simulation Committee proposes a symposium with two important dimensions. First, we will bring together perspectives not often associated with simulation-based education: mental health, allied health, dentistry, and veterinary medicine. Second, simulation fosters an approach uniquely suited to drawing together teams across professional boundaries to learn collaboratively, reflecting actual clinical practice. We will explore the value of simulation in these diverse clinical settings so educators can promote inter-professional learning.

Who should participate in the symposium? This symposium is appropriate for educators who are interested in simulation as an inter-professional educational approach, and have some experience with simulation-based education.

What will they gain from participating?

- Knowledge of a diversity of simulation applications across health professions and disciplines
- Appreciation for the variety of opportunities for simulation-based educational design across a range of disciplines and professions
- Insights from different professional and paraprofessional backgrounds the best practice techniques for learning and practicing collaboratively.

5D: AMEE Fringe 1

Location: Singapore, 2nd Floor, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

5D1 **WITHDRAWN**

5D2 (107)
"Curriculum" - personified in a musical monologue

Authors
Ugo Caramori, UNICAMP (University of Campinas), Brazil
Rafael Madureira Costa, Pontifical Catholic University of São Paulo, Sorocaba, Brazil
Julia Brum de Mello, Pontifical Catholic University of São Paulo, Sorocaba, Brazil
Camila Pereira Barretto, Pontifical Catholic University of São Paulo, Sorocaba, Brazil
Maria Valéria Pavan, Pontifical Catholic University of São Paulo, Sorocaba, Brazil

Presenter: Ugo Caramori, UNICAMP (University of Campinas), Brazil

Abstract Text: Ladies and gentlemen, open your minds with creativity, prepare your senses and your conceptions! Today we will introduce you to mr. "Curriculum": personified, human in flesh and blood.
What would you listen if one day, the well known among medical education, "Curriculum" turned out to be a real person and could dialogue with all of you?
What are the beliefs of "Curriculum"? What are his dreams? What the world has influenced in his life? Where he wants to go to?
Come hear the story of this complex being that fascinates many educators around the world, shapes the lives of many students and is an indispensable part of the training of health professionals.
Today, "Curriculum" takes the form of a person and comes to tell his story.
And like all human beings, "Curriculum" is filled with emotions and changes that he will tell you with a lot of music and theatricality in this small monologue.

5D3 (2256)
Little Poo: The Magic of Dressing as Poo in Education

Authors
Nicole Phoebe Tanner, Faculty of Medicine, The Chinese University of Hong Kong, Hong Kong.

Presenter: Nicole Phoebe Tanner, Faculty of Medicine, The Chinese University of Hong Kong, Hong Kong

Abstract Text: Poo is the universal symbol of gross, disgusting and smelly things. However, from my experiences, the disgust humans feel toward their own excrement is exactly what connects us to what a talking poo might have to say.
Last year, I was tasked with the simple task of talking about colorectal cancer to a community audience. I wanted to engage the audience in a first-person perspective into cancer, and the idea of dressing as poo struck me as both interesting and educational. As I performed, children, parents and elderly were listening with wide-eyed wonder. After the performance, I received many questions on colorectal cancer, far more than my previous talks. I realised that people were much more interested in what Little Poo had to say, as opposed to what I had to say.
As taboo as poo is, its application and use in medicine are widespread. It reflects our gut health, gives clues in cases of colorectal cancer, and provides therapeutic options. Dressing-up as poo has opened many doors to educational conversations and discussions.
In this session, I will come alive as the talking Little Poo, and give a short performance on the new cutting edge technology of eating poo – otherwise known as fecal microbiota transplantation. I will then share about my experiences dressing as Little Poo, its educational value, and the magical ability Little Poo has in attracting attention to medicine and science from people of all ages. I will show you, in this session, how dress-up can create a brand new platform for creative expression in medical education.

5D4 (1325)
Creativity & Surprise. Bombs & Gambling. Teaching medicine like I would like to be taught myself

Authors
Olga Rostkowska, Medical University of Warsaw and MEDtube.net, Warsaw, Poland
Anna Pryć, Medical University of Warsaw, Warsaw, Poland
Andreas Koufas, Medical University of Warsaw, Warsaw, Poland
Sylwia Macur, Medical University of Warsaw, Warsaw, Poland
Łukasz Kowalski, Medical University of Warsaw, Warsaw, Poland
Bartek Kieroński, Medical University of Warsaw, Warsaw, Poland

Presenter: Olga Rostkowska, Medical University of Warsaw and MEDtube.net, Warsaw, Poland

Abstract Text: I'm a junior doctor and a soft-skill trainer for student organisations. During my university classes I was usually terribly bored. As a medical teacher nowadays, I want to give my students the experience of fun, excitement, surprise and thrill while learning together. This often results in unpredictable twists.
(I) I ask students to prepare at home 10-min presentations on a medical topic they pick (a lottery). There is a rule: no words included in a presentation. Pictures only. This way students must memorize and never read from slides. I would like to demonstrate some humorous art-works created in the process.
(II) I prepare A-B-C-D questions from a given field. Students are provided with monopoly money (or matches) which they must split and bet according to how probable an answer is - no need to pick only one. Based on: https://www.youtube.com/watch?v=i9txcjQdpmY
(III) While studying e.g. Murphy's or Babinski sign, students have to demonstrate it on one another. Each one studies 2-3 signs at home and performs them on a colleague of choice, teaching each other how to "act it" properly. Alternatively, a student gets a task to simulate signs and symptoms of a given disease while the group must guess the condition. We agree on a field beforehand, e.g. nephrology. A drama class at its finest.
(IV) I have a bomb-shaped timer which randomly makes an explosive sound. Before it goes off, each student in a group has to name e.g. a symptom of Graves' disease or a side-effect of steroids. The timer is then passed on. Asap. Wonderful to watch. Based on: https://www.youtube.com/watch?v=F5R5sM_YIzU
To the AMEE audience I would like to present more methods I use, including effects and reactions. I make recordings of the best classes. Especially of bloopers. My solid principle is to make surprises and nurture creativity.

5D5 (2124)
What IMPACT contributes to Integrative Medicine

Authors
Robert Hage, St. George's University, St. Georges, Grenada

Presenter: Robert Hage, St. George's University, St. Georges, Grenada

The integrative medicine selective offered to basic science medical students at St. George's University, Grenada, includes sessions on yoga, Reiki, acupuncture, hypnosis, naturopathic medicine and many other topics. The aim of integrative medicine is to restore and maintain health and wellness during a person's lifetime through factors which influence body, mind, spirit and community.
Future practitioners of integrative medicine should embrace its principles and commit themselves to self-exploration and self-development. To aid in that development, improvisation, poetry, art, cartoons and talk, as in small-talk, are employed. The acronym IMPACT represents these methods and will be demonstrated in this Fringe session.
IMprovisation is reacting to others in a spontaneous scene and improves communication, cognition and teamwork. Who dares to take on this challenge this afternoon?
Poetry can sharpen listening, attentiveness and analytical skills. It allows us to express ourselves creatively and accepts vagueness. It may show empathy, mindfulness and introspection. Poetry about illness may not only address the symptoms of illness, but the experience, and emotions.
Art is used in therapy. It can help students sharpen their skills in observation and description, fosters critical thinking and improves communication skills. I will challenge you with examples.
Cartoons in medicine. Humor rhymes with tumor. Could laughter play a role in curing disease? What is the impact of humor in health care?
Talk. A few minutes of 'small talk' with a patient can strengthen the patient-physician relationship and improve quality of care. The health care worker is also much less likely to feel burn-out. Hear a few cases and decide.
IMPACT will have an impact on future providers of integrative medicine.

5E: Research Papers: Learning in Experimental and Clinical Contexts

Location: Delhi, Ground Floor, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

5E1 (189)
Fostering diagnostic competence with whole cases vs. serial cue cases: Effects of whole case vs. serial cue on learning process and outcomes

Authors

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Martin R. Fischer, Institut für Didaktik und Ausbildungsforschung in der Medizin am Klinikum der LMU München, Munich, Germany

Presenter: Jan Kiesewetter, Institut für Didaktik und Ausbildungsforschung in der Medizin am Klinikum der LMU München, Munich, Germany

Abstract Text:
Introduction: To foster diagnostic competence with online cases in different formats has been a focus in medical education research. In a review a whole case format, presenting all information at once, is distinguished from a serial-cue case format, where the learner can access information on a patient case in a stepwise manner(1). There is a continued debate whether low prior knowledge students profit more from the whole case format or whether it is too much information for them to process. Therefore, our research question was: Which combination of case-format and prior knowledge does result in the highest diagnostic competence gain?
Methods: The study was designed as a 2x2 quasi-experimental design with case format (serial cue vs. whole case) and prior knowledge (low vs. high) as factors. Medical students from the 2nd-6th year were confronted with eight patient cases a learning environment, with half of them assigned to the whole case, half of them to the serial cue format.

In a pretest we tested for prior knowledge using a multiple choice questionnaire for declarative knowledge, a median split was performed distinguishing in low (N=59) vs. high (N=83) prior knowledge.

Diagnostic competence was operationalized as a pre- and posttest before and after the treatment through a procedural knowledge test in the key-feature format. Further, the number of correct diagnoses for the cases was interpreted as indicator for diagnostic competence. Both knowledge tests revolve around either symptoms of backpain or fever.

Results: In October 2017 N=142 medical students (Mean age=24.41; SD=4.90; 71% female) participated. The repeated measures ANOVA for procedural knowledge show no significant pre to post effect for the different case formats ($F_{(1;138)}$=.47; n.s.; Pretest:Serial Cue M=0.60; SD=.07; Whole Case M=0.61; SD=.07; Posttest:Serial Cue M=0.63; SD=.10; Whole Case M=0.64; SD=.10). The MANOVA for the number of correct diagnoses shows no significant effect for the two case formats ($F_{(1;138)}$=.78;n.s.; Serial Cue:M=3.91; SD=1.60; Whole Case:M=4.32; SD=1.92).

There was a significant interaction effect for point of measurement x prior knowledge ($F_{(1,138)}$=8.08;p.eta2=.06) with the students with high prior knowledge having a significant gain in procedural knowledge (Prettest:M=0.61, SD=.08; Posttest:M=.66; SD=.10), while low prior knowledge students did not gain procedural knowledge (Pretest:M=.60, SD=.06; Posttest =.60; SD=.10).

Further, there was a significant higher diagnostic accuracy for the students with high prior knowledge(M=4.63; SD=1.59), compared to those with low prior knowledge (M=3.40; SD=1.79) with a large effect($F_{(1;138}$=17.80; p.eta2=.11).

Discussion & Conclusion: In contrast to other studies(2), our results suggest that in fact there is no difference due to the case format, neither in the procedural knowledge gain of students, nor in diagnosing the cases themselves. High prior knowledge students did however, profit from both case formats in the same manner. Based on the results of this study, it seems that medical educators should focus on the careful design of the content of patient cases, their narrative, and a prior testing of students' actual subject specific knowledge level. Furthermore, it will be interesting to see how instructional interventions like reflection prompts, representation prompts or adaptive feedback influence cognitive load and knowledge gains in learning clinical reasoning.

References:
1. Schmidt HG, Mamede S. How to improve the teaching of clinical reasoning: a narrative review and a proposal. Medical education. 2015;49(10):961-73.
2. Nendaz MR, Raetzo MA, Junod AF, Vu NV. Teaching diagnostic skills: clinical vignettes or chief complaints? Advances in health sciences education. 2000;5(1):3-10.

5E2 (177)
Meaningful is more than memorable: Exploring what makes educational experiences "stick" to learners' memory

Authors
Kinga L. Eliasz, New York University School of Medicine, New York, USA
Heather Dumorne, New York University School of Medicine, New York, USA
Adina Kalet, New York University School of Medicine, New York, USA
Lara Varpio, Uniformed Services University of the Health Sciences, Bethesda, Maryland, USA

Presenter: Kinga L. Eliasz, New York University School of Medicine, New York, USA

Abstract Text:
Introduction: Health professions educators invest a significant amount of time and resources creating complex educational experiences for learners (1, 2). To optimize learning from these experiences, we should understand what aspects of our educational experiences are memorable for learners and why. If we can identify what makes specific learning experiences "stick" to learners' memory, we may be able to modify our educational interventions to be more "sticky" and thereby increasing their effectiveness. In this study we ask: When exposed to the same educational experience, what elements of that experience "stick" to learners' memory and why?

Methods: We investigated this question through an educational intervention called Night-onCall (NOC), which exposes learners to a variety of learning experiences, incorporating multiple activities and instructional design modalities. NOC is a 4-hour simulation during which near-graduating students act as interns during four authentic clinical scenarios. Learners communicate with nurses [standardized]; assess patients [standardized]; write notes; make an oral case presentation to an attending [standardized]; view an e-learning module addressing the content of two cases; and handoff the patients to an intern [standardized]. Nine months after NOC, we interviewed 29 participants using a semi-structured protocol, asking learners to describe what was memorable about NOC and why. Using thematic analysis, two researchers (KE, HD) iteratively coded the transcripts, borrowing open, axial, and theoretical coding processes from constructivist grounded theory. Three researchers (LV, KE, HD) met regularly to discuss evolving codes and relations between them to generate themes. Once all themes were constructed, all team researchers met for a full day to review the coding and build additional insights.

Results: Participants described four memorable activities: the e-learning module that explicitly integrated content relevant to the clinical cases; the highest urgency clinical cases with standardized patients and nurses; the oral case presentation to the attending; and handing off patients to an intern. Eight characteristics made these activities memorable: interactivity, framework, novelty, authenticity, risk-free practice, self-reflection, role exposure, and transfer. During analysis, we realized that while all students engaged in the same educational intervention, each learner had a different learning experience. Learners' "sticky" memories existed on a continuum. At one end was recall (i.e., participants could list activities they remembered). Next was memorable (i.e., participants elaborated on activities that were encoded in their memory, further informing their existing understanding of those activities). At the other end of the continuum was meaningful (i.e., participants remembered activities that promoted deeper knowledge development, generating understandings applicable to other contexts). Memorable activities landed across the continuum (e.g., the handoff could be recalled by one learner, but be a meaningful activity for another). Furthermore, the characteristics of memorable activities fell across the continuum, at different places for different participants (e.g., for some learners, risk-free practice made an activity memorable, but others said risk-free practice created meaningful experiences).

Discussion and Conclusions: Although learners identified similar memorable learning activities and reasons for these "sticky" memories, the extent to which these experiences were meaningful was highly individualized. We searched the psychology and education literatures, but we were unable to find theories exploring the recall-memorable-meaningful continuum of learning experience. We suggest the identification of this continuum is a key development from this study. It is essential to further develop a theory about this continuum so that we can understand how to construct meaningful learning experiences.

References:
1) Tuoriniemi, P., & Schott-Baer, D. (2008). Implementing a high-fidelity simulation program in a community college setting. Nursing Education Perspectives, 29(2), 105-109.
2) Kalet A, Blum C, Denicola C, Szyld D, Ng G, Song H, Nicholson J, Eliasz KL, Pusic MV, Nick MW, Zabar S. A simulated "Night-onCall" to assess and address the readiness-for-internship of transitioning medical students. Advances in Simulation, 2(1), 13.

5E3 (99)
Beyond hands-on and hands-off: A model of supervisory approaches on the inpatient ward

Authors
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Presenter: Andrea Gingerich, Northern Medical Program, University of Northern British Columbia, Prince George, Canada

Abstract Text:
Introduction: The concept of entrustment was initially described for procedural specialties and has garnered significant attention in medical specialties. As research

accumulates, variability in supervision and entrustment decisions in internal medicine are common findings that need to be better understood if either are to be used as a proxy for tracking a trainee's competence for assessment purposes. There is a need to further study the enactment of supervision on inpatient medical wards to inform competency-based assessment design.

Methods: Attending physicians on clinical teaching inpatient wards were invited to describe a recent moment of enacting supervision with an internal medicine resident. Constructivist grounded theory methodology guided data collection and analysis. Interview transcripts were analysed in iterative cycles to inform data collection. Constant comparison was used to build a theory of supervision from the emerging themes.

Results: In 2016-17, 23 supervisors from 2 Canadian universities participated in 28 semi-structured interviews. Clinical supervision on the inpatient ward involves direct and substantial indirect observation to monitor for discrepancies between the supervisor's understanding of the patient and the trainee's actions or reports regarding the patient. By monitoring for discrepancies, the supervisors created an illusion of independence for the trainees on the ward because the trainees' activities were still tracked and the entrustment was incomplete. In deciding what level of supervision to provide, supervisors spontaneously used references to how 'comfortable' they felt when the trainees were performing activities. Supervisors contend with the competing roles of clinical teacher and care provider. Simultaneously, supervisors may feel personal responsibility for the ward (resulting in hands-on approaches) or shared responsibility for the ward (resulting in hands-off approaches). The Approaches to Clinical Supervision model combines these two tensions to explain four approaches to supervision. When supervisors are feeling personally responsible for the ward while focusing on patient care then patient safety is prioritized and a "micromanaging delivery of care" approach is used. When the focus shifts to clinical teaching and learner welfare is prioritized then supervisors provide learning guidance by actively "scaffolding experiences" for the trainee. As responsibility for the ward can be shared amongst others, due to the expectation that other staff and more senior members of the team are available as resources for the team and are monitoring to intervene when teaching and patient care is needed, the supervisor can use more hands-off approaches. When the focus is on patient care and ward efficiency is prioritized then a supervisor can use a "divide and conquer" approach to deliver care to the high acuity patients while the team cares for the other patients in parallel. When clinical teaching is the focus and learner autonomy is prioritized then a supervisor can monitor the ward activities to determine when to provide clinical "pearls of wisdom" to guide the trainee's learning.

Conclusions: Our study emphasizes that medical inpatient clinical supervision is predominantly performed through indirect observation, that terminology of 'comfort' is used more spontaneously by supervisors than the use of the word 'trust' and that the granting of complete entrustment is uncommon. The supervisor's approach to supervision is changed in response to competing tensions around patient care versus teaching and personal versus shared responsibility for activities on the ward. Thus, entrustability assessment approaches will need to contend with entrustment decisions being based on more than a unidimensional judgment of a trainee's competence.

5E4 (231)
Informing Training in Integrated Care Through an Ethnographic Study of Complex Care Settings

Authors
Steve Durant, The Wilson Centre & University of Toronto, Toronto, Canada
Andrew Lee, University of Toronto, Toronto, Canada
Sanjeev Sockalingam, University Health Network & University of Toronto, Toronto, Canada
Alaa Youssef, University of Toronto, Toronto, Canada
Zarah Chaudhary, Medical Psychiatry Alliance, Toronto, Canada
Maria Mylopoulos, The Wilson Centre & University of Toronto, Toronto, Canada

Presenter: Steve Durant, The Wilson Centre & University of Toronto, Canada

Abstract Text:
Introduction: Co-occurring mental and physical health conditions account for more than 25% of the cases seen by medical practitioners. The complexity and unique needs of this population pose considerable challenges for delivering effective, person-centre care, and achieving equitable outcomes. Training in integrated care has been identified as an area of significant need, as well as an opportunity to improve outcomes, efficiency, and the patient experience. However, there is no 'one size fits all' model of integration, and implementations vary significantly across different settings; training needs to account for the institutional and cultural complexity of environments in which clinicians do their work, as well as the complexity of cases. To address this need, we sought to identify common elements of how care is coordinated through a study of collaborative and integrated care in four settings.

Methods: Using collective case study methodology (1), we explored coordination and integration in four settings: a hospital speciality clinic with an interdisciplinary team of physical- and mental-health care providers; a treatment program in a community primary care setting serving primarily low-income and marginalized individuals; two consult-liaison psychiatry services in an academic teaching hospital; and a telemedicine program which provides multidisciplinary assessments through a one-time interaction with complex patients and their primary care providers. We conducted observations including job shadowing, attendance at clinical rounds and participant-observations of treatment and support groups. Members of interdisciplinary teams at each site were interviewed about how care is provided, common challenges and barriers to effective treatment, and experiences working in integrated care. Field notes and interview transcripts were thematically analyzed iteratively by the research team.

Results: Early observations demonstrated that each site is well integrated according to standard levels and dimensions of integration (2). Nonetheless, we observed

significant variation in how integration is actually implemented, and how it impacts the work of clinicians. We shifted our attention to this variation, exploring five aspects of care provision that we observed to be integrated at each site, but in markedly different ways. These are: eligibility and access; patient self-management; engagement of patients and providers in program design and planning; role definitions and handoffs within the clinic; and coordination of supports beyond the clinic. We also explored the intersection of these five aspects of care with two cross-cutting themes that we recognized as central to the different models of care observed. These are the balance between standardization and adaptation, and advocacy, especially as it relates to stigma.

Discussion: Our analysis suggests integration at the sites we studied is aligned with standard models, and that existing competencies for medical learners were broadly relevant to the forms of collaboration we observed. However, it was the variation among that stood out in our observations, and became central to our analysis. While well-understood, standardized tools of integration such as guidelines and co-location were important, we also observed the importance of adaptability in situations where advocacy or understanding of stigma at point of care is crucial to meeting the needs of patients.

Conclusions: As system level coordination is increasingly emphasized, it is important not to lose sight of the adaptation that is crucial to clinical work. Our study illustrates the complexity of integrated care implementations. It demonstrates the importance of considering contextual variation among patients and institutions, and emphasizing the non-medical expert competency domains for medical learners.

References: *Stake RE. Multiple Case Study Analysis. New York: The Guilford Press; 2006.*

Heath B, Wise Romero P, Reynolds K. A Review and Proposed Standard Framework for Levels of Integrated Healthcare [Internet]. SAMHSA-HRSA Center for Integrated Health Solutions; 2013 Mar [cited 2017 Dec 4]. Available from: https://www.integration.samhsa.gov/resource/standard-framework-for-levels-of-integrated-healthcare

5F: Doctoral Reports 1

Location: Helvetia 1, 1st Floor, Swissotel
Date: Monday 27th August
Time: 1600-1730 hrs

5F1 (5)
Feedback in the context of high-stakes assessment: can summative be formative?

Authors
Christopher Harrison, Learning From Assessment, Manchester, UK
Karen Könings, Maastricht University, Netherlands
Lambert Schuwirth, Flinders University, Adelaide, Australia
Val Wass, Keele University, UK
Cees van der Vleuten, Maastricht University, Netherlands

Presenter: Christopher Harrison, Learning from Assessment, Manchester, UK

Abstract Text:
Introduction: The central theme of this thesis concerns the challenges of receiving feedback within a summative assessment context. It set out to challenge the assumption that assessments have either a formative or a summative purpose. High-stakes assessments create large amounts of data regarding learners' strengths and weaknesses, which are reduced to binary pass-fail decisions. This fails to prepare students for independent self-regulated learning. However, it was uncertain whether learners would be receptive to feedback received in this context. This thesis addressed three main research questions:

1. How do students engage with feedback in a high-stakes context?
2. What are the individual and institutional influences and barriers to feedback in this context?
3. Can we change the assessment culture to one which prioritises and supports learning from feedback? What is stopping us?

Methods: The research comprised four interconnected studies. The first study used quantitative methodology to address the first research question. Feedback after a high-stakes OSCE was delivered in a web-based format. Students' use of the website was monitored and linked with their assessment performance and responses to a questionnaire on learning-related characteristics. The second research question was addressed using qualitative methods, employing in depth interviews to explore individual barriers to feedback receptivity, while the third study sought to explore institutional influences within a medical school's assessment culture. Focus groups were held in three schools with contrasting assessment cultures. The fourth study addressed the final research question using participatory design methods to explore how a mixed group of stakeholders might attempt to change the assessment culture to one in which students make more use of post-assessment feedback.
Results: The first study demonstrated that most students visited the website, but engaged very superficially with the feedback, spending little time on each webpage. Students who had only just passed the OSCE were the least engaged. No strong links were seen with students' learning-related characteristics. In the second study, the summative assessment culture had a dominant but negative influence on the use of feedback. Assessments were? viewed as hurdles to overcome, disconnected from clinical workplace learning. In the third study, openness to feedback was promoted by offering choice and independence within assessment systems. Mentoring was vital to help learners navigate the feedback. In the final study, participants shared common beliefs about the importance of the summative assessment paradigm; as a result, changes proposed were minor and congruent with this paradigm.
Discussion and Conclusions: The challenging conclusion of this thesis is that learners are often unreceptive to feedback after high-stakes assessments. The summative context is so dominant that approaches focused on improved feedback delivery are doomed to fail. Assessment cultures have remained rooted in a behaviourist approach to education, with rewards and punishments. This thesis supports a move towards a more constructivist approach, empowering students to take a more active role. It also adds to the growing literature demonstrating the adverse effects of summative assessments on learning, and the need for a paradigm shift in the assessment and feedback culture. The results from the final study demonstrated the enormity of the challenge for those who want to bring about a change in assessment culture. Careful design of the whole assessment programme is needed, paying careful attention to its educational impact as well as the more traditional considerations of validity and reliability.

5F2   WITHDRAWN

5F3 (12)
Copy But Not Paste: An exploration of crossborder medical curriculum partnerships

Authors
Dominique Waterval, Maastricht University, Maastricht, Netherlands
Erik Driessenl, Maastricht University, Maastricht, Netherlands
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Albert Scherpbier, Maastricht University, Maastricht, Netherlands

Presenter: Dominique Waterval, Maastricht University, Maastricht, Netherlands

Abstract Text:
Introduction: Crossborder curriculum partnerships are a growing form of internationalisation in higher education in the medical domain. In a crossborder curriculum partnership, a curriculum developed in one institution (the home institution) is transferred across borders and implemented in another institution (the host institution). The partners offer their curriculum simultaneously and aim to provide comparable learning experiences to both groups of students. This definition includes partnerships that award the same degree to students in both locations, as well as host institutions that issue their own degree. These partnerships are challenging from a pedagogical perspective, because their purpose is to ensure that the curriculum in the host institution is as similar as possible to the curriculum in the home institution, despite differences in teaching and learning, resources, the organisational environment and cultural values. The partners seek to strike a balance between standardisation on the one hand – to ensure that the learning experience is close to identical – and adaptation on the other hand – to respect the aforementioned local factors as much as possible. These pedagogical challenges have largely been ignored in the literature. The lack of research on crossboder curriculum partnerships in the medical domain have raised the following three research questions: What are the main challenges when establishing and maintaining a crossborder medical curriculum partnership? How do crossborder medical curriculum partnerships balance standardisation and adaptation? What are the strategies for establishing and maintaining a sustainable crossborder medical curriculum partnership?
Methods: This doctoral report consists of a series of five studies that build upon each other and investigate medical crossborder curriculum partnerships from five different angles e.g. a narrative literature review of the challenges, interviews with medical programme directors of host and home institutions, a Q-study to capture the experiences and perceptions of host teachers, a survey among host students, and a case study from a home institution perceptive. In addition, the studies include multiple partnerships in order to identify case-exceeding factors.
Results: This thesis report shows the logistic complexity and educational challenges to establish a crossborder curriculum partnership. It reveals the additional challenges medical curriculum partnerships face such as organising

comparable learning experiences in the clinical phase. Nevertheless, they seem feasible not the least due to host students' flexibility to adapt to the home institutional didactical model.
Delivering standardised programs was not the aim of partners, although stakeholders indicated many similarities in medical content. In practice, different types of adaptations of the programme were made by host teachers to bridge contextual differences. Furthermore the report shows the diversity of opinions among teachers to work within such partnerships.
Discussion & Conclusions: As these partnerships are expected to grow in the medical domain as well, this study aims to be of guidance by practical tips and to well-intentioned leaders and programme directors who are on the verge of establishing similar types of partnerships. Furthermore, it touches upon a debate on whether this form of internationalisation is desirable in the first place by looking at a number of ethical arguments, e.g. brain drain, dangers of ethnocentricity. By doing so, it opens a discussion on how partnerships could be organised.
References: *Waterval DGJ, Frambach JM, Oudkerk Pool A, Driessen EW, Scherpbier AJJA. An exploration of cross-border medical curriculum partnerships: Balancing curriculum equivalence and local adaptation. Med Teach. 2016;38(3):255-62.*

5F4 (14)
Understanding the impact of the NLE in Indonesia: The importance of context in assessment

Authors
Rachmadya Nur Hidayah
Trudie E. Roberts
Richard Fuller

Presenter: Rachmadya Nur Hidayah, Leeds Institute of Medical Education, Leeds, UK

Abstract Text:
Introduction: National licensing examinations (NLEs) have been increasingly used worldwide. In Indonesia, it has been implemented since 2007, where it serves as a method of quality assurance for both graduates' competence and medical schools. It is considered to be a high cost and resource-demanding high-stakes examination as Indonesia is as a developing country. The aim of this study was to understand the consequences of the NLE on medical education in Indonesia. What are the impact of the NLE on medical schools, teachers, and students?
Methods: This study was a qualitative study using a modified grounded theory approach to understand the consequences of NLE from multiple stakeholders' perspectives. A sampling framework was designed to capture important characteristics of Indonesian medical schools based on region, accreditation status, and ownership (public/ private). Interviews were conducted with medical schools' representatives (vice deans/ programme directors), while focus groups were conducted with teachers and students. The interviews and focus groups were audio-recorded and transcribed

verbatim. Data was analysed using open coding and thematic framework as part of the iterative process.

Results: This study used an analytical framework to look at the intended and unintended consequences of the NLE. Intended consequences were mostly related to the intended outcome of the NLE: achieving a common standard for education, improvement in education practice (including curricula, assessment, faculty development), improvement learning resources and facilities, which were prominent in new and private schools. Unintended consequences were related to the competition led by the NLE, collaboration, financial impact, and students' failure. This study revealed cross-cutting themes such as diversity in a rich context of education and the local concepts of patient safety.

Discussion: The current literature on the impact of NLEs is limited to developed countries and Western medical education systems (Archer et al., 2016), with discourse mostly based on opinion rather than evidence (Harden, 2009). This is the first study exploring the impact of the NLE in a developing country and ASEAN network. Some findings on the intended consequences of the NLE triangulated with the literature, while some others were a contrast. In Indonesia, rather than generating competition amongst schools, the NLE generated collaboration between medical schools and stakeholders. This was best explained by the concept of coopetition, which enabled medical schools to overcome challenges, make changes, and improve their quality. This study offers new evidence on how the NLE holds significant role in the improvement of medical education.

Conclusion: Context matters in the discourse of the NLE. This study demonstrates a novel approach to sampling and analysis of the NLE's impact. The evaluation of the NLE needs to consider the importance of understanding local factors and consequences. New insights were added to the literature on how the coopetition acts as a key for the impact of the NLE. Moving forward, the future of the NLE is expected to hold an important role in the development of medical education in Indonesia. This study opens opportunities for other area of research, mainly on the impact of the NLE on patient safety, collaboration of stakeholders, and students' failure.

References: *Archer, J. et al. 2016. The impact of large scale licensing examinations in highly developed countries: a systematic review. BMC Med Educ. 16(1), p212.*

5G: Short Communications: Surgical Education

Location: Helvetia 2, 1ˢᵗ Floor, Swissotel
Date: Monday 27ᵗʰ August
Time: 1600-1730 hrs

5G1 (2215)
Pioneering a near-peer surgical teaching programme in the UK

Authors
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Daniel Bowen, Hinchingbrooke Hospital, Huntingdon, UK
David Mitchell, Hinchingbrooke Hospital, Huntingdon, UK

Presenter: Xueying Zheng, Hinchingbrooke Hospital, Huntingdon, UK

Background: Studies have shown that graduates are less confident with surgical competencies than medical competencies. Other research has shown that junior doctors can play a significant and influential role in teaching and encouraging medical students to pursue surgical careers.
We hypothesised that near-peer teaching run by foundation year 1 (FY1) doctors can benefit both learners and teachers. The student will develop confidence in core skills outlined in the Royal College of Surgeons of England (RCS) undergraduate curriculum, and the educator will gain essential teaching experience whilst consolidating their surgical practice.
Method: We developed a pilot teaching programme from the undergraduate curriculum of the RCS and delivered it to 14 medical school finalists from the University of Cambridge. It comprised of small group tutorials, bedside teaching and formative assessments. The teachers completed a reflection of their experiences.
Results: Identical questionnaires using the Likert scale with each response ranged 1-9 were completed before and after the programme, assessing the confidence of the students in performing core surgical examinations and their interest in surgery as a career. The Student's t-test was used to compare the before and after responses of the students.
Valid responses were received from 12/14 students (86%). Student-reported confidence in performing surgical examinations, presenting examination findings, and planning initial management showed statistically significant improvement upon completion of the programme (p<0.001). Furthermore, 50% of the students showed increased likelihood to pursue a career in surgery. The two teachers reported that the programme increased their confidence in teaching and consolidation of their surgical knowledge.
Conclusion: We identified benefits of the near-peer teaching style. Firstly, doctors who have recently graduated can identify and relate closely to the educational needs of the students. Secondly, the combination of theory and bedside teachings consolidates learning through practice. We plan to deliver this programme to a larger student cohort in the region to validate our findings.

Take-home message: A structured, near-peer teaching program can supplement the surgical training of the medical student whilst developing teaching skills and surgical competencies for the junior doctor.

5G2 (634)
Respect Matters - RACS Building Respect Improving Patient Safety Action Plan

Authors
Stephen Tobin
Judy Finn, RACS, Melbourne Australia
John Batten, RACS, Melbourne, Australia
Cathy Ferguson, RACS, Melbourne, Australia
Mary Harney, RACS, Melbourne, Australia
John Biviano, RACS, Melbourne, Australia

Presenter: Stephen Tobin, Royal Australasian College Of Surgeons, Melbourne, Australia

Background: In 2015, the Royal Australasian College of Surgeons (RACS) came under intense media scrutiny related to a culture of bullying, discrimination and sexual harassment by surgeons, accompanied by poor standards of surgical education and opaque complaints processes. After an open external advisory group review, public apology and acceptance of 42 recommendations led to the 'Building Respect, Improving Patient Safety' action plan.
Method: The Action Plan developed eight goals, five around culture and leadership, two about surgical education and one for complaints. Media, engagement of surgeons and trainees, memoranda with health departments, hospitals and medicals schools,diversity and inclusion were espoused, mandated training about professional behaviours and education, training in leadership and centralised transparent complaints system have ensued.
Results: After two years, 84% of surgeons had done mandated on-line training around an operation room scenario about bullying and discrimination. A similar proportion had done the compulsory one-day course about surgical education (or had documented recent equivalent training). Leadership training is underway. One day training in building respect, speaking up, talking to colleagues about poor behaviours and making complaints if required has been a major effort. Complaints have increased in number and complexity.
This is about cultural change in the broader health system as well as surgeons reflecting on their own roles, especially about leadership within teams and role-modelling, all to improve patient care. It is also about collaboration in the health care system, as the issues are widespread within healthcare. The emergent #MeToo campaign reminds all about pervasive aspects of sexual harassment. Recent regulatory accreditation review of RACS has noted the important work in leading change. The works are ongoing and evaluation is established.
Conclusion: RACS has started work which has been noted by other colleges and health care systems worldwide; evaluation will enable measurement of positive change; surgeons and other healthcare workers will have safe workplaces, and patient care will be improved, meaning better quality outcomes and patient safety. Surgical

trainees will have all these better behaviours - for patient care - made explicit: generational change too.

5G3 (959)
Enhancing surgical training by audio-visual simulation with hazard cognitive training and reflection tools: a design-based study in laparoscopic cholecystectomy

Authors
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Jan C. Illing
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Presenter: Siddek Isreb, Durham University, Newcastle Upon tyne, UK

Background: Surgical training has become more challenging in the UK with the reduction in training time and the reduced training opportunities, making every training opportunity precious. This PhD study aims to address this curriculum challenge by enhancing surgical training and assessment in the surgical training environment.
Method: Using a design-based approach a two-step design was created. Step One involved creating an online, standalone, Cognitive Hazard Training module. It uses videos of real operations to mentally train candidates to recognise, anticipate and avoid hazards during the operation. An online example of this Module was created for laparoscopic cholecystectomy.
The second design step was a Reflective Formative Assessment. The trainee and supervisor reviewed the trainee's video-recording of a supervised-operation which involved reassessing the trainee's performance to enhance feedback and reflection.
Results: Design feasibility was tested in the Northern Deanery training environment and the feasibility study was complemented by a theatre observation study to capture the details of the complex surgical training environment. The feasibility of this two-step design was tested with 2 experts, 32 trainees and 15 trainers. Trainee and trainer qualitative feedback was collected, via semi-structured interviews. Users' feedback along with multiple additional data from the operation-recordings and video-review session were analysed and triangulated to improve the design and establish the feasibility and role of this style of video-review in the current surgical training. Observational data was also collected during live surgery in theatre to identify any factors affecting safety and training.
Conclusion: This PhD study has developed a novel approach to enhance surgical training, which has been tested and has received overwhelming support from both supervisors and their trainees. Cognitive Hazards Training steepened the learning curve and increased adherence to safety. The videoed operations were found to be an excellent teaching tool, which enhanced feedback and reflection. It increased trainees' confidence and competence by tailoring the training to their individual needs. The success of this work forms the foundation for future development and testing of this new approach to surgical skills training in the UK.

5G4 (1160)
Synthesizing Quantitative Ratings and Qualitative Assessment Data from a Longitudinal Cohort of General Surgery Residents: Measuring Developmental Progress and Competencies

Authors
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Presenter: Ara Tekian, University of Illinois at Chicago, USA

Background: Faculty use assessment data consisting of quantitative ratings and qualitative comments to provide feedback to learners and to inform the clinical competency committee (CCC) on progress toward independent practice. However, it is unclear how quantitative and qualitative information are synthesized and linked with milestones-based feedback. This study examines the alignment of quantitative and qualitative assessment data using a longitudinal five-year general surgery residency.
Method: Rotation evaluation data were extracted for 171 residents who trained between July 2011 and July 2016. Data included 6,069 rotation evaluations forms completed by 38 faculty members and 164 peer-residents. Descriptive statistics and mixed-effects regression were used to examine trends in quantitative evaluation scores; generalizability theory was used to estimate variance components and reliability. Qualitative comments mapped to general surgery milestones were coded for positive/negative feedback and quality/relevance. Themes were identified using constant comparative analysis associated with constructivist grounded theory.
Results: Evaluation scores increased significantly across the five years, $p = .010$. Milestones targeting Patient Care, Medical Knowledge, and System-Based Practice had the largest improvement over time. The reliability of rotation evaluations ratings was good, Φ-coefficient = .72. Quantitative evaluation scores were significantly correlated with positive/negative feedback indicating alignment between quantitative and qualitative feedback, $r = .52$. However, when residents received higher quantitative ratings, the quality of comment was significantly lower, $r = -.20$. Themes identified from qualitative comments included feedback on leadership, teaching contribution, medical knowledge, work ethic, patient-care, and ability to work in a team-based setting. As residents progressed in training, faculty comments became more critical, highlighting deficiencies; however, most comments were positive and predicted success by the fifth year. Faculty comments focused on technical and clinical abilities; comments from peers focused on professionalism and interpersonal relationships.
Conclusion: While there was alignment between quantitative and qualitative assessment data, we found differences in the degree of alignment and types of themes emphasized as residents progressed in their surgical training. These findings underscore the need to improve our understanding of how faculty synthesize assessment data and the types of competency-specific feedback they provide as residents progress toward independent practice.

5G5 (2398)
Using task-level feedback with achievable objectives to improve clinical competence

Authors
Karl-Heinz Merbold
Thomas Corne Postma

Presenter: Thomas Corne Postma, University of Pretoria, South Africa

Background: Task-level feedback ensures that students understand whether they are able to complete a task successfully, or not. The aim of task-level feedback is to evoke self-regulated learning for improvement purposes, especially when linked to achievable targets. The objective of this study is to test this notion in a workplace-based assessment system that aims to develop students' exodontia skills over time.
Method: Clinical supervisors graded 28,280 dental extractions, performed by fourth and fifth year dental students, rotating through the Department Maxillo-oral and Facial Surgery of the University of Pretoria (2014-2016), according to assistance received. Independent completion of a procedure was quantified as "one" while a procedure completed with physical intervention of a supervisor was quantified as "zero". Students received task-level feedback quarterly regarding their independence ratios. Based on 2014 data the Department set fourth and fifth year students minimum targets of 80% and 90% independence, respectively, as from 2015. These targets constituted a challenging yet achievable objective. The aim of the feedback was to increase the number of students that could achieve these targets. Only very low performing students were subjected to targeted intervention. Remaining students were left on their own to achieve improvement.
Results: The proportion of 2014 BChD IV students (n=42) who achieved 80% independence increased from 60% at mid-year to 81% at the end of the year. For the 2015 and 2016 cohorts (n=51 and n=62) the improvements were 67% to 86% and 56% to 97%, respectively. The proportion of 2014 BChD V students (n=58) who achieved 90% independence increased from 40% at mid-year to 48% at the end of the year. For the 2015 and 2016 cohorts (n=37 and n=51) these improvements were 57% to 65% and 82% to 88%, respectively.
Conclusion: The introduction of minimum targets in 2015/16 coincided with considerable increases in independent practice milestone achievements earlier in the year when compared to 2014 baseline data, especially in year five.
Task-level feedback should be accompanied by achievable objectives to facilitate improvement in clinical competence over time. Students should receive stronger encouragement to achieve independence targets.

5G6 (2642)
The value of Crew Resource Management training in surgical departments

Authors
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Johan Lange, Erasmus MC, Rotterdam, Netherlands
Conny Dekker, University of Applied Sciences Rotterdam, Rotterdam, Netherlands
Olle ten Cate, UMCU, Utrecht, Netherlands

Presenter: Wilhelmina van Grevenstein, UMCU, Utrecht, Netherlands

Background: Crew Resource Management (CRM) courses for surgical departments are becoming popular in various formats. However, the quality and effects of such trainings for patient care have not been well established. We aimed to explore CRM trainers' views on the current state of the CRM training.
Method: We conducted semi-structured interviews, in combination with a short questionnaire study among trainers of various CRM courses for the healthcare market in Netherlands.
Results: Across all training programs, three parts can be identified: didactics, simulation-exercises, and feedback or debriefing. We found large differences in the simulation-exercise formats in part related to the background of the trainer, which could be medical, educational, or aviation, or a combination. Nearly all trainers agreed that national standards for CRM training lack, but disagreed about their envisioned content.
Respondents agreed that reducing complications and mortality is possible, but measurable improvement may take up to 15 years to achieve. All estimated that nationally implemented CRM is cost effective. It would take about three years to get investment costs returned. Most highly valued components of medical CRM were considered teamwork and (de)briefings.
The market of CRM training is increasing and the courses are extremely divers. Trainers are concerned about the effect of the diversity in medical CRM on its quality. One solution could be national standards for CRM training and accredited trainers, to ensure quality, but leaving room to tailor CRM training locally. International comparisons are possible, but suffer from differences across medical CRM markets and differences in national cultures regarding education, operative care and CRM.
Conclusion: CRM training offered commercially varies hugely. Establishing CRM standards would be one step in the direction to assure quality. Eventually CRM should become integrated in the culture of the operating theatre, at the benefit of patients, healthcare professionals and trainees. Healthcare professionals and CRM-trainers should collaboratively ensure that CRM reaches its potential.

5H: Short Communications: Teaching and Learning

Location: Kairo 1, Ground Floor, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

5H1 (2023)
Assessment of Meaningful-learning Behavioral and Emotional Abilities (AMBEA): Validation Study

Authors

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Presenter: Lucia Cadorin, CRO National Cancer Institute, Aviano, Pordenone, Italy

Background: All educators want their students to be committed and motivated to learn, and thus able to achieve higher learning outcomes that will prepare them to be competent professionals and to grow both personally and professionally. Meaningful learning is an active process that promotes a greater understanding of concepts, and is the result of an interaction between new and previous knowledge that produces a long-term change in knowledge and skills. Measuring meaningful learning ability is designed to identify problems or special learning needs and is crucial in nursing education. The intent of this study was to evaluate the validity and reliability of the Assessment of Meaningful-learning Behavioral and Emotional Abilities (AMBEA) tool in three different countries.
Method: After approval was received from the Ethics Committee, the study was conducted in Bachelor of Nursing Degree programs in (1) Italy (=2), (2) Japan (=2), and (3) the US (=1). Data collection was performed using the AMBEA tool, which is comprised of 56 items subdivided into six subscales measured on a 6-point Likert scale: Foundational Knowledge; Application; Integration; Human Dimension; Caring, and Learning How to Learn. Specific procedures were followed to translate the cross-cultural instrument from English to Japanese.
Results: The study is still ongoing in Japan and the US. 344 nursing students in Italy participated in the study, and preliminarily data showed that the AMBEA demonstrated good validity and reliability. The preliminary findings of the psychometric measures will be presented at the AMEE Conference.
Meaningful learning extends beyond knowledge acquired by merely memorizing concepts or practicing skills; it fosters the ability to reflect and a sense of responsibility that all students should develop during their own learning experiences. The AMBEA tool can help educators (teachers, trainers, and tutors) identify and improve the strategies they use to supporting students' learning capability, and increase their awareness of, and/or sense of responsibility for, their learning processes.
Conclusion: Measuring meaningful learning capability is crucial in nursing education, as it allows educators to identify students' problems and/or special learning needs. Therefore, a valid and reliable instrument is required.

5H2 (3237)
The contextual curriculum: Learning in and from the matrix

Authors

Brett Schrewe, University of British Columbia, Vancouver, Canada
Rachel Ellaway, University of Calgary, Calgary, Canada
Christopher Watling, Western University, London, Canada
Joanna Bates, University of British Columbia, Vancouver, Canada

Presenter: Christopher Watling, Western University, London, Canada

Background: Contemporary medical learners train in a broader range of clinical settings than ever before. While existing models of distributed medical education have focused on workforce outcomes and equivalency of academic opportunity and performance, there are growing indications that the unprecedented breadth of contextual variation that learners experience is transformative on a deeper level. There is a need, therefore, for a fundamental reappraisal of the role of context in medical education.
Method: We considered context as a matrix produced from six dynamic and intersecting patterns: patients, practices, education, locations, culture, and society. We drew on both situated learning theory to frame how trainees learn to participate competently in a specific context and the work of Martin Heidegger to understand how the effects of context on learning might go unrecognized from their perspective.
Results: Trainees' active engagement with the unique affordances offered by each context results in highly individualized learning outcomes. As such, their participation in this contextual matrix shapes what they learn, how they learn, and who they might become as physicians. Yet their inability to recognize that competent practice is critically linked to context may result in significant struggles with transition.
Drawing upon the concept of the contextual curriculum allows us to make explicit how context impacts learning outcomes and performance. Specifically, it can be used to foster reflection in trainees as a way to articulate the tacit knowledge that arises from informal learning, to differentiate between the ways in which competent practice is performed in different settings, and to learn how one might adjust to the regular recurrence of new clinical workplaces.
Conclusion: Context shapes what it means to be competent. By using the contextual curriculum, we may productively harness this understanding on both institutional and individual levels to ensure that our trainees are afforded opportunities to recognize the key role that context plays in their training, to identify how their abilities and identities are critically dependent upon contextual interaction, and to seamlessly provide safe and high-quality care around times of transition.

5H3 (1316)
Realist evaluation of medical students' experiences of active learning in Taiwan

Authors
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Presenter: Chien-Da Huang, Chang Gung Medical Education Research Center, Department of Thoracic Medicine, Chang Gung Memorial Hospital, Chang Gung University College of Medicine, Taipei, Taiwan

Background: Active learning – any instructional method that engages students in the learning process – has been shown to impart sustainable knowledge and performance change. We aim to develop process models of active learning to understand what works, for whom and why.
Method: Forty-eight sixth and seventh year medical students with experience of active learning methods were purposively selected to participate in ten focus group interviews. After synthesizing the data, the complex interactions around active learning were analyzed using realist evaluation framework to unpack the 'context-mechanism-outcome' (CMO) configurations.
In the context of cultural hierarchy and peer pressure, the mechanisms of confidence and fear came about, prompting students to be silent and achieve poor learning outcomes. In the contexts of assessment, teacher-student familiarity and teachers' guidance, learning motivation and self-regulation were triggered, prompting positive learning competencies. In the context of the medical environment and peer effects, the mechanisms of heightened physician identity and stress resulted in recognized active learning. These CMOs were synthesized into a process model of active learning.
Results: We identified three CMOs of medical students' experiences of active learning. The realist evaluation revealed mechanisms that could better support students' active learning. Fear derived from cultural hierarchy raised concerns as it hampered active learning. Good teachers' familiarity and guidance always triggered motivation prompting positive learning competencies. Adequate support of the professional identity of students in the medical environment prompted the recognition of active learning.
The contexts in which active learning is implemented might have important implications for medical students' experiences. The complex connections between cultural hierarchy and fear, teachers' guidance and motivation and the medical environment and professional identity can affect the quality of learning achievements. Our realist analysis is useful, revealing complex interactions in the learning environments and in learners' work.
Conclusion: The CMO configuration can explore the complex interactions around active learning, and help improve the sustainability of learned skills. The connections between cultural hierarchy and fear, teachers' guidance and motivation and the medical environment and professional identity have been shown to affect the complex interactions of learning outcomes.

5H4 (1486)
Nurturing a Community of Practice for Curriculum Enhancement

Authors
Kenneth Hargreaves
Anne-Marie Reid

Presenter: Kenneth Hargreaves, University of Leeds, UK

Background: This work focuses on the development and delivery of a new multi-disciplinary professional strand (IDEALS) in an undergraduate curriculum. Twenty skilled facilitators from a variety of health professional backgrounds were recruited to deliver the curriculum. The Communities of Practice (CoP) (Lave and Wenger, 1991) framework is used to describe the evolution of the facilitator group in the early years of delivery.
Initially the facilitators, experts within their own fields, were trained to deliver core materials which had been designed by the academic team in the department. A survey at the end of the first year revealed a lack of satisfaction and a lack ownership of the materials by the facilitators. There was a desire to enhance these, some of which the curriculum lead accomplished through the formal training sessions.
Method: Facilitators started meeting informally over coffee to review and enhance materials and to share their expertise in specific topic areas. This was supplemented by an on-line chat group. The 'hub' of the practice changed from the programme leadership, to a small core group of facilitators who began to take increasing responsibility for mutual support, development of programme materials and influencing the programme leader in steering change. On realising this, the curriculum lead nurtured the development of this embryonic CoP, encouraging facilitators to deliver training sessions and mentor newcomers to the practice.
Results: The responsive and transformative leadership approach allowed the willingness, knowledge and expertise of the group to be exploited in curriculum development and delivery. The establishment of a CoP was identifiable by the 'joint enterprise, mutual engagement and shared repertoire' (Wenger 1998) developed. This resulted in an enhanced curriculum with more engaging and interactive learning sessions, greater facilitator satisfaction and higher ratings in student satisfaction.
Conclusion: Encouraging and empowering a CoP of learning facilitators, through a transformative leadership style, has capacity to create a continually improving and evolving curriculum. This pays dividends for both students

and facilitators. The approach is particularly relevant to situations where a team of professionals are delivering the same material to a whole-year cohort.

5H5 (1039)
Narrative Shifts Prompt the Development of Adaptive Expertise

Authors
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Ilene Harris, University of Illinois at Chicago, Chicago, USA
Karen Thomas, Holland Bloorview Kids Rehabilitation Hospital, Toronto, Canada
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Maria Mylopoulos, University of Toronto, Toronto, Canada

Presenter: Anne Kawamura, Holland Bloorview Kids Rehabilitation Hospital, Toronto, Canada

Background: The complexities of our healthcare system demand that physicians be flexible and adaptive in their use of knowledge and experience to solve problems in clinical practice. This complex problem solving is known to be an essential skill for adaptive experts and is the standard of excellence in training future health care professionals. Despite its importance for medical training, little is known about how adaptive expertise develops in medical trainees. Therefore, the purpose of this study was to explore how pediatric residents develop adaptive expertise through workplace learning.
Method: A constructivist grounded theory study was conducted, using participant observation and semi-structured interviews as the data sources and purposeful sampling of subspecialty residents from the Department of Pediatrics at the University of Toronto. We conducted 34 observations of ten residents, resulting in 102 hours of observation. Data collection and analysis occurred iteratively and themes were identified through constant comparative analysis by a team of researchers.
Results: Residents acquire a number of routine efficiencies for communicating in clinical consultations; however, difficult conversations are navigated by enabling families to express their own narratives. Residents integrate these patient and family narratives with their medical knowledge to provide care. At times, a 'narrative shift' was needed to effectively navigate the conversation. Residents use this narrative shift purposefully to inform the creation of new communication strategies, resulting in an opportunity for learning. Critically, this learning was modulated by the resident's effectivities and the constraints of the clinical setting.
Conclusion: Narrative shifts are adjustments in the physician's understanding of a patient's narrative that impacts on how clinical care is provided.   In this study, narrative shifts prompted the development of adaptive expertise in residents. They triggered residents to explore and experiment with new ways of interacting with patients and families which further developed their conceptual understanding of how their knowledge is situated within the context. The workplace learning environment provides opportunities that prepare residents for future learning through active

experimentation, deeper conceptual learning and multiple perspectives. We must ensure that these key aspects of training that promote adaptive expertise development are not lost in competency-based medical education.

5H6 (1277)
Customising of medical education to allied health education: teaching and learning of basic sciences calibration

Authors
Gopalakrishnakone Pon, NUS & SIT, Singapore

Presenter: Gopalakrishnakone Pon, NUS & SIT, Singapore

Background: For more than 3 decades I have been teaching medical and dental students the subject of gross Anatomy and histology and then I made a carrier change and transition from medical education to allied health education teaching Diagnostic radiography, Physiotherapy, Occupational therapy and Nursing students. I have to change my teaching pedagogy, course contents and assessment methods to suit the allied health students requirements. The experience will be shared.
Summary of work: The course content of anatomy which was taught for medical students was completely modified and tailored to suit the allied health students. A multimedia modal content was designed using audio, video, animation, virtual reality, mixed reality and augmented reality to teach anatomy and histology.in addition to 3D modeling, rotation and annotation capabilities.
The course content was calibrated to each of the subspecialty such as physiotherapy or nursing. Lectures, practicals, tutorials, gross anatomy dissection classes, museum interactive classes were conducted. Digital soft wares to teach anatomy were also used. Assessments were done by written examination with mini essay questions, multiple choice questions, objective structured practical examination (OSPE) as well as Viva voce when needed. At the end of the module a survey form also administered to evaluate the module as well as the lecturer's efficiency.
Summary of results: The students were satisfied with the course content, pedagogy as well as the many technologies used for teaching a 3D visual subject like anatomy. They had a deep understanding of the spatial arrangements of the various vital organs of the body and how they are interrelated within a short span of time.
Discussion &Conclusion: Teaching and learning of visual subject like human anatomy needs many skills in the part of the teacher and many recent technological innovations and methodologies makes this task more simpler and make the students to be excited and imaginative in learning this subject.
Take home message: Information technology, Information Communication technology, Internet of things (IoT) as well as digital and virtual learning is radically changing the way we teach and learn

5I: Short Communications: Learning Experiences

Location: Rio, 2nd Floor, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

5I1 (2947)
Electronic poster presentation: Future of Learning

Authors
Syeda Hanaa Fatima, Shifa College of Medicine, STMU, Islamabad, Pakistan
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Presenter: Syeda Hanaa Fatima, Shifa College of Medicine, STMU, Islamabad, Pakistan

Background: Poster presentations are a significant part of conferences and allow researchers to display their preliminary findings of research. E-posters even save time as they are interactive posters. The objective of this research was to explore students perception in the learning of public health concepts in gastrointestinal tract (GIT) module through electronic poster presentation.
Method: Year 3 undergraduate medical students of SCM were asked to present an e-poster in the module of GIT, focusing on public health aspect. Students were divided into 7 groups according to their small groups comprising of 13 students each. Each group was provided with one study theme. They were provided with a template to cover all aspects of public health. All the basic scientists involving 30 faculty members were invited to judge the e-poster through a checklist. Mean score was calculated. Certificate was awarded to the group that scored the highest.A focused group interview involving one voluntary participant from each group was carried out. Thematic analysis was done manually.
Results: Different themes identified include: interactive way of disseminating information, knowledge was increased, buildup of confidence, must be used in combination with other strategies not alone, should not be close to exam,discovered own talent, was a great experience, gained knowledge while searching,making, explored hidden talents other than reading and writing. Details will be shared in AMEE 2018.
Conclusion: Students and researchers in almost every discipline will face the challenge of presenting their research findings through poster presentations. Poster presentations are generally considered less prestigious than paper sessions. But they are a significant part of conferences and allow researchers to display their preliminary findings of research. The e-posters offer huge advantages to researchers as they have minimal costs, allow researchers to add multimedia portions in the posters and have archival capabilities. are generally considered less prestigious than paper sessions
Take-home messages: Students welcome the use of innovative learning through electronic media when carried out in a relaxed environment.
Students enjoy learning through their creativity with the use of electronic media.

5I2 (1801)
Meet (Medical Education Empowered By Theater): Boal`s Forum Theater as an Active Methodology in Medical Education

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Background: The final goal of medical education is to deliver to society a competent professional who is fully committed to the virtues and values of good medical practice. However, medical educators still debate on the best strategy to guarantee this important outcome. Recently, researchers in medical education agreed on the relevance of understanding and fostering medical students' professional identity development. Augusto Boal's Forum Theater was developed to activate individuals towards the consolidation of their autonomy even in situations of social oppression and unbalanced power relationships, which we believe is common within the hierarchical environment of medical education.
Method: We designed an obligatory communication course for second-year medical students (n=340) based on Boal's methodology. Students engaged in body exercises and theater games specifically designed to create emotional and relational awareness. Through theatrical improvisation, students performed scenes connected with the themes discussed during the theater classes. After the scenes students were interviewed.
Results: The new methodology encouraged reflection on emotional development and its influence on personal and professional relationships and growth. Knowledge was co-constructed in a collaborative, sensitive and meaningful way, relying on the body and its interrelationships as the main engines. The improvisational scenes revealed conscious and unconscious conflicts and several unspoken feelings, such as fear and oppression. In the interviews, students shared experiences, had insights, and became aware of the process of forming their new professional identity.
Conclusion: Boal`s Forum Theater is as an active teaching-learning methodology which fits well to professional development by fostering communication skills, providing space for personal, social and political reflection, and raising students' awareness of the inherent conflicts in the process of becoming a doctor. The results allowed us to introduce a new field of transdisciplinary study: MEET (Medical Education Empowered by Theater). MEET comprehends concepts and techniques that can be taught and learned, contributing to humanization, fostering empathy and resilience, and assuring a new space for creativity in Medical Education, all important elements of the Medical Profession.

Take-home message: Medical Education Empowered by Theater (MEET) represents a new and powerful instrument to scaffold professional development of medical students.

5I3 (1885)
Serious Games in Medical Education: Current Knowledge of, Use and Perceived implementation barriers among clinical educators

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Background: Serious Games (SGs) could be effective in tackling the pitfalls of traditional didactic lectures in undergraduate medical education. The educational potential of SGs in stimulating active learning and engaging students has been widely reported in literature. However, their uptake in medical education has been slower than expected and research on this aspect is limited. Therefore, this study aims to explore how much clinical educators know about SGs, their current extent of use, and perceived barriers to their implementation in undergraduate medical education in Singapore.
Method: An online validated questionnaire was sent to clinical educators of various specialties in an academic public hospital in Singapore. 51 responses were gathered and analyzed. Descriptive statistics were performed for all the data collected. One-way ANOVA tests were done to determine if the background of clinical educators and their knowledge of SGs influenced their perception of the barriers. If the ANOVA test results were statistically significant, they were followed up by calculations of the effect size and Turkey post-hoc test.
Results: 49.0% of respondents had not heard of SGs before the study. The biggest barriers reported were limited time and resources for educational development, and the lack of knowledge of available game-based learning approaches and medical educational games. SGs were perceived as less suitable ($p < 0.01$) and riskier ($p < 0.05$) by respondents without a prior knowledge of SGs, as compared to respondents with knowledge of them. Respondents without prior knowledge were also less likely to consider using SGs in their teaching ($p < 0.01$). Among specialties, there was a significant difference in the perceived suitability of SGs between at least two of the specialties ($p < 0.05$).
Conclusion: Our study shows that there is a need to increase the knowledge of SGs among clinical educators. Increased knowledge about SGs will likely foster a more positive attitude (more suitable, less risky) to SGs as an educational approach. We anticipate that such effort would contribute to an increased use of SGs in medical education.

5I4 (1290)
Unexpected results of mandatory knowledge re-examinations in the pre-clinical curriculum

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Background: Complaints of physicians about students' deficiency of factual knowledge upon entering clerkships are widely known. The underlying reason is often not deficient education, but rather a lack of knowledge retention. To stimulate retention, the University Medical Center Utrecht introduced four re-examinations, (CRUX1-4)-tests, in the pre-clinical curriculum in 2016. Each CRUX-test covers the content of 3 or 4 courses; the four CRUX-tests together cover the content of 14 courses. CRUX-tests can be taken half a year or more after the exams of the initial courses. There is no limit to the number of attempts on CRUX-tests. The aim is to induce students to revisit the course material in order to reinforce knowledge acquired in the past.
Method: We evaluated the initial effects of CRUX-test implementation by asking students to report on preparation time and test results after their first attempts at CRUX1- and CRUX3-tests, using ranges as response options to safeguard anonymity. We also analysed the relationship between the cognitive level of questions according to Bloom's taxonomy and student performance at first attempts of CRUX1-4-tests. We hypothesized a negative relationship between cognitively more demanding questions and performance.
Results: Reported preparation time varied largely between students and between tests. Preparation time peaked at 10-20 hours for CRUX1, but at 0 hours for CRUX3. As expected, preparation time related positively to success. Surprisingly, for all four tests students performed worse on questions demanding factual knowledge recall than on questions requiring application of knowledge. Average p-values (corrected for guessing) of factual knowledge questions (n=130) and questions requiring application of knowledge (n=114) were 0.43 and 0.55, respectively. Within the first year of CRUX-test introduction, students increasingly show up unprepared at first attempts of subsequent CRUX tests. The relatively better performance on questions requiring application of knowledge challenges the implicit assumption of educators that students must be able to recall factual knowledge to execute higher-order cognitive skills.
Conclusion: It is not carved in stone yet that incapability to recall factual knowledge will hamper students' development as clinicians. Further research of the effects of knowledge retention tests is necessary.

5I5 (1793)
Pathways to Persuasion: Cognitive and Experiential Responses to Hospice Care Education Multimedia Films

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Presenter: Lin-Yang Chi, Taipei City Hospital and Faculty of Dentistry, National Yang-Ming University, Taipei, Taiwan

Background: Successful communication and education about death literacy are the critical parts in end-of-life care. Although previous multimedia films have been done on teaching the relevant communication skills, numerous questions remain as to which features of particular message makes the film effective in persuading clinicians to provide hospice care. And which processes within the clinicians after looking at the education films promoted the intentions of providing hospice home care.
Method: Since 2016-2017, Taipei City Hospital has developed a serial multimedia films on teaching hospice care. We established a multi-media education film for clinicians, "Hospice Home Care for Dying Patient", to teach clinicians how to provide near-dying symptoms management at home. The main purpose of learning in this film included (1) Recognition of the symptoms and signs of near-dying status; (2) Management of the near-dying discomfort; (3) Death preparation and Etiquette for the dead; (4) Bereavement Counseling. Participants were asked to complete a structured questionnaire regarding the cognitive (self-competence) and the experiential (emotional and self-referencing) pathway of looking at the multimedia film—being absorbed in the narrative---and its relationships to the intentions to provide hospice home care. We performed regression analysis and structural equation modeling (SEM) to explore the transportation pathways in enhancing the intention of providing hospice home care.
Results: A total of 232 trainees, including 55 physician, and 177 non-physicians have been enrolled in this multimedia film education. After looking at the film, higher levels of self-competence, emotional responses, and self-referencing of past care experiences significantly predicted the intention of providing hospice home care (p<0.05). In the SEM, self-competence directly increased the intention, and it also indirectly mediated through emotional responses to enhance the intention. Although self-competence was associated with higher self-referencing, it did not mediate through self-referencing to enhance the intention. To promote hospice home care, educational films should focus on enhancing the self-competence as well as reflecting the emotional responses from the clinicians.
Conclusion: Messages to establish self-competence and to trigger emotional responses in the multimedia films are recommended to encourage the clinicians to provide hospice home care.

5I6 (569)
Healthcare Hackathons: A Systematic Review

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Background: Healthcare Hackathons are being increasingly used to generate innovation in healthcare delivery using technology and data, and as a model for cross-disciplinary education opportunities. However, few studies have measured their effectiveness with either objective. This systematic review will summarize and critically evaluate the peer-reviewed literature to characterize the educational benefits of Healthcare Hackathons, and their impact on healthcare delivery and outcomes.
Method: A systematic literature search of ten electronic databases (Psychinfo, MEDLINE, EMBASE, ABI Inform, Business Source Complete, Education Abstracts, ERIC, Health Business Elite, Inspec, Web of Science) was completed in March 2017 using the term "Hackathon." All research and non-research articles pertaining to Healthcare Hackathons were retrieved, and data extracted from articles that met inclusion criteria. A qualitative synthesis using thematic analysis was then conducted, as there was insufficient quantitative data available for quantitative synthesis.
Results: From 177 potential titles, 28 articles met inclusion criteria. Four (14%) were formal research studies, while 24 (86%) were non-research articles (editorials and descriptive case studies). Thematic analysis identified the perceived role of Healthcare Hackathons for fostering cross-disciplinary collaboration and learning, generating innovation, increasing knowledge of information communication technology, and encouraging end-user participation in the development of healthcare interventions. However, none of the studies evaluated the impact on healthcare delivery or clinical outcomes. In general, there was significant heterogeneity in study design, and the quality of existing studies is generally poor.
Conclusion: There is currently limited evidence to support the hypothesized benefits of Healthcare Hackathons for education and healthcare delivery outcomes. Future Healthcare Hackathons events should integrate more robust research and evaluation and publish these findings to develop the evidence base.

5J: Short Communications: BEME

Location: Shanghai 1, Ground Floor, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

5J1 (2743)
A Best Evidence in Medical Education Systematic Review to determine the most effective teaching methods that develop reflection in medical students

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Presenter: Jane Uygur, RCSI, Dublin, Ireland

Background: Reflection has been defined as the process of engaging the self in attentive, critical, exploratory and iterative interactions with one's thoughts and actions, and their underlying conceptual frame, with a view to changing them and a view on the change itself (Nguyen et al. 2014). However, there is little concurrence about how to best teach reflection in medical education literature. The aim of this review was to determine: i) which educational interventions are currently being used to facilitate the development of reflection, ii) how is reflection being assessed, and iii) what are the most effective interventions?
Method: We focussed on undergraduate medical students who had experienced a teaching intervention to develop reflection and its assessment. We searched nine databases to identify relevant articles. Due to the heterogeneity of studies a narrative synthesis approach was adopted.
Results: Twenty-eight studies met the inclusion criteria. The interventions in these studies were heterogenous and had at least of two of the following components related to reflection: i) introduction to reflective process ii) experience as triggers, iii) reflective writing, iv) reflection process and learning guidelines, v) small group discussion to underpin/explore reflection, vi) tutor training on how to provide feedback and vii) feedback. The strongest evidence indicated that reflection and learning guidelines and feedback improved student reflection.
Discussion: It was evident that there was lack of consensus among educators regarding the definition of reflection. 'Reflection' was used to mean anything from the process of reviewing learning material to an iterative and self-analysis. In many articles students were asked to reflect without being taught how to, indicating that reflection may not be widely thought of as an acquired skill. Once the core articles were identified, it was apparent that the educational interventions were very heterogenous. This may be due to the complexity of reflection itself, the lack of consensus around the definition of reflection, variability in educators' understanding of the reflective process and the study context.

Conclusion: This review provides an understanding of the current context, the range of interventions and the quality of some components of interventions for teaching reflection to medical students.

5J2 (3701)
Patient / Service User Involvement in Medical Education: A BEME Systematic Review

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Presenter: Simon Gupta, Blackpool Teaching Hospitals NHS Foundation Trust, Blackpool, UK

Background: Medical Licensing/Registration Bodies require the integration of patients/service users into the education, training and assessment of doctors. Education/specialist training institutions recognise this key responsibility when designing curricula to encourage patient accountability in their own care and address the need for students and trainees to recognise the person behind the disease.
Method: We conducted a BEME systematic review of literature describing the involvement of patients and service users in medical education, according to the spectrum of involvement detailed within the Taxonomy set out by Angela Towle. Particular focus was given to assessing the quality of evidence on the impact upon learning outcomes, according to Kirkpatrick's Hierarchy.
Results: 11,093 papers were identified, reduced to 198 after initial triage. 36 met the inclusion criteria for analysis. The majority of excluded papers lacked the criteria necessary to analyse i.e. learning outcomes/level of patient involvement. The quality of included studies was moderate to low, according to our assessment criteria as defined within the STORIES Statement (Gordon 2014). Varied research methodologies were used, many of which lacked robustness. Amongst key findings, details in reporting curricula and materials needed for replication is frequently insufficient.
Studies employing patients/service users in medical education follow similar patterns - often limited to the same specialities and in the same capacity (teaching examination/communication skills). Weaknesses in quality and risks of bias affect the ability to clarify the factors that such involvement can make to learner outcomes. Although they may reflect reality on the ground, little is added to the evidence base to help determine an ideal study methodology and justify this involvement. Service user involvement in medical education is increasingly used, but must be underpinned by clear and relevant theory, implemented with appropriate pedagogy and reported in a fashion that supports evidence based replication and dissemination.
Conclusion: Although more studies are being attempted, the quality of their reporting still lacks rigour, preventing any strong conclusions about the impact of service user

involvement in medical education. We encourage educators to publish more robust studies the gaps identified in order to progress this field.

5J3 (1575)
Mobile devices supporting clinical placements for health professions students (transitions and transgressions): A Best Evidence Medical Education (BEME) systematic review

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Background: Clinical placements (clerkships) for health professions students (pursuing primary basic qualifications) should incorporate mobile devices meaningfully to support workplace learning, but ingrained assumptions about organizing clinical placements might undermine this. It is timely to evaluate the evidence-base beyond the original focus on device details and functions, i.e. towards how devices support the complexities of student transitions in learning and professional development (and potentially improve care) on clinical placement.
Method: Effectiveness-review (1988-2016) of evidence re: "What works best for health professions students using mobile (hand-held) devices for educational support on clinical placements?" searching: Medline, ERIC (Educational Resource Information Center), Web of Science, CINAHL (Cumulative Index to Nursing and Allied Health Literature), PsycInfo, Cochrane Central, Scopus. --- Reviewer-pairs screened titles/abstracts, then one pair coded, extracted, and synthesized evidence from eligible studies, working within the pragmatism paradigm.
Results: From the 107-article scoping-review (based on screening 2,279 abstracts), 49 articles met inclusion/exclusion criteria for the effectiveness-review:-- four systematic reviews for context, 45 articles reporting primary research evidence. The primary evidence was mostly Kirkpatrick K3 (39/45, 86.7%), mixed methods (21/45, 46.7%), and S4-strength (about one-half). Mobile devices particularly supported student: assessment; communication; clinical decision-making; logbook/notetaking; and accessing information (in about two-thirds of primary studies).
Via the hidden curriculum, three main conditions affected impact on placement learning: ---concerns about: actual and perceived disapproval of peers, clinicians/educators,

and patients; confidentiality and privacy; and security aspects; ---distraction by social connectivity (or other personal use) and busy clinical settings; ---mixed messages about policy.
Discussion & Conclusion: Mobile devices provide potentially powerful educational support for students on clinical placement if ingrained assumptions are challenged and explicit policy addresses concerns about transgressions.
The underpinning research must be more creative, relevant, and rigorous though. The evidence-base here was modest, idiosyncratic, and difficult to filter and synthesize, partly due to rapid changes in technology plus disjointed research agendas. Synthesis required expertise across quantitative, qualitative, and mixed methods approaches and persistence despite confusing or suboptimal write-ups.
Take-home message: Explicit policy must tackle the hidden curriculum about how students should use mobile devices on clinical placement.

5J4
Cognitive load theory for training health professionals in the workplace: A BEME review of studies among diverse professions

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Presenter: Justin L. Sewell, Department of Medicine, Division of Gastroenterology, University of California San Francisco, San Francisco, CA,, USA

Background: Cognitive load theory (CLT) is of interest to health professions education (HPE) researchers, and is particularly applicable to workplace settings, which are complex, involve substantial element interactivity, and have numerous sources of extraneous load. However, prior reviews of CLT have not focused on learning in authentic HPE workplaces.
Method: We performed a scoping review of studies involving cognitive load, mental effort and/or mental workload in workplace settings within health and non-health professions. We included actual and simulated workplaces and workplace tasks. Searching 8 databases, we identified 4,571 citations. Of these, 116 met inclusion

criteria (education research study performed in a workplace setting using CLT or measuring cognitive load). Studies were selected, and data were extracted, doubly. All authors participated in knowledge synthesis.

Results: 97 studies regarded health professions and 19 other professions, most commonly medicine (85), nursing (10) and aviation (9). 104 studies were quantitative; 12 were mixed-methods or qualitative. 91 studies used simulation, 25 regarded actual workplaces. Cognitive load was measured in 103 studies using various approaches. Design and scope of studies were typically focused with narrowly-defined settings. Studies in non-health professions supported and complemented studies in HPE. Studies commonly identified higher intrinsic load as associated with less prior experience and lower performance, but few studies attempted to modulate intrinsic load. Numerous studies evaluated contributors to extraneous load, including information display and technology interfaces, task standardization, the physical work environment, teacher attitudes, contextual factors, disruptions and distractions, fatigue, and negative emotions. Limited studies of germane load suggested that matching complexity of workplace learning to learner prior experience could promote germane load. Studies within diverse professions support relevance of CLT to workplace learning, including traditional conceptualizations of intrinsic and extraneous load. Germane load was rarely studied, despite its role in promoting schema formation and learning. Study synthesis generated multiple recommendations to optimize curricular design, direct teaching, learning environments, and learner metacognition within HPE workplaces.

Conclusion: Tenets of CLT inform workplace learning in HPE. Future research of CLT's role in HPE should broadly consider overall workplaces and include mixed-methods and qualitative approaches.

5J5
'Why all BEME reviews are systematic, but not systematic reviews: A viewpoint'

Authors
Morris Gordon

Presenter: Morris Gordon, UK

Background: The BEME collaboration has seen an exponential growth in activity in reviews within health education, mirroring an increase in such output in the wider literature. This has been accompanied with an increasing tapestry of review methodologies being employed. A key question this prompted is whether the convention during the first 15 years of BEME reviews to describe all output as 'systematic reviews' was appropriate and this was dropped in 2016. In this session, I will present why all BEME reviews are indeed systematic, but not systematic reviews.

Method: A range of review methodologies will be presented, including systematic review, focussed review, realist review, narrative review and scoping review.

Results: The health tradition of systematic review, as developed through the evidence based medicine

movement and organisations such as Cochrane will be considered. This will be compared and contrasted with the key characteristics of the other reviews and areas of convergence and divergence explored. The BEME process will be overlaid to highlight that key elements of that process ensure scholarly rigour and a systematic deployment of methods to find evidence, whilst still allowing synthesis in line with diverse review types and ensuring quality output that recognised the kaleidoscopic range of valuable evidence in health education.

BEME supports rigorous processes to find and synthesise evidence that are both transparent and rigorous, which in my viewpoint leads to systematic BEME reviews, but such reviews can align with a number of diverse review traditions. Authors must ensure the right review type is selected to answer their research questions and that they have the specific skills and training to perform this review type.

Conclusion: All BEME reviews are systematic, but are not limited to the systematic review tradition of organisations like Cochrane. A diverse range of review types can be considered by BEME.

5J6
Non-technical skills assessment in medical education: A BEME focussed systematic review

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Presenter: Michelle Daniel

Background: Preparing students to provide safe, effective care while contributing to a culture of safety is a critical component of training. Many medical schools have implemented curricula to teach non-technical skills, yet consensus on how to assess these skills is lacking. This systematic review aimed to evaluate the evidence regarding non-technical skills assessments in undergraduate medical education (UME), to describe the strategies utilized, learning outcomes and the validity, reliability and psychometrics of the instruments.

Method: Studies describing assessment methods as either the focus of the study or having non-technical skills assessment as an outcome measure of the research were considered. A standardized search of online databases was conducted and consensus reached on included studies. Data extraction, quality assessment and content analysis were conducted per Best Evidence in Medical Education (BEME) guidelines.

Results: Nine papers met the inclusion criteria. Assessment methods broadly fell into three categories: simulated clinical scenarios, objective structured clinical examinations, and questionnaires or written assessments. Details of methodology have been synthesised to support readers developing their own materials. However, few studies explicitly referenced underlying conceptual

frameworks utilized for instrument development and even fewer rigorously assessed instrument performance. The majority of studies sat at Kirkpatrick's Level 2b, with only two studies impacting behaviour change and one changing practice.

There were clear themes in content and broad categories in methods of assessments employed. The quality of the published literature on non-technical skills assessments in undergraduate medical education was poor due to lack of theoretical underpinnings and failure to rigorously assess the psychometrics of the instruments. Whilst the current literature forms a good starting position for educators developing materials, there is a need for future work to address these weaknesses as such tools are required across health education.

Conclusion: There is a lack of theoretic underpinning within published items on non-technical skills assessment. Presented is a good starting point for educators in developing further assessment methodologies and tools.

5K: Short Communications: Curriculum: Ethics

Location: Shanghai 2, Ground Floor, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

5K1 (1641)
Determining Best Practices and Barriers to Teaching Ethics in Medicine: A Scoping Review

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Presenter: Carrie Bernard, Department of Family and Community Medicine, University of Toronto, Canada

Background: In 2013 the Primary Care Ethics Integration Initiative (a partnership between the academic and community based organizations in Toronto) was formed to address the needs expressed by primary care clinicians for better teaching and support in the area of clinical ethics. A scoping review was undertaken to address the learning gap and to determine the best practices in integrating ethics teaching into family medicine residency training.
Method: The scoping review addressed the following questions: What methods are used to teach medical ethics in medicine? How have the teaching methods been evaluated and is there evidence of efficacy? What types of student assessments relating to teaching ethics have been employed? What is the evidence supporting their use? MEDLINE was searched for relevant articles (1947-present). 97 full text articles and abstracts were screened. 79 were included in the reviews.
Results: Although well designed trials evaluating ethics teaching are sparse, the following themes were identified: there is not agreement in the literature on best practices, learners prefer small group learning over didactic lectures, there may be benefit to integrating ethics teaching into clinical work, and many barriers exist (time constraints, lack of faculty confidence, competing learning needs) Our review revealed that teaching ethics in medicine has significant barriers and better integration of teaching in the clinical setting may be a promising solution. Further, evidence of efficacy of teaching methods and evaluation tools are limited. We are developing a program to address these deficits.
Conclusion: Although learning ethical reasoning is integral to successful family medicine practice, work needs to be done to ensure that curricula and teaching methods are effective. Methods which better integrate ethics learning into the clinical work should be a priority for evaluation.

5K2 (2137)
Creating a bioethics Scholars Program for Graduate Medical Trainees

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Presenter: Angira Patel, Ann & Robert H. Lurie Children's Hospital of Chicago, Northwestern University Feinberg School of Medicine, Chicago, IL, USA

Background: Experts recognize bioethics as an important component of graduate medical trainee education. Education in bioethics promotes professionalism and provides trainees' skills to identify ethical issues encountered in medicine and develop critical analytic thinking related to clinical decision-making that considers patient and family values. However, providing bioethics education to medical trainees has challenges. The recently published Romanell report, called for more rigorous bioethics training for graduate medical trainees and laid out potential goals and objectives as well as challenges for developing a comprehensive curriculum.
Method: Using Kerns' six-step approach we developed a 2-year bioethics curriculum. Specifically, we performed a literature review, completed a needs assessment, conducted interviews of stakeholders, developed objectives and educational strategies, performed a pre-test assessment, and implemented a 2-year bioethics curriculum.
Results: Trainees participating in the program attend ten 2-hour core seminars and twelve 1-hour specialty ethics sessions of their choosing. Trainees also complete 2 longer written reflective assignments and 6 shorter written reflections, read 2 fiction/non-fiction books related to bioethics, participate in an ethics simulation, have a practical experience that may include participating in ethics meetings or institutional review board meetings, and complete a scholarly project. Graduate medical trainees applied and were accepted in summer of 2017. Currently 9 participants representing 8 different specialties comprise the first cohort of the project. Trainees who participate in this bioethics scholars program will have an in-depth exposure to bioethics theory and knowledge and the skills to be the future ethics educators, researchers, and policy leaders in medical ethics.
Conclusion: This program provides an early foundation in bioethics for interested trainees who want to include ethics as part of their future academic career. By having interaction and exposure to multiple medical bioethicists, they will have early exposure to model their future academic career in bioethics.
Take-home message: Through a bioethics scholars program, interested medical trainees can benefit from additional training and mentorship towards an academic career in medical bioethics.

5K3 (2481)
Designing bioethics curriculum for mobile learning

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Presenter: Azra Naseem, Aga Khan University, Karachi, Pakistan

Background: At AMEE 2017, we presented findings from the participatory design (PD) process of developing a mobile app for teaching of bioethics. Since that presentation, bioethics curriculum for mobile learning to be used as a part of the app has been developed using a backward design process. Here we describe the processes of designing the content, feedback from stakeholders and challenges encountered in the process.
Method: During the workshops, medical and nursing students and residents shared ethical issues encountered in clinical settings. Based on this, topics were identified for static content on the app. An eLearning design template was developed and learning outcomes determined for each topic. Topics were assigned to content experts, who took the lead in writing the first draft while others provided input by identifying additional content. A group of students and residents were invited to review the content and provide feedback.
Results: Learning outcomes are largely at the first and second levels of Bloom's taxonomy. Each topic has two real cases followed by questions for reflection, a wide variety of resources to analyze the cases and develop deeper understanding of underlying ethical issues, and an online post-quiz for self-assessment purposes. Feedback from end-users shows that content is largely relevant to their needs, although some content will require more facilitator guidance. The app is specifically designed for interactive discussions between and amongst learners and facilitators to supplement the static content.
The content development team encountered conceptual challenges such as pre-identification of resources that learners may require in future situations, and practical challenges such as the lack of time for developing online content. However, it is important to teach bioethics in the context of real cases to foster the development of ethical reasoning among health professionals.
Conclusion: Curriculum for mobile learning designed through participatory design process allows end-users to design their own learning experience, while content development by experts ensures that content is accurate and aligned with outcomes.

5K4 (2442)
Ethics Education with Hong Kong Flavour: Cultivating Lasting Bioethical Awareness in Medical Students by Using Local Cases and Debates

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Presenter: Sara Bergstresser, The Chinese University of Hong Kong, Hong Kong

Background: Contemporary bioethics education has been developed predominately within Euro-American contexts, but other regions across the globe are increasingly joining the field, leading to a richer global understanding. Nevertheless, many standard bioethics curriculum materials retain a narrow geographic focus, with examples that are mainly drawn from experiences and debates in North America and Europe, a tendency that raises concerns about applicability to other world regions. This is of particular importance for Hong Kong, which has a history, culture, and medical system with many unique features, and most local medical graduates remain in Hong Kong to practice.
Method: A new bioethics education program for undergraduate medical students is currently under development at the Chinese University of Hong Kong (CUHK) in partnership with Columbia University, with an emphasis on cultivating lasting bioethical awareness relevant to the local Hong Kong context. Based on this partnership, standard topics of broad relevance are identified, and then these topics are augmented with local examples, producing a curriculum both consistent with global standards and distinctly relevant to Hong Kong. In the preclinical years, emphasis is placed on broad social debates, including medical cases discussed in local media, public health, and debates about health system priority setting. For the clinical years, the program incorporates ongoing ethics grand rounds, where individual local cases are discussed in great depth.
Results: For medical students, we have found that using standard case studies based on unfamiliar social, cultural, and political systems and events have been difficult for students to understand and to connect to their own futures as Hong Kong medical professionals. Preliminary observations show that the introduction of local cases and discussions has resulted in more lively discussions, with students more willing to express their own observations and opinions on topics of bioethical relevance. Since the program is still under development, further study is still needed.
Conclusion: The CUHK experience suggests that success in cultivating lasting bioethical awareness among medical students is greatly enhanced by incorporating cases and

examples that are relevant to the real world realities of
working in local medical systems.

5L: Short Communications: Curriculum: Education Environment

Location: Shanghai 3, Ground Floor, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

5L1 (2470)
Learning strategies don't form in a vacuum: a comparative ethnographic study

Authors
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Presenter: Eleonora Leopardi, University of Newcastle, Australia

Background: Self-directed learning (SDL) and self-regulated learning (SRL) are considered critical in both medical education and lifelong learning. Medical schools structure their programmes to enable students to develop SDL and SRL. However, learning environments, through the impact of their hidden curricula, often oppose the intended objectives of the formal curriculum.
A multi-sited comparative ethnographic study was conducted in the context of a joint medical programme delivered at two different medical schools. A combination of research methods was used to study the institutional construction of the learning environment and the students' learning strategies during the early years of the programme.
Method: Seventeen interviews of students, two focus groups (n=16), and 101 hours of observation of learning activities were conducted. Additionally, 18 staff interviews and 23 hours of meetings observations were completed. Thematic analysis of the data collected was used to understand the students' learning strategies and uncover the influence of the learning environment.
Results: The analysis of the learning environment revealed that, while explicit emphasis is put on SDL as the stated educational strategy, numerous cues in the programme direct the students' learning at each institution. These unspoken messages can be conveyed by course materials, assessments, learning facilitators and student organizations. Although, individually, staff members acknowledge this influence, the formal curriculum and the operational activities of the medical school underestimate the significant effect that these cues have on students.
Conclusion: The learning environment is a complex entity that influences students as they develop their learning strategies. SDL or SRL are often poorly defined and assumptions about the students' levels of self-direction and self-regulation are made, both by medical education researchers and by medical educators. Better understanding of the learning environment will assist medical educators in acknowledging implicit influences on the students' learning.

Take-home message: The institutional culture that permeates the learning environment exercises a powerful influence on students' learning strategies, and can overturn explicit educational objectives. Curriculum planners need to consider the effects of the institutional culture on their programmes.

5L2 NOT PRESENTED

5L3 (1609)
Identifying Areas of Concern in Patient Safety through Assessment of the Clinical Learning Environment

Authors
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Sally Santen
Brian Aboff
Gregory Domson
Nital Appelbaum

Presenter: Robin Hemphill, Virginia Commonwealth University Health System, Richmond, USA

Background: Academic medical centers are grappling with ways to identify methods of internally monitoring their clinical learning environments. Our aim was to identify how internal assessments of perceived organizational support and psychological safety correlated with the items on the Patient Safety/Teamwork domain of the Accreditation Council for Graduate Medical Education (ACGME) Resident Survey. Such identification would allow residencies and health systems to internally assess aspects of the environment at various times of the academic year, allowing early intervention to improve patient safety and the clinical learning environment.
Method: In June 2017, the Office of Graduate Medical Education and Office of Quality and Safety conducted an internal survey of the residents across 19 residency programs the Perceived Organizational Support and the Psychological Safety Scale. A bivariate correlation was conducted to identify overlap between our internal assessments and the ACGME Resident survey.
Results: 322 residents (63% response rate) completed our internal assessment survey and 496 residents (96% response rate) completed the FY17 ACGME Resident Survey. Bivariate correlations revealed a strong positive correlation between perceived organizational support and psychological safety (r=.88, p<.01), overall program score (r=.75, p<.01), ACGME domain item "Culture reinforces patient safety responsibility" (r=.72, p<.01), and ACGME domain item "Effectively work in interprofessional teams" (r=.49, p<.01). Psychological safety had a strong positive correlation with overall program score (r=.57, p<.05) and ACGME domain item "Culture reinforces patient safety responsibility" (r=.53, p<.05).
Conclusion: Our internal assessment of the clinical learning environment showed positive correlational relationships with the cultural measure of the Patient Safety/Teamwork domain of the ACGME Resident Survey, as well as the measure for overall program evaluation. Both the construct and identified measures of perceived organizational support and psychological safety have powerful utility for residencies and health systems to

actively monitor and influence the clinical learning environment before the annual accreditation measures on program performance.

Take-home message: We found that our internal assessment of the clinical learning environment showed positive correlational relationships with the cultural measure of the Patient Safety/Teamwork domain of the ACGME Resident Survey, as well as the measure for overall program evaluation.

5L4 (2975)
Not just resilience: Enabling undergraduates to become life long learners

Authors

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Presenter: Alison Ledger, Leeds Institute of Medical Education, University of Leeds, UK

Background: Much recent attention has focussed on developing medical students' resilience for work in challenging healthcare environments (Teodorczuk et al., 2017). Educational interventions tend to be targeted at individuals and life outside rather than inside work (McKenna et al., 2016). Broader approaches are needed to facilitate positive learning environments (Teodorczuk et al., 2017).

Method: Within our intercalated medical education programme, we aim to take a comprehensive approach to identifying and developing resources for future work. A strong focus is developing students' understanding of themselves as lifelong learners, through exposing them to a range of educational theories, encouraging self-directed learning, and offering and inviting formative feedback. Personal tutoring is also key, particularly in cases where students are anxious to succeed and feel disappointed with their grades. Our approach is a solution-focussed one, in which students are encouraged to develop plans to address any issues they are experiencing. As medical teachers, we also model an enquiring attitude rather than portraying ourselves as all-knowing experts.

Results: We have observed that students become less focused on achievement as they progress and become more comfortable with uncertainty and asking for help. Evidence of impact includes students requesting on-going support on their return to medical studies.

Over the past five years, we have noted a growing need for students to process their responses to perceived failure. We see this as being especially important for understanding themselves as lifelong learners and teachers, with a strong commitment to continuing development.

Conclusion: Though we are confident our approach is helpful to students during their time on the course, we are uncertain to what extent this learning is retained as students continue into their career as doctors. We are keen to develop further scholarship about students' ongoing development and welcome discussion with others interested in this topic.

Take-home messages:
- Medical Teachers have a responsibility to support undergraduate students to become lifelong learners
- Comprehensive approaches are required to develop academic and personal resources
- There is a need for further scholarship about the process of becoming a lifelong learner in medicine

5L5 NOT PRESENTED

5M: Short Communications: International 2

Location: Boston 1, Ground Floor, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

5M1 (2193)
Perceived and observed learning needs of International Medical Graduates (IMGs) preparing for practice in a Canadian Setting: A mixed methods needs assessment

Authors
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Jean Rawling
Dana Young
Sarah Weeks
Kelly Burak

Presenter: Lara Cooke, University of Calgary, Canada

Background: It may be challenging for IMGs to adapt to a new medical system, context and culture when they transition to practice. In Alberta, IMGs must undergo a formal assessment program before entering practice. This research explored the learning needs of IMGs undergoing assessment to assist in the development of curricular programming to support their transition to practice.
Method: A sequential, exploratory mixed methods study of IMG learning needs was completed. Key-informant interviews of stakeholders and program participants were completed to learn about IMGs' observed learning. The verbatim transcripts of these semi-structured interviews were analyzed qualitatively and guided the development of a questionnaire that was distributed to Alberta IMGs to explore their self-reported perceived learning needs in relation to the health care system, context, health care delivery, and learning needs about specific medical knowledge, including the CanMEDS competencies.
Results: Eleven key-informant interviews were completed. Key themes arising from the interviews included: 1) addressing specific medical content topics (management of controlled substances, reproductive health, motivational interviewing), 2) physician identity re-formation and cultural competency and 3) topics relating to CanMEDS competencies such as Communicator, Health Advocate, and Collaborator. 143 IMGs responded to the questionnaire (29%). IMGs' perceived needs focused on practical aspects of integrating into their local context (drug names, local referral pathways, how to access local information resources). There was an observed mismatch between reported need for CanMEDS training and challenging scenarios recalled by the respondents; while CanMEDS training was deemed low priority, CanMEDS issues appeared to underlie many of the challenging scenarios the physicians recalled.
Conclusion: IMGs may undergo a sense of loss of identity and identity 're-formation'. There is a gap between the learning needs of some IMG physicians as self-reported in comparison to those observed by experienced assessors.
Take-home message: Providing IMGs with familiarity with CanMEDS competencies and principles of lifelong learning

in the Canadian context will help support their transition to practice.

5M2 (489)
How can we increase performance, retention and wellbeing of international medical graduates? Developing and refinfing theory using realist approaches

Authors
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Presenter: Amelia Kehoe, Newcastle University, Newcastle, UK

Background: Like many countries, the UK's National Health Service relies on international medical graduates (IMGs) to ensure effective healthcare delivery. This is currently of particular importance, as recruitment to medical posts remains an issue throughout the UK. Concern has also grown in recent years around the regulation and practice of IMGs. Whilst there is now recognition of the need to better support IMGS to make a successful transition to their new place of work, interventions have been implemented without sufficient exploration of what is likely to work or how much training/support is appropriate. This research has explored and evaluated interventions targeted at IMGs.
Method: A realist approach was adopted. A realist synthesis (exploration of literature and development of initial theory) was conducted. A realist evaluation was then completed to test and refine theory. The main intervention subject was the Programme for Overseas Doctors (POD) developed within one North East Trust. A comparative case study design, using mixed methods, was used (including interviews, questionnaires, researcher observation and analysis of performance data).
Results: A synthesis of the findings, including 123 interviews, illustrated that three key contextual levels; organisational, training and individual, will likely impact on the adjustment of IMGs. Levels of performance, retention, career progression and wellbeing were high where the required support was in place. One of the main outcomes of this research is a transferable, theoretical explanation of how interventions can successfully support the transition of IMGs.
Conclusion: Interventions need to be more comprehensive and broad ranging than a simple induction or one-off training programme. Interventions must focus on building an open and supportive culture, address individual needs, and include ongoing support from all staff beyond the initial intervention. This work has reviewed factors that contribute to a successful intervention and has put forward recommendations for future policy, interventions and research. A similar programme has been developed for refugee doctors.
The absence of a supportive framework, targeting social, cultural and work related issues, has led to IMGs feeling stressed, depressed, and becoming isolated. Difficulties in

career progression, retention and performance were evident.

5M3 (186)
Post-graduation migration intentions of students of Romanian medical schools: a survey study

Authors
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Codruta Alina Popescu
Soimita Mihaela Suciu

Presenter: Anca Dana Buzoianu, University of Medicine and Pharmacy ''Iuliu Hatieganu'', Cluj-Napoca, Romania

Background: Physician migration is a complex phenomenon that is intimately intertwined with medical education. There are countries that do not produce enough physicians and countries that train a surplus of physicians with the intent of supplying other countries. Migration of healthcare workers is receiving increased attention worldwide. In Europe, the creation of a border-free labor market and its expansion with the EU enlargements endowed health professionals with the right to provide services and to relocate to another EU Member State. For the Romanian doctors, the EU recognition of the medical degree has created new opportunities, while inadequate working conditions and relatively low salaries pushed many of them to search for employment abroad. As there is considerable uncertainty about the magnitude of the Romanian physicians' exodus, we performed a survey to assess the emigration intention of future Romanian doctors.
Method: The study was conducted over five consecutive years: 2013-2017 at the University of Medicine and Pharmacy "Iuliu Hatieganu" Cluj-Napoca, Romania. The self-administrated questionnaire included 19 questions regarding students' emigration intentions.
Results: All the 1596 license-degree students participated in the study. In this study, 73.8.7% of subjects planned on seeking employment abroad after graduation. A large number of the students who have participated in the study have already started preparing for emigration, 21.4% of those who wished to migrate had already performed at least one Erasmus mobility in their country of choice, 39.3% have been enrolled in a language course, and 37.8% have searched for jobs on the Internet.
Conclusion: The majority of Romanian medical students considering migration see it as a serious alternative to the continuation of their professional training. In 2016 after Brexit announcement there was a decrease in emigration intent, but in 2017 the data was similar to 2015. The findings of this study are upsetting and can impact both policy crafting and future research. Structural reforms in the healthcare provisions are needed in order to facilitate the retention of medical personnel.
Take-home message: Romanian policy makers need to devise a comprehensive national health workforce plan to deal with physician migration.

5M4 (3684)
Implementing a Standardized Global Health Training for the Largest Medical Exchange Program in the World

Authors
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Presenter: Tommaso Ivan Pomerani, International Federation of Medical Students' Associations, Florence, Italy

Background: The International Federation of Medical Students' Associations (IFMSA) organizes the largest international medical exchange program in the world, offering more than 14000 medical students from 98 countries the opportunity to learn about Global Health and develop cultural sensitivity by experiencing clinical practice and research in a different socio-cultural context. Before their exchange, students are required to take part in a Pre-Departure and an Upon Arrival Training; nevertheless, a specific standardized Global Health-oriented educational activity was not integrated as a core component of IFMSA Exchanges until this year.
Method: IFMSA has developed a standardized Global Health Training to introduce students to the topic of Global Health and its importance in international medical exchanges. The training is based on literature review of existing trainings and courses on global health, and has the goal of encouraging students to set global health learning objectives for the exchange experience and think about how to apply global health to their everyday practice.
The training includes theoretical portions of fundamentals of global health, determinants of health, health equity, health systems and the link between global health and exchanges, as well as activities such as case studies, exercises and simulations in order to encourage critical thinking and allow the integration of concepts in an interactive environment.
The training is currently in its implementation phase. IFMSA aims at implementing the new Global Health Training in at least 80% of its National Member Organizations (NMOs) by 2020. The impact of this training on medical students' awareness of global health will be measured through a pre and post assessment form.
International exchanges are crucial in creating a new generation of health professionals who are ready to face the local and global challenges of modern medicine. However, students must be adequately prepared for this experience to maximise learning outcomes.
Conclusion: The IFMSA Global Health Training encourages students to think about how to apply global health in their roles as future health professionals, with the goal of improving people's health at the local and global level.

5M5 (3042)
Orienting medical students to clinical medicine in a different country

Authors
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Presenter: Stephen Ash, American University of the Caribbean, Miami, USA

Background: It is not unusual for medical students to study clinical medicine in more than one country or, indeed, end up working in a different country from which they trained. American University of the Caribbean School of Medicine (AUC) is one such international medical school that offers students clinical rotations in the both the US and UK. Many students report finding the transition to studying or working in a different country bewildering and may benefit from a formal program of orientation.
Task: We looked at different ways to achieve this for students undertaking their first clinical placements in the UK who were due to return to the US for their remaining clinical attachments. Specific elements requiring attention in this orienting process included differences in:
- Terminology
- Pathology values
- Drug names
- Hospital routines
- Nomenclature and hierarchy of staff
- Billing
- Systems processes
- Record keeping
- Dress code
- Occupational health and background check requirements

We looked at various modalities to effect orienting to these elements including:
- Written information;
- Classroom presentation;
- Video discussion with students in US Hospital;
- Video discussion with AUC alumnus in a US residency program who studied in both UK and US; and
- Live teleconference link with students in an AUC-affiliated US hospital.

Results: No one modality covered all elements satisfactorily. Feedback from over 60 students reported preferences for a combination of written material and "live" video link with students at a US Hospital using a question and answer format.
Conclusion: Surprisingly, it was common to find many differences in clinical practice between US hospitals themselves. "Live" teleconferencing sessions were time-consuming for the organiser. A video recording of such a session was deemed to be almost as valuable and was less time-consuming. However, many elements of orienting changed over time, and updating orienting material is important. Students fed-back feeling more confident when starting their first rotation back in the US, and thought the orienting process provided helped them adapt swiftly to their new environment.

5M6 (1926)
Healthcare students' participation in practice during international clinical placements

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Erik Driessen, Maastricht University, Department of Educational Development and Research, Maastricht, Netherlands

Presenter: Miriam Wijbenga, Amsterdam University of Applied Sciences, European School of Physiotherapy, Amsterdam, Netherlands

Background: Healthcare students from all disciplines increasingly engage in international placements, during which they are exposed to a wide variety of clinical settings. Workplace learning is strongly related to context, whilst influenced by social interaction with other professionals. Little is known about how preparation and communication with the local healthcare team before entering the placement helps students' adjustment into clinical practice, where a social support system is less self-evident. The purpose of this qualitative study was to explore students' participation in practice during the initiation phase of international placements.
Method: Fifteen Dutch and European undergraduate students in physiotherapy and exercise therapy at the Amsterdam University of Applied Sciences in Netherlands were interviewed before and after the first month of international placements varying between 10-20 weeks, as part of their professional training. These semi-structured interviews took between 25-50 minutes. We applied a constructivist grounded theory approach, following an iterative process of simultaneous data collection and analysis.
Results: Other than feeling professionally restricted, students indicated that cultural differences and language barriers hindered their active engagement in practice, because they influenced team involvement and patient communication. Our analysis showed several factors enabling and inhibiting student participation during the

initiation phase of their international placement. Peer support was found to help adjustment but also discouraged individual engagement with local staff.

Conclusion: The results of this study reflect different elements that influence intern participation in undergraduate allied healthcare settings worldwide. Preparation holds no guarantee to a smooth transition into the international clinical setting, as the challenges encountered by students in becoming part of the local community of practice seem to mainly depend on their social support system.

Take-home message: During the initiation of students engaging in international internships it is important to clarify expectations, local conventions and legislative limitations, thus setting the stage for workplace learning.

5N: Short Communications: Clinical Reasoning 2

Location: Boston 2, Ground Floor, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

5N1 (1759)
The effects of symptoms-and-signs-based clinical reasoning course: A pilot study

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Presenter: Ping-Han Hsieh, Department of Medicine, Taipei Veterans General Hospital, Taipei, Taiwan

Background: Traditional instruction for clinical reasoning is case-based discussion according to real clinical situation, and the instruction provides unstructured learning content. Moreover, no evidence proves when should teach clinical reasoning for medical students, and how to teach clinical reasoning effectively in different phases of their training. Therefore, the purpose of this study was to examine the effects of case-based clinical reasoning in traditional approach, and to explore when should medical students learn clinical reasoning in structured symptoms-and-signs-based instruction(SSSBI).
Method: This study reviewed learning data from 105 medical students in the SSSBI. A medical doctor designed the SSSBI including nine common symptoms and signs according to the Harrison Manual of Medicine(18th Edition). The SSSBI performed in lecture and role play with small group. Eight to 10 students composed a small group. Knowledge was tested before and after the SSSBI, and the performance was tested after the instruction.
Results: The result from pre-test showed that no sufficient evidence supports that year-6 medical students had higher knowledge of clinical reasoning comparing to year-5($t=-0.003$, $p>.05$). All the medical students were improved in knowledge of clinical reasoning after SSSBI($t=5.134$, $p<.001$). The stratified analysis by years showed that both year-5($t=3.336$, $p=.001$) and year-6($t=4.233$, $p<.001$) medical students were improved in clinical reasoning knowledge after the course. These two tests of clinical reasoning knowledge correlated with clinical reasoning performance. However, there is only post-test of clinical reasoning knowledge that can positively predict clinical reasoning performance($Beta=.379$, $p<.001$) in multiple regression. The traditional approach showed no differences in clinical reasoning knowledge in year-5 and year-6 medical students(pre-test). However, those students were improved in clinical reasoning ability after the SSSBI. The SSSBI provides core concepts to common symptoms and

signs through analysis and problem-solving methods. With role play, the SSSBI might make students learning more efficient.
Conclusion: The SSSBI may effectively improve medical student clinical reasoning ability. Early expose to clinical reasoning in SSSBI approach might be recommended.

5N2 (685)
Validity of structured oral exam for evaluating clinical reasoning within a preclinical unit assessment programme

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Presenter: Isabelle Boulais, Université de Sherbrooke, Canada

Background: The structured oral exams (SOE) is a potential assessment strategy to assess clinical reasoning (CR). SOE theoretically offer the possibility to assess knowledge more deeply and they may be more authentic. However, content specificity and inter-rater variance are reported threats to its validity. Besides, the use of SOE in a preclinical context is not well described. Therefore, the purpose of this study was to evaluate the validity of the SOE in a preclinical integrative unit programme assessment for the evaluation of CR.
Method: We used assessment data from third-year medical students at a Canadian University. Students had completed a SEO comprised of three clinical vignettes assessing: problem representation (PR), differential diagnosis (DDx) and proposed workup (PWU). We computed item difficulty (IDifCo) and discrimination (IDisCo) coefficients and Cronbach's alpha for each case. Using dis-attenuated correlations, we explored the relation of the SOE with the other assessment strategies used in the integrative unit.
Results: Data were available for 199 students (100% of the cohort). IDifCo: 0.78 to 0.80 (PR); 0.67 to 0.81 (DDx) an 0.78 to 0.86 (PWU). IDisCo: 0.05 to 0.22 (PR); 0.21 to 0.35 (DDx) and 0.12 to 0,25 (PWU). Observed Cronbach's alpha were 0.309 (case1), 0.357 (case2) and 0.423 (case3). There was a positive dis-attenuated correlation of 0.44 with OSCEs and 0.895 with written exam.
Conclusion: Our findings suggest that the SOE promising psychometric properties. Lower item difficulty coefficients might be explained by the scoring key used (superior, average, inconsistent, inferior). The positive correlation between the SOE and OSCEs might be seen as an argument that both should assess CR. The observed correlation between the SOE and written exam might be due to the SOE being highly knowledge-based, or the written exam being a good assessment of CR. Limitations are related to the small number of cases and because the project was realised at only one institution.

Take-home message: There are some arguments to support the validity of the SOE score use. Research on the consequences of this assessment strategy would enhance our understanding of its contribution to the assessment of CR.

5N3 NOT PRESENTED

5N4 (1422)
Effects of using a serious game on clinical reasoning in medical students in different years of undergraduate education

Authors
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Sven Anders
Tobias Raupach

Presenter: Insa Frisch, Georg August Universität Göttingen, Germany

Background: This study investigated the effectiveness of a serious computer game simulating an A&E department with regard to clinical reasoning in two different student cohorts.
Method: Students in the 7th and the 10th semester (n = 141) played six weekly, 90-minute sessions of the serious game. The same cardiopulmonal virtual patient cases were used in both student cohorts. Clinical reasoning was assessed during the second and the sixth session by analysing written patient handoff protocols and think aloud gaming sessions. In addition, all students sat a key feature examination at the end of the final session.
Results: A significant and meaningful increase in handoff scores was noted between the second and the sixth gaming session (7th semester: effect size d = 0.87; p < 0.001; 10th semester: d = 0.62; p = 0.035). Analyses of think aloud sessions revealed specific effects of the teaching intervention on clinical reasoning. Performance in the final key feature examination was moderate in both cohorts (61.2 ⬚ 16.9% vs. 64.4 ⬚ 18.4%; p = 0.278).
Conclusion: The use of a serious game increased students' abilities to manage virtual patients; this effect was more pronounced in less advanced students. The low overall scores obtained in the final key feature examination may be due to the formative nature of the exam. Yet, the similarity of exam results in the two cohorts suggests that teaching of clinical reasoning needs to be improved between the two semesters.
Using the A&E simulation for teaching clinical reasoning might be more beneficial for less advanced students. More teaching may be needed to enhance students' clinical reasoning abilities.
Take-home message: Using a range of qualitative and quantitative methods, this prospective study demonstrated beneficial effects of playing a serious game on clinical reasoning abilities. The effect was larger in less advanced students.

5N5 (664)
Influence of the Case Narrative Design on the Clinical Reasoning Process in Virtual Patients - a randomized controlled trial

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Presenter: Inga Hege, Medical School, University of Augsburg & Institute for Medical Education, University Hospital of LMU Munich, Augsburg, Germany

Background: Virtual Patients (VPs) are educational activities to train clinical reasoning in a safe environment based on patients' stories. To foster clinical reasoning training we combined virtual patients with a concept-mapping tool in which learners document relevant problems of the patient, differential diagnoses, necessary examinations and treatment options. Our aim was to explore the influence of the narrative design and level of difficulty on the clinical reasoning process and diagnostic accuracy.
Method: We analyzed the clinical reasoning process of 46 final year medical students in a randomized controlled trial with six VPs in three different variations: (1) patients showing a friendly behavior, (2) patients showing a disruptive behavior, and (3) a version without a patient story. The clinical reasoning process of the participants was measured with a concept-mapping tool integrated into the VPs.
Results: For easy VPs, we did not see a significant difference in diagnostic accuracy. For difficult VPs, the diagnostic accuracy was significantly higher for participants who worked on the friendly VPs compared to the other two groups. Independent from VP difficulty, participants identified significantly more problems and examinations for disruptive than for friendly VPs; time on task was comparable for these two groups. The extrinsic motivation of participants working on the VPs without a patient story was significantly lower than for the students working on the friendly VPs.
Conclusion: Our results indicate that the measured VP difficulty has a higher influence on the clinical reasoning process and diagnostic accuracy than the variations in the narratives. Patients showing a disruptive behavior will most likely be part of students' future workplace and carefully designed and integrated VPs can help to prepare students for such situations and raise awareness of the potential effects on their clinical reasoning. Moreover, our study confirms that telling a story enhances extrinsic motivation of learners, but has no significant influence on the clinical reasoning process.
Take-home messages: The design of the virtual patient representation influences the learners reasoning process,

but the difficulty of the virtual patients influences
diagnostic accuracy more than the design of the narrative.

5O: Short Communications: Clinical Teaching 2

Location: Boston 3, Ground Floor, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

5O1 (1416)
Understanding factors that contribute to inequitable teaching & supervision experiences of undergraduate medical students across clinical clerkship sites

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Presenter: Naghma Naeem, College of Medicine & Health Sciences, United Arab Emirates University, Al Ain, United Arab Emirates

Background: The objective of this study was to explore undergraduate medical students' perception of variation in teaching and supervision at four different clinical teaching sites.
Method: This descriptive, cross-sectional study was conducted at the College of Medicine & Health Sciences, United Arab Emirates University, United Arab Emirates during 2017. A specific, online questionnaire "the Clinical Clerkship Teaching & Supervision Questionnaire (CCTSQ)" was developed by researchers after literature review and administered to all clinical students (n=178). An exploratory factor analysis was undertaken, which identified a four factor structure. The reliability of the questionnaire was 0.979.
Results: The response rate was 84.4%. Overall perception of the students about their clinical clerkship experience was positive. SKMC was rated as the best teaching site with mean rating of 3.79±0.97-4.79±0.43. The highest rated item was clinical teacher's promotion of critical thinking while the lowest rated item was the opportunity to take responsibility for patient care.
Ambulatory Care site was rated next best with mean ratings of 2.33±1.23-4.13±1.19. The highest rated item was the clinical teacher encouraging students to ask questions and participate actively. At Tawam Hospital, the mean ratings ranged between 2.65±1.64-4.31±0.86 with highest rated item being ability of the students to see cases with positive clinical findings. At the Al-Ain Hospital, the mean rating was in the range of 2.79±1.45-3.81±1.11. The item rated highest was ability of students to see cases with positive clinical findings. The lowest rated item at the above three sites was the availability of on-call rooms and lockers.

Conclusion: Significant variability was seen across training sites in the clinical teacher's ability to act as professional role models, the opportunity for students to apply their previous knowledge to patient care and to independently assess patients before discussion with the teachers. This study describes a tool that provides specific, actionable information which can be used to address deficiencies and to optimize learning for students. across clerkship teaching sites.
Take-home message: CCTSQ can be used to reduce variability in clinical teaching and supervision and to provide more equitable clinical learning experiences for undergraduate medical students.

5O2 (2525)
Quality of informed consent obtained for surgical interventions from patients in a tertiary care hospital in Sri Lanka

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Presenter: Hasini Gunathunga, Faculty of Medicine, University of Kelaniya, Ragama, Sri Lanka

Background: Obtaining informed-consent for medico-surgical procedures is a basic ethical principle. The guidelines in practice may be affected by socio-economic, political and cultural factors. we explored the current practices of obtaining informed consent in Sri Lankan tertiary-care setting.
Method: The study was conducted in 3 phases: A qualitative observational study to understand the workplace practices (15 encounters); a questionnaire-based study to gather the experiences of patients (n=100); and a qualitative interview-based study with intern-house officers (n=8) to clarify the issues identified in the above phases.
Results: Consent-taking was a common practice, which took place mostly on-admission for surgery, and certain aspects of the procedure were well-adhered to. However, the process was mostly 'piece meal'; gaps were observed in content, amount and nature existed in information provided; time gap between information provision and getting consent appeared inadequate for the patients to take a decision; and junior doctors were informally assigned with the task. According to patients, information is provided at different stages from first clinic visit to the last-preparatory stage of the surgery; the consent-taking process occurs in a wider-time frame and in different settings (private practice, clinics, ward, anesthetic referrals); information is mostly provided verbally and

aided with diagrams and leaflet occasionally; the tendency is to avoid the discussion about risks; patients are not keen to ask questions but expects all the details from doctors. Paraphrasing is not commonly practiced. Intern-house-officers are satisfied with the theoretical knowledge for consenting-taking but content provided by them differed with patient's intellectual capacity and seriousness of the intervention; they expected that having a family member with the patient to facilitate the consent taking process.

Conclusion: Although 'consent-taking' for surgery is followed certain underlying principles may be poorly adhered to. The reasons include not the lack of theory-knowledge among doctors, but limitations in time and recourses, and believes and expectations of patients in the local socio-cultural context.

Take-home message: Education on 'consent-taking' should focus on overcoming the challenges of recourse limitations in workplace and socio-cultural beliefs among both patients and doctors.

5O3 (2304)
Are medical students' invasive procedural skills safe for patients?

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Presenter: HyeRin Roh, Inje University College of Medicine, Busan, South Korea

Background: Correct performance of invasive procedures is vital for patient safety. Understanding performance level of medical students in detail from patient safety perspective can help educators to which parts should be more emphasized for patient safety. However, very few articles have analyzed objectively medical students' safety competence in technical procedures. The authors aimed to analyze students' performance on invasive procedures from the perspective of patient safety. Specific research questions are (1) How well did medical students perform in invasive procedure stations of Objective Structured Assessment? (2) How safely did medical students perform to prevent major critical errors of technical procedures? (3) Which items were difficult for students to succeed?

Method: Subjects were 2,147 final-year students in Clinical Skills Assessment (CSA) of Busan-Gyeongnam Consortium from 2013 to 2017. The authors chose 12 invasive procedures and classified checklist items according to safety categories such as infection errors, technical complications, technical failures, cases involving the wrong patient and wrong procedures, and engaging with patients. The full mark of each station was calculated to be 100. The authors analyzed mean of total scores of each station according to safety category. The authors also analyzed the percentage of students who received marks on checklist items.

Results: The total score on invasive procedures was 77.6. Students' scores of technical complications (84.1) and preventing infection errors (82.8) were better than technical failure (77.9), cases involving wrong patients and wrong procedures (72.4) and engaging with patients (71.6). Only 65% of students could perform an aseptic technique during whole procedures. Fourteen percent of students checked adverse events after procedures. Only 58% of students succeeded whole procedures completely. Only 36% of students shook the tube gently to mix blood with ethylene diamine tetra-acetic acid (EDTA). Only 62% of students correctly labelled sampling bottle. Only 48% of students showed considerate manners during procedures.

Conclusion: Students' competence in the final year was not sufficient for patient safety. Educators should emphasize patient safety when teaching procedural skills and need more focus on technical failure, cases involving the wrong patient and wrong procedures, and engaging with patients during whole processes.

5O4 (2268)
"The things you've seen that you didn't sign up for" – How final year Physiotherapy students deal with challenging situations in clinical education.

Authors
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Presenter: Michael Storr, Monash University, Frankston, Australia

Background: Health professional courses involve education in clinical contexts. During clinical placements students may be involved in, or exposed to, challenging situations with staff, patients or families. While these situations can be beneficial to learning, often these situations may exceed students' capacity to cope.

Method: After finishing their under-graduate clinical education, eighty-two final year physiotherapy students attended a facilitated session on challenging situations in clinical education. Students were asked to write about these challenges which were summarised using thematic analysis. The responses were used to formulate an online survey which enabled quantitative exploration of the raised topics.

Results: The top three 'challenging' situations faced by students were clients in pain; clients with a condition that impacted significantly on their life and the life of their family; and clients with degenerative diseases. Students primarily looked for support from peers, clinical educators and family / friends.

Conclusion: Students are exposed to unplanned challenging situations in the clinical environment with peers and clinical educators the main source of support. These supports may be ill-equipped to manage these

demands and there may be strategies that can be put in place to support the needs of students' and the identified sources of support.

While education regarding appropriate resources can be put in place, there is further work to do in preparing students for the confronting nature of working as a health professional.

Take-home messages: Students are exposed to challenging scenarios in clinical education. They seek support primarily from peers and their clinical educators. Peers and educators may be ill equipped for this role.

5O5 (3370)
Innovating Physical Therapy Clinical Education

Authors
Maria Elizabeth Grageda

Presenter: Maria Elizabeth Grageda, Philippine Physical Therapy Association, Manila, Philippines

Background: Educational transformation can be achieved through the synchronous development and implementation of Institutional and Instructional Reforms and innovations. As curricular changes are happening in the Philippines with the mandatory shift to an Outcomes based approach in the tertiary level and the shift to K-12 in basic & secondary education, clinical education through training programs in various clinical training centers all over the country should take a more active stance in developing new ideas and using existing ones in new and creative ways.

Method: 80 clinical educators from all over the country participated in four simultaneous brainstorming sessions during the Clinical Education Summit of the Philippine Physical Therapy Association. In the generation phase, a round robin approach was used, followed by an evaluation phase where ideas were judged in terms of its acceptability as an innovation. The outputs of each group were synthesized into general themes in three levels: individual, institutional, and national.

Results: Three themes emerged as innovations at the individual level: Change in perspective or paradigm shift; Professional Development; and Maximizing Technology. At the organizational level, clinical educators have identified the following innovations: Establishing comprehensive evaluation systems; Standardization; Provision of venues for collaboration; Staff development, Nurturing a research environment; and Upgrading of the physical set-up of the centers. Finally at the national level, Development of Clinical Practice Guidelines; Development and implementation of Inclusive programs; Establishment of Information systems; and increasing Student involvement were suggested.

Conclusion: Clinical educators need to take action towards transformation through reforms at the individual, institutional, and national levels. Synchronized reforms at these levels through innovations focusing on Professional development, maximizing technology in education and practice, and development of standards for practice, teaching, and research, are what clinical educators commit to engage in towards transformative education.

Innovations in clinical education can be achieved at three levels: individual, institutional, and national.

Take-home message: Clinical educators can contribute in developing and maximizing these innovations based on their context to cope with the changes in PT education and practice.

5P: Short Communications: Student Wellbeing

Location: Darwin, Ground Floor, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

5P1 (2812)
The relationship between study curriculum and study conditions on subjective wellbeing among Norwegian medical students (the STUDMED project)

Authors
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Presenter: Christian Sletta, Faculty of Medicine and health sciences, Norwegian University of Science and Technology, Trondheim, Norway

Background: Though study stress among medical students can be potentially impairing, the medical study is also a time that stimulates learning, competence and growth. However, societal changes as well as continuous curriculum revisions at the medical faculties in Norway can originate new influential factors on medical students' wellbeing, than those relevant 20 years ago. It is important to increase knowledge about factors that are linked to satisfaction and subjective wellbeing, as they can affect the students' health and academic performance.
Method: The current study investigate changes in subjective wellbeing (SWB) and correlates by demographic-, individual-, curriculum-, and study environmental factors changes in students' wellbeing over time. The current results are based on survey data among all medical students at two medical faculties with different curriculums (traditional and integrated) in Norway in 2015 (STUDMED 2015). Comparison data was derived from a longitudinal survey among medical students from the same medical faculties in 1993 to 1999: the NORDOC project.
Results: Response rate 63.9% (N= 1044/1634). Preliminary analyses show a decrease in SWB compared with students 20 years ago. SWB was associated with personal factors and factors within the curriculum.
Conclusion: As subjective wellbeing is important to study satisfaction, health and performance, the faculties should pay attention to the identified factors in the study environment and curriculum. Some of these may be of importance in order to promote student wellbeing with regard to interventional efforts.

5P2 (2211)
Personality Traits, Work Engagement and Well-being in Veterinarians and Veterinary Students in Germany

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Presenter: Sabine Ramspott, Veterinary Department of the Ludwig-Maximilians-Universität München, Germany

Background: The well-being of physicians has emerged as an important topic at medical education conferences in recent years. Certain personality traits have been reported to correlate with subjective well-being, work engagement and occupational success. In Germany veterinary students were found to have the highest stress load among students and about 20% of the veterinarians feel burdened by stress. The aim of this study is to describe and compare personality traits, work engagement and subjective well-being in veterinary students and veterinarians in Germany.
Method: 291 veterinary students (87.6 % female) and 231 veterinarians (79.7 % female) filled in a questionnaire containing sociodemographic questions (including age, sex, scope of work and income), the International Personality Item Pool (IPIP) to determine the BIG-5 personality traits, the Utrecht Work Engagement Scale (UWES-9) and the World Health Organization-Five Well-Being Index (WHO-5). Descriptive statistics were performed and univariate analysis of variance was used to test for differences between the two groups for significance ($p < .005$).
Results: Veterinarians reached a higher score in the personality trait openness to experience ($F=15.1$, $p<.001$), and significantly lower scores in work engagement ($F=5.1$, $p=.025$) including the subscales dedication ($F=5.6$, $p=.019$) and absorption ($F=11.2$, $p=.001$), and subjective well-being ($F=24.2$, $p<.001$). The scores of 22 of 277 veterinary students (7.9 %) and 35 of 204 veterinarians (17.2 %) that completed the WHO-5 were below 13. 60 of 229 (26.2 %) veterinarians earned less than 26.400 € per year (recommended salary for veterinary entrants in Germany) and 71 (31%) earned more than 50.000 €.
Conclusion: Scores of 17.2 % of veterinarians were below the cut-off value of 13 in the WHO-5, which can be used as a screening for depression. The percentage is more than 3 times higher than the WHO estimate for depression in the overall population in Germany (5.2 %).
Take-home message: To safeguard well-being, resilience should be fostered not only in medical, but also in veterinary students to prepare them for their professional life.

5P3 (3503)
A Longitudinal Resilience Curriculum for Improving Medical Student Resilience

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Presenter: Shayna Kulman-Lipsey, University of Toronto, Canada

Background: There is increasing global recognition of high levels of mental distress, deteriorating well-being, burnout and depressive symptoms among medical students. The resilience skills of these high achieving students are often underdeveloped and previously untested, leaving them vulnerable to increasing levels of mental distress. Medical schools are seeking to address this issue, however activities supporting the health and well-being of students are often extracurricular and therefore optional. The University of Toronto, Faculty of Medicine, has developed a core resilience curriculum fully integrated and mandatory within the medical curriculum.
Method: In 2015, medical students, faculty and Student Affairs staff co-created a Resilience Curriculum, as a core component of an entire curriculum renewal process. Key themes in year one include: stigma, imposter syndrome, expectations and measuring up, shame and guilt, and the hidden curriculum. Objectives emphasize understanding how these themes challenge resilience. Year two themes focus on transition to clinical practice: managing uncertainty, values & priorities, medical error, role of learner within the care team, prevention/recovery from burn out and compassion fatigue. Skills taught consist of: reaching out, cognitive reframing, mindfulness, awareness of spirals, and self-compassion. Development of third and fourth year resilience curriculum is underway.
Results: Both first and second year resilience curriculum has been implemented. Quantitative evaluation data indicates enhanced student engagement through the Monologues in Medicine, videos of students and residents narrating personal experiences with mental health challenges. Qualitative data and focus groups show that students found the learning objectives of the on-line modules relevant to their overall well-being.
Conclusion: The health and well-being of students is at risk during medical school. Unaddressed, this trend continues into residency training and for practicing physicians. The status quo is no longer acceptable. A Canadian medical school has an integrated resilience core curriculum, to enhance students' resilience skills, and navigate the stresses inherent in the medical profession. Early experience indicates a positive student response.
Take-home message: Skills of resilience can be taught to medical students and should be included as core medical education curriculum, thereby promoting the Can Meds competency of physician self care.

5P4 NOT PRESENTED

5P5 (1268)
Connecting future health worker professional knowledge and identity to desired campus values and behaviour: an evaluation of bespoke sexual consent and bystander action workshops for new healthcare students

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Presenter: Judith Ibison, St George's University of London, UK

Background: Sexual assault and harassment is common. A 2015 UK survey of new university students found that 17% of respondents had been victims of sexual harassment during their first week and 29% and had witnessed sexual harassment. In 2017, St George's University of London, a health care and science university, developed a strategic approach to improve campus culture around these issues.
Method: Bespoke interactive workshops, which aimed to (i) increase knowledge, (ii) empower students to safely intervene in situations of sexual harassment or assault and (iii) to support victims of sexual assault, were co-created by students and University staff. Content was explicitly linked to the vocational curricula, and professional responsibilities, of students. 65 peer tutors were trained to deliver the workshops, and all new students 2017-18 were timetabled to attend. The workshop was evaluated by pre- and post- semi-structured paper questionnaires, with Likert scales questions analysed by Wilcoxon Rank test, and thematic analysis of open questions.
Results: There was a 78% (612/784) response rate. Participants rated the peer tutor delivery as excellent. There were moderate and significant increases of student knowledge of the definitions, and issues around, sexual consent (from neutral confidence to very confident). Student confidence to support victims, and to take action significantly improved to lesser extent. Themes that emerged from free text included: an appreciation of the non-judgemental atmosphere; the interactivity; excellent tutors; and engaging nature of the workshops. Students desired: more scenarios to discuss; more skills on how to gain consent; with divergent views on the desirability of single gender or mixed groups, and the feasibility of an 'online' delivery format.
Conclusion: The bespoke consent workshop, tailored to the vocational aspirations of university students, was welcomed and highly valued by participants, increasing knowledge and confidence to intervene. Coproduction and delivery by senior students magnified impact vertically through the student community.
Take-home message: There is a high prevalence of sexual harassment, and experience of sexual assault in university settings. Coproduction of sexual consent workshops is

welcomed by the student community, and effects changes in knowledge and confidence to positively intervene.

5Q: Short Communications: Postgraduate: Wellbeing & the Doctor in Difficulty

Location: Lima, Ground Floor, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

5Q1 (2400)
"You'll probably go home and cry" – the effect of bullying on radiology specialty training

Authors
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Background: Bullying in the medical profession, including bullying of registrars, has been discussed widely. Despite well documented negative effects of bullying on victims, the prevalence of bullying in healthcare remains high. However, in Australian radiology training programs the prevalence and effect of bullying on registrars is unknown.
Method: To investigate radiology registrars' experience of bullying, we conducted a two-stage study using sequential qualitative-quantitative design. The first stage consisted of semi-structured interviews with 16 radiology registrars. The second stage consisted of an electronic survey (n=83). Data from the qualitative component of the study was analysed using thematic analysis. Descriptive statistics were used for analysis of quantitative data.
Results: 1 in 7 registrars reported experiencing bullying and 1 in 5 witnessed it. Three times more females than males reported being bullied. Compared to the non-bullied cohort, registrars who experienced bullying were 8 times less likely to report patient safety concerns and 3 times less likely to discuss their mistakes with consultants. They were also 8 times more likely to discuss bullying with peers rather than with the training site. 45% of the trainees who experienced bullying did not intend to report it, 36% considered transferring to another training site and 45% considered leaving radiology altogether. Qualitative data suggested registrars lacked confidence in the reporting process and believed reporting bullying would negatively impact their career.
Bullying is prevalent in radiology training. Exposure to bullying damages work culture, so junior staff do not feel comfortable raising concerns. This can compromise the training environment and safe clinical practice. The reluctance to report bullying is mainly driven by the fear of retribution and belief that nothing would change. Current training site culture does not provide safe environment where registrars are able to raise concerns about bullying.
Conclusion: Bullying remains prevalent in radiology and has potential to negatively impact registrar training and patient safety. Trainees exposed to bullying are less likely to report patient safety concerns or discuss errors with consultants.
Take-home message: Bullying during radiology specialty training represents a significant threat to quality of training and patient safety.

5Q2 (2099)
Creating a Wellness Program for Postgraduate Medical Education in a newly accredited Medical center

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Presenter: John Delzell, Northeast Georgia Medical Center, Gainesville Georgia, USA

Background: Northeast Georgia Medical Center (NGMC) is a 700-bed hospital system starting postgraduate training in 2019 with seven specialty programs and 175 residents. The institution has ACGME Accreditation for General Surgery and Internal Medicine. Plans are underway for Family Medicine, Emergency Medicine, Obstetrics & Gynecology, Psychiatry, and a Transitional Year. Revisions to the ACGME Common Program Requirements detail curricula for Resident well-being in the learning and working environment and include attention to scheduling, work intensity, workplace safety, and experience of being a physician. Residents must be given time to care for themselves, with attention to burnout, depression, and substance abuse. In preparation for residents, we developed a comprehensive Resident Wellness Program.
Method: New programs and their approach to wellness curricula were reviewed. The curriculum was structured around the NGMC Core Values and included elements of our Employee wellness program. The Office of GME developed a comprehensive Wellness Program that addresses integration of Residents into a new city, social network, hospital, and life stage. Metrics included meeting requirements of Section VI of the ACGME Requirements, avoiding pitfalls of peer hospitals implementing wellness programs, and integration of hospital system Core Values (Respectful Compassion, Deep Interdependence; Responsible Stewardship, and Passion for Excellence) Curriculum Goals and Objectives were developed for each aspect of the program. The Wellness Program promotes a healthy lifestyle while integrating team building, education around wellness, and work-life balance. Also included are aspects of lifelong learning, financial planning, self-reflection, empathy, and respectful communication. The program is structured to start during resident employee orientation, prior to clinical duties and then continue on a monthly basis.
Conclusion: There are many negative outcomes associated with physician burnout including impairment, substance abuse, and suicide. This comprehensive wellness initiative will establish a culture that is based on institutional core

values of the hospital and residency program. Our Wellness Program extends beyond the hospital setting and into the community and residents' social support system. It is creating a pathway to life-long balance for our residents that prepares them for a long career in medicine.

5Q3 (3074)
Residents' Wellness Program: Faculty Development for Mentors

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Presenter: Mary Ana Cordero Diaz, Tecnologico de Monterrey School of Medicine and Health Sciences, Monterrey, Mexico

Background: The Accreditation Council for Graduate Medical Education (ACGME) Clinical Learning Environment Review (CLER) Program expects training institutions to take steps and better address resident wellness. The purpose of the Tecnologico de Monterrey School of Medicine Residents' Wellness Program, first of its kind in Mexico, is to implement a quality initiative to improve residents' wellness and increase their commitment, educating them about wellbeing and its relationship with professionalism.
Method: As a pilot, 27 Medical Professors of the Pediatrics Residency Program were invited to become mentors in March 2018, and a specific Faculty Development Program for Mentors of the Residents' Wellness Program (FDPM) was required to be accredited previously. FDPM is divided in three modules: (1) mentoring in a wellness program, (2) strategies and tools for mental health and suicide prevention, and (3) mentoring and support services for case reference.
Results: First module was held in November 2017, with 27 future mentors attending. Contents were related to introduction to the Residents' Wellness Program, objectives and video-case discussion. Second module was held in January 2018 including the suicide prevention QPR (Question, Persuade & Refer) Gatekeeper training. Third module, will focus on mentoring interviewing techniques and identification of cases that need to be referred to support services, it will be held as a case simulation training in February 2018.
After completing their training, the mentors are intended to have one-on-one meetings with residents in which they would talk about current concerns. After identifying any problems or concerns in each of the categories, they would come up with a work plan and schedule a follow up meeting within three months. If the situation warrants it, the mentor will have the ability to refer the resident to the corresponding support department.

Conclusion: In March 2018, the first mentors of the Residents' Wellness Program will begin mentoring after completing a specific Faculty Development Program for Mentors. Mentors are intended to have one-on-one meetings with residents in which they would talk about current concerns of the resident and upon professional, emotional, physical and social wellness of the resident.

5Q4 (3497)
Wellness Matters - a new health and wellbeing course for Postgraduate Trainees - what did we find?

Authors
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Presenter: Alexandra St John, Royal College of Physicians of Ireland, Dublin, Ireland

Background: As part of a suite of health & wellbing interventions, we introduced a new mandatory course for Higher Specialist Trainees titled "Wellness Matters". This one-day course covers the biological, physiological and psychological aspects of health, wellness, stress and ill health and covers specifically designed tools and techniques to maintain wellness and manage stressful situations during training. Higher Specialist Trainees are also supervising and training more junior trainees, interns and others, the course focuses on what they need to be aware of and do to help maintain the wellbeing of their teams.
Method: At the time this abstract is written, the first session was already delivered to a group of 10 trainees with very positive feedback. A pre and post PANAS questionnaire was administered as part of the course. The pre was completed before the course commenced and the post was completed after a meditative lunch break. The Positive and Negative Affect Schedule (PANAS) is a self-report questionnaire that consists of two 10-item scales to measure both positive and negative affect. Each item is rated on a Likert scale of 1 (not at all) to 5 (very much).
Results: By August 2018, four sessions were delivered to about 100 Higher Specialist Trainees and first and second level feedback was gathered. At the time this abstract was written preliminary findings indicate an improvement in positive affect and a reduction of negative affect. In the pre measurement we found that the highest positive affect was 'Interested' and in the post questionnaire it was found that the highest scores was observed in affects were 'attentive' and 'determined'. The highest negative affect indicated in the pre questionnaire were 'jittery, nervous, and distressed' which were all reduced – however – distressed still factored as the highest indicated affect. This will be followed up with rigorous t-test by August 2018.
Conclusion: Introducing preventative measures to reduce levels of burnout during postgraduate training is very important. In a wellness course, it is important to include essential techniques for maintaining wellness whilst promoting this as a positive culture to more junior doctors.

5Q5 (1951)

Predictors of Burnout and Career Regret among US Residents

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Presenter: Liselotte Dyrbye, Mayo Clinic, Rochester, USA

Background: To explore predictors of and relationship between specialty and burnout with career and specialty choice regret in a sample of U.S. residents followed longitudinally.
Method: In 2016, the authors completed a national survey of residents participating in the Cognitive Habits and Growth Evaluation (CHANGES) study since their first year of medical school. Participants had also previously completed surveys during the first (MS1) and last (MS4) year of medical school. Standard survey questions were used to measure demographic characteristics, educational debt, household income, and USMLE Step 1 score in addition to the Maslach Burnout Inventory, PROMIS anxiety, Medical Outcomes Study Social Support Measure, and Jefferson Scale of Physician Empathy. Multivariate modeling evaluated the relationship between burnout or career regret with educational debt, USLME Step 1 score, specialty, income and anxiety, empathy, and social support scores measured at MS1 or MS4 time-point. The study was IRB approved.
Results: Of 4732 eligible residents, 3588 (75.8%) responded. Overall, 45.2% had burnout, 14.1% had career choice regret, and 7.1% had specialty choice regret with differences observed by specialty. On multivariate analysis, residents in urology, neurology, emergency medicine, general surgery, and orthopedic surgery had higher odds for burnout (OR 1.54-2.5) in comparison to internal medicine residents. Female residents had higher risk for burnout than male residents (OR 1.39, 95% CI 1.18-1.62). Medical school reported levels of anxiety, empathy, and social support predicted burnout in the second year of residency. Burnout and specialty were independently associated with resident career choice regret.
Conclusion: Burnout among residents is prevalent, varies by specialty, and increases odds of career choice regret. Anxiety, empathy, and social support measured during medical school predict burnout during residency. Additional research is needed to identify interventions that promote the well-being of residents.
Take-home messages: Burnout among US residents varies by specialty, similar to physicians in-practice, as well as demographic characteristics. Individual factors (anxiety, social support, empathy), measured during medical school, predict development of burnout during residency, and burnout is an independent predictor of career and specialty choice regret among residents.

5Q6 NOT PRESENTED

5R: Round Table: Professionalism

Location: Hong Kong, 2nd Floor, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

5R1 (1963)
Qualitative outcome validation of a teaching intervention and assessment of medical professionalism in undergraduate medical education

Authors
Thomas Shiozawa, Institute of Clinical Anatomy and Cell Analysis, Tuebingen, Germany
Jan Griewatz, Competence Center for University Teaching in Medicine, Tuebingen, Germany
Bernhard Hirt, Institute of Clinical Anatomy and Cell Analysis, Tuebingen, Germany
Stephan Zipfel, Department of Internal Medicine VI - Psychosomatic Medicine and Psychotherapy, Tuebingen, Germany
Maria Lammerding-Koeppel, Competence Center for University Teaching in Medicine, Tuebingen, Germany
Anne Herrmann-Werner, Department of Internal Medicine VI - Psychosomatic Medicine and Psychotherapy, Tuebingen, Germany

Presenter: Thomas Shiozawa, Institute of Clinical Anatomy and Cell Analysis, Eberhard Karls University Tuebingen, Germany

Background: Medical professionalism is a rising issue in medical education. The dissection course is often the first place to address medical professionalism in a traditional medical curriculum. To foster reflection and explicitly teach professional behavior, Tuebingen University introduced a learning portfolio. Also, a seminar on medical professionalism led by student tutors was implemented. Aim of this research project is to assess what students actually learn about medical professionalism during dissection, and what a written reflection in a portfolio can document of that.
Method: Four seminar audio recordings and 100 portfolio reflections could be included in the study. Audio recordings were transcribed and categorized (deductive categorization). Written reflections of the portfolio were qualitatively analyzed as well. The derived categories were compared among the two formats, and correlated to established conceptual frameworks of professionalism. In the seminars, students reflect on many topics relevant for professional development, e.g. impact and handling of the situation with a dead body, difficulties at the beginning of the course, and the implications for the medical profession. They discuss behavior in the dissection room, how to suppress emotions, and their empathic ability. In the learning portfolio the students write on habituation, what alleviates the situation, the influence of their teachers and prior experience in health care. All students express their respect to the body donor and his/her decision.
Results: In terms of medical professionalism, the dissection course presents a dramatic experience for students. Qualities of medical professionalism like respect,

appraisal, compassion and communication can be documented. These are attributes also found in common definitions of professionalism (e.g. ACGME, ABIM, AAMC & NBME). Seminar discussions yield more depth than written essays. Students who participate in the seminar write more, and more elaborate in their written reflection. Interactive exchange with peers in a seminar and the individual creative process of documentation in a portfolio complement each other in competency development.
Conclusion: The dissection course can convey competencies of professionalism. A learning portfolio is suitable to document the development of these competencies. An accompanying seminar increases the depths of reflection in the portfolio.

5R2 (2330)
What Medical Students Learn About Professionalism from Early Involvement in Clinical Practice of South China

Authors
Shaoting Feng
Ming Kuang
Suqing Yang
Jingsong Wang
Haipeng Xiao
Tinghuai Wang

Presenter: Shaoting Feng, The First Affiliated Hospital of Sun Yat-sen University, Guangzhou, People's Republic of China

Background: To develop a method for shaping professionalism by getting students involved in clinical practice early in the first 2 years of medical education in South China. There has been an increasing awareness of professionalism in medical education globally. Variant teaching methods have been developed for the medical professionalism education.
Method: The project consisted of pre-clinical medical students taking the program of "early involvement in clinical practice" in the First Affiliated Hospital of Sun Yat-sen University, who were from Grade 1 or Grade 2 of medical college. In 2014, 130 students participated in this program, were arranged to observe the ordinary clinical work in their elective departments of our hospital during their winter or summer vacations. 122 narratives based on their observations were collected and each student offered his or her reflections on their own narrative. The content of the narratives and reflections were analyzed.
Results: It's shown that the majority of pre-clinical students were deeply impressed and stratified with the early involvement in clinical practice during their first two years of study. These pre-clinical observations not only illustrated students the daily work of doctors, but also exert an imperceptible influence on their mind of essential principles of medical professionalism, such as humanism, responsibility, altruism and excellence. Reinforcement on medical professionalism were shown in students' narratives and reflections.
Conclusion: Early involvement in clinical practice for pre-clinical students is a significant method for shaping professionalism in the first two years of medical education in south China. It can improve students' communication

skills, as well as better understandings for the doctor-patient relationships. Narratives and reflections written by students could deepen their understandings of the values and principles of professionalism early in their pre-clinical study.

5R3 (1003)
Raising Concerns - the potential impact on medical student professionalism

Authors
Erica Sullivan
Simon Gay
Harsh Thampy

Presenter: Erica Sullivan, University of Manchester, UK

Background: This work is representation of a Masters dissertation research project on medical students perception and experience of raising concerns and the potential impact this may have on professionalism.
This single site exploratory study consisted of face to face, semi structured interviews with 10 undergraduate medical students of years 3,4 and 5. The author wished to gain information on students' experiences, both real and perceived, of their understanding of professionalism and raising concerns and whether they actually do raise concerns. Interviews were digitally recorded and transcribed verbatim.
Method: Thematic, comparative analysis was conducted and data was sense checked by co-authors in line with the interpretevist paradigm.
Results: Data was themed and 5 broad themes emerged as follows:

- Students have a sense of professionalism both good and bad.
- Students are vulnerable in clinical environments and this is compounded by their personality traits often creating internal conflict.
- Students identify the concerns process to have positives and negatives
- Hidden curriculum is a powerful driver , namely role models and hierarchy.

A relatively unexplored finding relates to students to student concern. Students are a tight knit group who rarely raise concerns about other students even when they have significant concerns about that students future as a fit to practice doctor.
Medical students are exposed to a variety of educational and clinical settings and therefore are ideally placed to identify practice both positive and negative. There are many factors that determine whether they raise concerns or not. They also have unique insight into their close knit student community which they often do not share when concerned.
Medical educators must ensure that students understand how and when to raise concern or at the very least support students to discuss concerns with a 'go to' person
Conclusion: Professionalism is an essential concept to ensure public trust in the doctor as a professional. There needs to be more exploration of student to student concerns as students have insider knowledge of poor

professional behaviour which they often do not report about their peers.

5R4 (2467)
Does empathy lead to burnout or is it protective of doctors in training as they progress?

Authors
Katrina Anderson, Australian National University Medical School, Canberra, Australia

Presenter: Katrina Anderson, Australian National University Medical School, Canberra, Australia

Background: The development of empathy as a core attribute has been part of medical education for many years as it is clear that this is what patients want from their doctor. The "hidden curriculum" and the stressful demands of medical training often undermine the altruism and compassion that students naturally bring to patient care as they progress through their training. It has been well documented that communication skills and empathy seem to decrease during medical training as students' progress into postgraduate training and there are many factors proposed as to why this might be. However rarely does the literature consider whether it may be a protective factor and natural phenomena as a response to the stress and helplessness junior doctors can feel in the face of suffering. So the question to consider is: Can one have too much empathy as a doctor in training?

5S: Workshop: Leveraging Technology to Optimize CME, Clinical Care & Patient Engagement (1074)

Location: Wettstein, 2nd Floor, Swissotel
Date: Monday 27th August
Time: 1600-1730 hrs

Presenters
Lisa Sullivan
Sherlyn Celone-Arnold
Alvaro Margolis
Dale Kummerle

Background: A learning and performance ecosystem enhances individual and organizational effectiveness by connecting people and supporting them with a broad range of content, processes, and technologies to drive performance.
In this workshop, the faculty will explore a model that develops a strategic approach to developing innovative CME/CPD through an eLearning and Performance Ecosystem within the workplace. Starting from an organisational performance focus, this session pulls together the problems seen and responds to the underlying causes. Throughout the session the faculty and learners will proceed through the strategic components, indicating principles, tools, examples and trade-off of this model. This will provide a systematic way of viewing the goals of elearning, which can guide in developing strategies that make sense of and integrate tactics (like asynchronous and synchronous courses, web 2.0, mobile, simulations, portals and more) into an integrated, coherent and comprehensive whole.
Who should attend: All participants already involved in or considering involvement in the planning and execution of CME/CPD/CE in the digital age.
Structure of workshop: Following brief presentations from each of the faculty the audience will be given active learning tasks which relate to how best to build an ecosystem for CPD within the workplace. Presentations will be no more than 50 minutes with 35 minutes of work shop activities with the audience.
Intended outcomes: Build and deploy rapid needs assessments to determine clinical and professional competency gaps to help align CME/CPD/CE programming; Design and manage blended learning activities that incorporate a mix of live and eLearning activities to optimize learner engagement for providers, staff and patients; Develop effective outcomes plans to measure change in knowledge, skills, competence, confidence and performance; Understand how Facebook and other social network concepts and approaches can be used to promote social learning in health care teams both for online and blended learning programmes; Recognise how increasing the use of digital technologies can enhance the level of engagement of physicians thus changing behaviours to help improve patient care?

5T: Workshop: Professionalism in Practice: The Resident Supervisor's Role in Training, Feedback, and Assessment (194)

Location: Helvetia 3, 1st Floor, Swissotel
Date: Monday 27th August
Time: 1600-1730 hrs

Presenters
Nadia Bajwa, Geneva University Hospitals, University of Geneva Faculty of Medicine, Geneva, Switzerland
Naïke Bochatay, University of Geneva Faculty of Medicine, Geneva, Switzerland
Noëlle Junod-Perron, Geneva University Hospitals, University of Geneva Faculty of Medicine, Geneva, Switzerland
Marie-Claude Audétat, University of Geneva Faculty of Medicine, Geneva, Switzerland
Anne Baroffio-Barbier, University of Geneva Faculty of Medicine, Geneva, Switzerland
Mathieu Nendaz, University of Geneva Faculty of Medicine, Geneva, Switzerland

Background: Resident physicians are often expected to already be competent in professionalism before starting their clinical training. However, the stress and pressure of training creates an environment that is prone to unprofessional behavior and conflict. This workshop explores the role of the resident supervisor in detecting, addressing, and remediating unprofessional behavior in the clinical environment. Dealing with unprofessional behaviors is a challenge for all supervisors and barriers and facilitators to this process will be identified.
Who Should Attend: This session should appeal to clinical supervisors from all levels of experience who find that addressing unprofessional behavior is a challenge and who are motivated to explore how we can foster the learning of professional behavior in the clinical environment.
Structure of Workshop: Highly interactive case-based workshop. In a large group discussion, we will identify barriers and facilitators to addressing unprofessional behavior. A brief didactic session will review available assessment methods and tools. This will be followed by small group practice using a combination of author- and audience-generated case-based scenarios. A final large group discussion will share approaches to the scenarios and consolidate a management approach.
Intended Outcomes: By the end of this workshop, participants will be able to: (1) Articulate barriers and facilitators to addressing unprofessional behaviors (2) Identify existing assessment methods and tools to detect and remediate unprofessional behavior (3) Develop an action plan for assessing and remediating unprofessional behavior (4) Apply the lessons learned to create a psychologically safe clinical environment for all trainees.
Level: All

5U: Workshop: Politeness + Hedging = errors in performance calibration: A workshop to promote clarity in performance assessment and feedback language for Health Professions Educators (4)

Location: Helvetia 4, 1st Floor, Swissotel
Date: Monday 27th August
Time: 1600-1730 hrs

Presenters

Subha Ramani, Internal Medicine Residency Program, Brigham and Women's Hospital; Harvard Macy Institute; Harvard Medical School, USA
Karen D Könings, Department of Educational Development and Research, Faculty of Health, Medicine and Life Sciences, Maastricht University, Netherlands
Shiphra Ginsburg, Department of Medicine (Respirology); Wilson Centre for Research in Education, University of Toronto, Canada

Background: Narrative comments on evaluations inform learners about their strengths and weaknesses, and facilitate performance improvement. They provide information to training directors for summative assessment, decisions about promotion and remediation. Research has shown that narrative evaluations often feature vague and non-specific language. When teachers provide feedback to learners, they also use non-specific and non-actionable language. 'Decoding' the language of assessment and feedback can lead to inaccuracies in performance calibration. Possible reasons for use of vague language include: lack of accurate knowledge about learner performance, infrequent direct observation, fear of hurting feelings or damaging learner self-esteem, and deficient assessment and feedback skills.

Structure of the workshop: In this interactive staff development workshop, we will use brief presentations, brainstorming, videos and small group exercises, to allow participants to reflect on the impact of narratives and language on interpretation of learners' performance; observe learner performance; practice writing narratives about performance and critique peer narratives for specificity and clarity. Finally, participants will practice giving specific and actionable feedback to each other, while feedback recipients critique the language used and assess its effect on motivating behaviour change. This theme emphasizes the narrative aspects of learner performance assessment and feedback conversations, which may not always be consistent with numerical ratings on assessment. These inconsistencies can lead to learners inaccurately calibrating their performance and formulating action plans. Tenets of Politeness Theory which emphasizes desire to maintain self-esteem and autonomy will be applied to the discussions.
Educators with different levels of experience will participate in the workshop, thus peer learning will serve as a key educational strategy in this interactive workshop.

Intended outcomes: As a result of this workshop, participants will:

1. Reflect on the adverse impact of vague and non-specific language use in learner assessment and feedback
2. Discuss the importance of addressing self-esteem and autonomy when providing feedback to learners
3. Improve their skills in writing specific narrative comments to assess learner performance observed in video clips
4. Enhance their skills in providing feedback to learners using specific, behaviour based and actionable language
5. Critique and provide feedback to their other workshop participant on the specificity and clarity of their written comments and feedback language

5V: Workshop: Young medical educators' workshop: Habits of Highly Successful Academicians (3526)

Location: Helvetia 5, 1st Floor, Swissotel
Date: Monday 27th August
Time: 1600-1730 hrs

Presenters

William B. Cutrer, Vanderbilt University School of Medicine, Nashville, USA
Sören Huwendiek, University of Bern, Switzerland
Stewart Mennin, Human Systems Dynamics Institute, Minneapolis, USA
Charlotte Ringsted, University of Aarhus, Denmark
J.M.Monica van de Ridder, Michigan State University, Grand Rapids, USA

Background: Effective career development in academic medicine is vital to sustaining institutional mission and effectiveness. Even though many faculty development programs exist, focusing on career development for junior faculty requires strategies beyond the immediate skills necessary to fulfill institutional missions. Cutrer et al (2014)* have elaborated the high cost of faculty turnover, the lack of faculty career development, and sense of community as dissatisfiers among faculty. Effective strategies to promote greater networking and mentorship among colleagues could better align faculty career goals with institutional mission and effectiveness. This workshop will focus on practical habits and skills for Young Medical Educators, including the development of an "Elevator Speech" they can use to briefly summarize their academic activities to others.
*) Cutrer W, Brown R, Fleming G, et al. Junior faculty development program using facilitated peer mentoring. MedEdPORTAL Publications. 2014;10:9905.
Who should attend?
Young Medical Educators interested in developing the skills and habits to be successful in their home institutions and in their networking efforts.
Structure of the workshop: Using a combination of didactic, case-based, and small-group learning techniques, important concepts of professionalism and communication will be addressed. After an introduction in

which the session goals and learning objectives are presented (10 min), the workshop will be broken into two sections. First, we will address (10') and discuss in small and large groups (15') common practices of effective academic physician self-management as a key to success using the acronym CREDO: Communicator, Reliable, Enthusiastic, Doer, Organized as a tool for practice. The second focus of the workshop will be networking skills including an "elevator speech". This will include a demonstration of a focused overview of current activities (10'). Participants will divide into dyads to practice developing and delivering their "Elevator Speech" to each other (30'). The workshop will conclude with "take home points" and a brief question/answer period (15').

Intended outcomes:
1. Outline the attributes and habits of academic medical educators that can affect how they are perceived by their peers;
2. Review successful and unsuccessful behaviors of professional networking;
3. Practice the delivery of a successful "Elevator Speech".

Level: Beginner

5W: Workshop: Making student engagement more meaningful (2020)

Location: Helvetia 7, 1st Floor Swissotel
Date: Monday 27th August
Time: 1600-1730 hrs

Presenters
Lara Teheux, Radboud University Medical Center, Nijmegen, Netherlands
Katerina Dima, Aristotle University of Thessaloniki, Greece
Evangelos Papageorgiou, University of Patras, Greece
Evita Peiou, National and Kapodistrian University of Athens, Greece
Marian Sedlak, Pavol Jozef Šafárik University, Košice, Slovakia

Background: In the past years there has been a growing interest in student engagement, both from the students' and the faculty members' side. It is used as an indicator for excellence in universities (ASPIRE) and is universally believed to be a fundamental aspect of the students' educational experience with growing evidence to support this claim. Although student engagement is widely supported, in reality there are many obstacles preventing meaningful student engagement.
Who should attend: Faculty members, curriculum developers, students and all others aiming to make student engagement in their schools more meaningful.
Structure of workshop: The aim of this workshop is to give participants skills and knowledge to boost student engagement in their faculty. After a brief theoretical introduction to the topic, we will establish the benefits of student engagement for the schools as well as the different existing levels of engagement. During the second section we will work in an open space format to discuss

various challenges (e.g. tokenism, hierarchy, skills gap) and to formulate possible solutions. We will conclude with a summary of various ways on how student engagement could be enhanced and inspire participants with a list of concrete actions they can take during the conference and back home.
Intended outcomes: During this workshop participants will gain competences for diagnosing the barriers and facilitator factors for student engagement in their schools and have the opportunity to exchange and learn from various experiences. At the end of this workshop, participants should expect to have a clearer idea of concrete actions they can take towards achieving meaningful student engagement in their school.
Level: Introductory

5X: Workshop: Show Us How: Assessment for Learning in Interprofessional Education and Collaboration (2109)

Location: Osaka, 3rd Floor, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

Presenters
Susan J. Wagner, Department of Speech-Language Pathology, Faculty of Medicine, University of Toronto, Canada
Brian S. Simmons, Division of Newborn and Developmental Pediatrics, Department of Pediatrics, Sunnybrook Health Sciences Centre and Department of Pediatrics, Faculty of Medicine, University of Toronto, Canada

Background: The interprofessional education (IPE) literature has expanded significantly in the past few years to provide a rich variety of evaluation studies of different IPE activities, however, efforts to produce rigorous assessment of IPE learning continue to be a challenge. At present, most IPE learning is focused on self-assessment that only provides a perception of what the learner thinks s/he may have learned. This reliance on weak forms of assessment data continue to undermine the quality of IPE assessment and fail to engage with key principles of assessment that should be adhered to in any IPE learning activity.
This workshop is intended to introduce participants to a new competency-based assessment model that addresses many of the challenges inherent in assessing IPE.
Who should attend: Health profession educators interested in assessment, evaluation, competencies and interprofessional education.
Structure of workshop: This workshop provides an exploration of key issues or challenges related to the assessment of IPE. It considers the processes of designing and implementing an IPE assessment focusing on the structure (individual), function (team) and outcome (task). This new three-pronged clinical competency continuum model is illustrated employing the concepts of milestones and entrusted professional activities (EPAs) in a performance framework.

Use of brief didactic presentations will help maximize interactive discussion and reflection, which will make up the majority of the session. Participants will also watch (DVD), a simulated IPE learning activity and consider how it could be assessed using the new assessment model. Specifically, this workshop will introduce participants to a range of key assessment concepts and ideas for consideration and implementation. This will enable them to apply strategies for application in their own contexts. As a result, the workshop will help to develop an understanding of the process of assessment and how to reconceptualize and develop assessment relevant to IPE.
Intended outcomes:
• Identify key issues related to assessing performance in IPE
• Describe a new Structure-Function-Outcome Model of IPE assessment
• Reflect on the application of milestones and entrustable professional activities (EPAs) to this model
Level: Intermediate, for those with a background in IPE

5Y: Workshop: Virtual Reality and Augmented Reality in Simulation-Based Medical Education (2563)

Location: Samarkand, 3rd Floor, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

Presenters
Jack Pottle, Oxford Medical Simulation, London, UK
Jenny Zhou, University College London Knowledge Lab, London, UK
Rebecca Robertson, Leeds University Medical School, Leeds, UK

Background: As simulation has gained widespread acceptance as a learning methodology and teaching technique, the challenge has shifted towards increasing access and improving quality to impact performance. As this shift has occurred, the increasing commercial availability of Virtual Reality (VR) and Augmented Reality (AR) provides the opportunity to deliver immersive, interactive, medical simulation scenarios in a scalable fashion.
However, questions remain about which technologies are most appropriate to deliver simulation-based education (SBE). How can VR and AR increase learner throughput, how accessible is it, and does it improve performance? This workshop aims to explore the differences between VR and AR, what they can offer, the evidence behind them, and translate this research into practical considerations for learners and instructors.
Who should attend: Educationalists, faculty and students interested in new learning methodologies, VR and AR, or evidence-based simulation both at undergraduate or postgraduate level. This workshop will provide an opportunity to try medical VR simulation and is appropriate for all levels of experience.
Structure of workshop: Introduction
- Introduction, background and aims

- Small group exercise identifying challenges in simulation
Why VR/AR?
- What are VR and AR?
- Immersion, fidelity and presence in VR
How can VR or AR be used in simulation?
- Examples and interactive VR simulation demos
- Small group exercise: VR/AR simulation design to address specific learning objectives
- Challenges and limitations of VR
What's the evidence?
- Discussion of the state of VR/AR simulation research
- Micro debate: Should simulation be gamified?
Summary
Intended Outcomes: Increased awareness of innovative learning methods and appropriateness of VR/AR for learning objectives.
Opportunities to experience VR/AR demos and brainstorm ways VR/AR may be relevant to learning and teaching.
Forum to discuss and appraise evidence around VR/AR for learning.
Increased ability to evaluate technologies in order to inform research, design, and purchasing decisions.
Level: Introductory/Intermediate (no previous experience needed)

5Z: Workshop: How faculty developers can create a path to education scholarship (2527)

Location: Guangzhou, 2nd Floor, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

Presenters
Patricia O'Sullivan, University California San Francisco, USA
Francois Cilliers, University of Cape Town, South Africa
Sandy Cook, Duke-National University of Singapore
Ardi Findyartini, Universitas Indonesia, Jakarta, Indonesia
Richard Hays, University of Tasmania, Australia, Hobart, Australia
Wendy Hu, Western Sydney University, Sydney, Australia

Background: Generation of educational scholarship is a hallmark of excellence in the development of faculty in health professions institutions whose careers focus on education. However, educators are often so overwhelmed with the demands of teaching and administration that they cannot muster either the time or resources to engage in educational scholarship. Other individuals face institutions disinterested in educational scholarship. Many institutions lack resources that constrain education scholarship. Those of us in faculty development propose to share with other faculty developers how we addressed these barriers and to facilitate participants building their own strategies to enable their faculty to engage in educational scholarship.
Who should attend: Faculty developers, educational leaders interested in supporting development and acceptance of innovative views of scholarship and those considering strategies to enhance their own scholarship.
Structure of Workshop: The objectives of the workshop are to 1. Advocate for the legitimacy of educational

scholarship by clarifying the definition and metrics for educational scholarship; 2. Identify and commit to local strategies to address barriers and enable scholarship; and 3. Compare approaches generated in this workshop with what is traditionally offered in faculty development. The workshop will start with an overview of how we present educational scholarship in our local institutions as a legitimate field for research activity. Participants will engage in small group work to identify alternative metrics to grants and publications which faculty developers worldwide can use when promoting educational scholarship. Following this, participants will review a list of strategies to achieve success in engaging in education scholarship. These include aligning with quality improvement initiatives, collaborations with either local or other partners, cultivating supportive leadership. Working from this list, participants will draft an action plan to identify tactics to implement one strategy pertinent to their institution. Input from other small group participants will help to refine plans. To solidify the next steps that participants will take we will discuss how these steps differ from or align with their current approaches.

Intended Outcomes: Participants will return to their institutions with approaches that they can use to advance educational scholarship within their faculty development programs.

Level: Intermediate

5AA: Workshop: How to create a competence-based medical education (CBME) event to foster active learning in continuous medical education (CME) (1173)

Location: Nairobi, 2nd Floor, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

Presenters:

Kristiina Patja, Pro Medico, Association for CPD in Finland, Helsinki Finland
Leila Niemi-Murola, Department of Anaesthesiology and Intensive Care Medicine, University of Helsinki, Helsinki Finland
Juha Pekka Turunen, Finnish Medical Society Duodecim, Helsinki Finland
Lena Sjöberg, University of Helsinki, Department of General Practice and Primary Health Care, Helsinki Finland
Anna-Kaija, Kirkkonummi Healthcenter, Kirkkonummi Finland
Eeva Pyörälä, University of Helsinki, Helsinki Finland

Background: Designing educational events starts by defining the expected outcomes as improvement of knowledge and skills desired to be achieved. Competence-based medical education has created new requirements for teaching and learning in events: learning aims by competencies. The competences embrace all aspects of working in health care, not only medical expertise but also communication, collaboration, professionalism, health

advocacy and scholarly practice. This conception of competences required from healthcare professionals is dynamic and developing over time. Designing educational events starts by defining the expected learning outcomes as improvement of competencies desired to be achieved. Incorporating non-medical competencies to learning tasks requires aligning active learning methods and assessment tools to stimulate competency-based learning.

Who should attend: This workshop is targeted to all healthcare professionals and educators, who want to create attractive and effective CME events. You may work in any field of healthcare, involved in planning, constructing and organising CME learning events. Trainees interested in CME in practice are also welcome in the workshop.

Structure of workshop: This workshop is based on real-world materials and examples of healthcare working life. Active learning methods include small group working and online tools. We briefly introduce (1) the concepts of competence in medical education, and (2) constructive alignment of learning outcomes, active learning methods and (3) assessment for learning. At the workshop, participants work in small groups re-designing an active learning event with competencies. This emphasizes the way in which education planning operationalizes the competencies into specific learning outcomes, learning activities and applied methods and tools. We will discuss the challenges and opportunities that organisers face when organising events, e.g. venues, digital learning resources and learning environments. A new tool for feedback is introduced.

Intended outcomes: After attending this workshop, the participants will be able to 1) plan and implement active continuous medical education learning events that support learners 2) use a competence-based medical education assessment form for continuous medical education events. A toolbox and a handout are provided.

Level: Introductory

5BB: Workshop: International perspectives on incorporating concepts of social determinants of health into core curricula: challenges and opportunities (1322)

Location: Mexico, 2nd Floor, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

Presenters

Yuko Takeda, Juntendo University, Tokyo, Japan
Ann Wylie, King's College London, London, UK
Hossam Hamdy, Gulf Medical University, Ajman, UAE
Linda Snell, McGill University, Montreal, UK

Abstract Text: Social determinants of health (SDH) are important factors for all societies, yet translating these concepts into learning outcomes for medical curricula is a challenge. Increasing health inequalities and cultural variables impact on health, health care, health care systems and policies, migration, morbidity and mortality. Future doctors will encounter patients whose social determinants are significant influences on diagnosis and management. These doctors must be aware of the relevant SDH and utilize leadership skills in navigating pathways and advocating for patients and communities. However there is limited consensus on the role of doctors and clinical teachers in developing and teaching about SDH within core curricula for medical students and junior doctors. The sustainable development goals (SDGs) may be a useful guide to increase awareness of the importance of SDH and to provide an international perspective. Additionally, there are current examples of core curricula that effectively integrate SDH, which potentially could be adapted by other institutions and programs.

Who should attend? Curriculum leads; curriculum developers; those leading on teaching social determinants of health; interested clinical teachers

Structure: Following a general introduction and definition of terms to serve as a baseline, there will be a small group exercise to elicit how participants currently teach and assess social determinants of health (SDH) and their challenges and barriers. This will be followed by short presentations from 3 medical schools (Japan, UK, Canada) showing examples of incorporating SDH into core curricula, and introducing the sustainable development goals (SDGs). A second exercise will involve using the SDG framework to develop or enhance participants' own SDH curricula. The conclusion will elicit lessons learned and future directions.

Intended Outcomes: By the end of the workshop participants will have:

• a clear operational description of SDH and its variability in relation to different contexts and cultures;

• shared experiences and challenges around teaching SDH;

• explored options for developing and assessing SDH learning outcomes in their local context ;

• described barriers and opportunities, potential resistance and possible responses in incorporating teaching around SDH;

• describe a framework to support SDH integration and consider if it can be applied in the participants' context.

Level: Intermediate/advanced

5CC: ePosters: Assessment & Evaluation

Location: Kairo 2, Ground Floor, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

5CC1 NOT PRESENTED

5CC2 (1766)
Validity and psychometric properties of a novel competence-based assessment tool for 1rst and 2nd year medical students

Authors
Ana Mafalda Fonseca, Covilhã, Portugal
Ana Isabel Gouveia, Covilhã, Portugal
Patrícia Barata, Covilhã, Portugal
Isabel Neto, Covilhã, Portugal

Presenter: Isabel Neto, Faculty of Health Sciences, University of Beira Interior (FCS-UBI), Covilhã, Portugal

Background: Medical students must acquire and master knowledge, skills, attitudes and professional behaviors to be competent professionals in the future. We found that was important to develop an instrument to assess different domains of competence in an integrated manner based in real world situations for 1rst and 2nd year medical students.
In the first two years of the medical curriculum students learn disciplines included in the domains of Biological, Humanistic and Community Health Sciences. To assess students' ability to integrate those different domains of knowledge we implemented in 2014 an OSCE-based examination. Our objective was to evaluate this novel assessment tool in terms of content validity related to the learning objectives and internal structure (item difficulty/discrimination and reliability).
We analyzed the tool for 3 consecutive academic years. Three different persons analyzed content validity of the stations (N=16-21). Knowledge domain was assessed differently in the 3 main cognitive levels: up to 13% of the stations evaluated memorization, 85% application and 17% resolution. Also, up to 20% assessed practical skills, 25% communication and 25% professional attitudes. Stations reliability (Cronbach's alpha) ranged 0.64-0.80, difficulty 0.17-0.9 and discrimination achieved a maximum of 0.26. The psychometric analysis of our competence-based as¬sessment tool demonstrated moderate item difficulty (mean=0,64), low discrimination power, and satisfactory reliability. These acceptable psychometric parameters indicate that this tool is sufficiently valid and reliable for the purposes that were planned. Also, it captured students´ attention for the importance of an integrated learning during the first 2 years of studies and strengthened the links between theoretical concepts and future application. This analysis has allowed us to see the strengths and weaknesses of the instrument in order to make improvements.
Although it is a laborious and time consuming task to implement this kind of competence-based assessment it

seems that it fulfills the goal of assessing skills not included in other tools used along the learning process.

5CC3 (2724)
Validity evidence for programmatic assessment in competency-based education

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Presenter: Harold Bok, Faculty of Veterinary Medicine, Utrecht University, Utrecht, Netherlands

Background: Competency based education (CBE) is now pervasive in Health Professions Education. A core purpose of CBE is to assess and identify the progression of competency development. Together with emphasis on sustained evidence of professional competence this calls for new methods of teaching and assessment. A model for programmatic assessment has been proposed that simultaneously optimizes assessment for learning and high-stakes decision making.
Scores from three assessment methods were combined to assess the same and different competencies to provide a holistic overview for both formative and summative purposes. We performed a retrospective quantitative analysis using hierarchical linear modeling of individual assessment data points collected by 962 learners to assess variation in scores due to repeated measures, competency, assessment method and student.
The results showed a sigmoidal learning curve when mean scores over time were collapsed for learner, method and competency domain. Random coefficient modelling indicated that variance due to inter-student performance differences was highest (40%). The reliability coefficients of scores from assessment methods ranged from .86 to .90. Method and competency variance components were in the small-to-moderate range.
The results indicate that students start at different competency levels (scores) and scores increase over time as students advance through their clinical rotations. This finding provides supporting evidence for the program of assessment working effectively as it is designed. The current validation evidence provides cause for optimism regarding the explicit development and implementation of a program of assessment within CBE. The majority of the variance in scores appears to be student-related and reliable, supporting the psychometric properties as well as both formative and summative score applications.
We provide preliminary validation evidence from both descriptive and modeling analyses to support the explicit development and implementation of a program of

assessment meant for both student learning and summative decision purposes.

5CC4 (2097)
Faculty Perceptions of Grading Practices and Innovations in Medical Education

Authors
Scott W. Snyder
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Presenter: Scott Snyder, University of Alabama at Birmingham, AL, USA

Background: While standardized exams remain crucial, the grades that students earn during preclinical and clinical training are essential components of evaluating medical students. Hanson et al (2013) posited, "medical education… depends more upon grading schemas than on actual assessment [of competencies] that define a competent physician." Innovations in grading practice have emerged during the past ten years, yet few studies investigate the attitudes of medical school course directors about grading or innovative grading practices. We disseminated a 50-item survey of grading practices to medical education faculty at a comprehensive medical college in the southeastern US. We received responses from 42 pre-clinical, clerkship, or co-enrolled elective course directors within the institution.
Key findings include-
• 100% agreed that grades should reflect the degree to which students mastered course objectives, and nearly half agreed that effort should also contribute
• 74% agreed that grades should be predictive of content application in "the real world"
• 79% agreed that grades mean different things depending on instructor, but 74% indicated that grades should mean the same thing across courses and instructors
• 64% agreed that improving clarity of grades' meaning would influence their decision to adopt a new grading approach
• Of respondents interested in grading innovation, the majority (%) wanted to learn more about specifications grading and standard-setting procedures to determining grade cut scores on assessments.
Results revealed challenges to achieving consensus about the meaning of grades, promoting the predictive validity of grades, and understanding attitudes toward innovation and grading. Specifications grading and Angoff-based standard setting methods were the most interesting innovations.
Expanded efforts related to developing consensus on the meaning of grades are necessary. Further investigation using a survey of this type should be implemented at this and other schools of medicine. Research and training regarding specifications- and Angoff cut-score methods warrant consideration.
Reference: Hanson, J. L., Rosenberg, A. A., & Lane, J. L. (2013). Narrative descriptions should replace grades and numerical ratings for clinical performance in medical education in the United States. Frontiers in Psychology, 4, 668. http://doi.org/10.3389/fpsyg.2013.00668

5CC5 (1741)
A Lesson Learn from Formative Assessments

Authors
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Presenter: Benjamas Wongsatayanon, Department of Microbiology, Srinakharinwirot university, Bangkok, Thailand

Background: In the course 'infection' of preclinical medical students, we had 2 summative assessments (S1&S2) to evaluate the student's knowledge of 2 content units. Prior to S, we gave 2 formative assessment (F1&F2) to monitor student learning. The F questions covered all the content as S's. The F scores were announced on the same day after the exams. The students gave feedback and some were interviewed after the course.
The difference between the first and second formative exams were the content, time interval on F to S exam and the explanation the answers after F1 exam but not in F2. The purpose of unexplain the answer in F2 was to stimulate the self attempt in seeking the answer. The students' score, feedback and interview were evaluated. The students (83%) liked the formative exam (83.2%) and prepared themselves before F (68.9%). They thought F helped to understand the course content (78.2%) and improved their summative scores (69.8%). The diffrerence between each F and S scores were classified as worse, same level and better. Surprisingly, we found that most of the students (69.94%) got same level of F1-S1 and same level of F2-S2; F1-S1 worse than F2-S2 scores (16.67%). These results implied non significant effect of explanation of the F answer. The students' feedback suggested that the effectiveness of F were the time inverval between the last lecture, F and S exams. In addition, the explanation of the test was good but its effect on the summative scores and improvements of learning acquisition were depended on each individual students' attitude and behavior.
Utilization the formative exam to improve the student knowledge outcome is influenced by many factors such as timing, types of exam and student attention. Students who got good grade mostly pay attention on formative exam and gain the benefits of this activity which contrast to the lower grade group.
Formative exam is a good way to improve the students' knowledge but the process is important for its benefit.

5CC6 (937)
Using Modified Oxford Non-Technical Skills scale to evaluate simulation and clinical performance of emergency residents

Authors

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Presenter: Chih-Chun Huang, Mackay Memorial Hospital, Taipei, Taiwan

Background: Simulation-based training is a new teaching tool for improving the performance of medical students and residents. A modified Oxford Non-Technical Skills (NOTECHS) scale (score range, 1-4) is used to evaluate resident ability of communication, leadership, teamwork, decision making, problem solving, and situational awareness. We used NOTECHS scale to assess resident performance in simulation and clinical presentation.
This study was a prospective study during October to December 2017. Simulations were conducted in a medical center-based simulation center in Taiwan. A total of 16 emergency residents (resident year 1, 2, 3 and 4) participated in 3 clinical scenarios (short of breath, altered mental status and shock). A simulation scenario was conducted in 15-20 minutes and followed by 10 minutes debriefings. NOTECHS scale (score range, 1-4) was used to assess emergency resident performance in simulation. In emergency room, we asked 6 senior attending emergency physicians to evaluate clinical performance of residents with the scale.
The clinical performances of senior residents were significantly better in communication, leadership, teamwork, decision making, problem solving, situational awareness and cumulative score. Senior residents also had higher score of teamwork, problem solving and cumulative score in simulation.
Simulation sessions may be used to evaluate the level of each individual residents in communication, leadership, teamwork, decision making, problem solving, and situational awareness.
NOTECHS score was a good tool for evaluating simulation and clinical performance of the residents. The simulation performance can reflect clinical performance of the residents.

Table 1. Emergency Resident Performance in Simulation

	R1	R2	R3	R4	P value
communication	2.5	2.5	3	3.25	0.11
leadership	2.375	2.5	2.875	3.125	0.26
teamwork	2.375	2.25	2.75	3.125	0.06
problem solving	2.125	2.375	2.875	3.125	0.02
situation awareness	2.625	2.375	2.625	3	0.26
NOTECHS* Cumulative score	12	12	14.125	16	0.03

Table 2. Emergency Resident Performance in Clinical Presentation

	R1	R2	R3	R4	P value
communication	2	2.17	2.92	2.92	0.01
leadership	2.08	2	2.67	3.25	0.01
teamwork	2.08	2.08	2.42	3.08	0.02
problem solving	2.08	2.17	2.83	3.17	0.01
situation awareness	2.08	2.25	2.83	3.33	0.01
NOTECHS* Cumulative score	10.33	10.67	13.67	15.75	0.01

5CC7 (3076)
Digital vs. Analog Assessment: Analyzing Students' Preferences

Authors

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Presenter: Thomas Brendel, Institut für Didaktik und Ausbildungsforschung in der Medizin, Klinikum der LMU, Munich, Germany

Background: The German 'Masterplan Medizinstudium 2020' [1] sets the agenda towards competency-based medical education. To better meet the requirements of competency-based assessment we introduced tablet computer-based exams in our clinical curriculum to allow for new quality assurance processes and assessment formats.
In three consecutive pilot runs, students were asked to choose between paper-based and tablet computer-based exams that otherwise were identical in content and structure. Factors influencing students' preferences were assessed using a facultative questionnaire containing both Likert-scaled and free-text questions.
105 students took the three consecutive exams in pathology, human genetics and radiology. 11, 11 and 25 chose to use a tablet computer, respectively. 69 of the 105 students returned the completed questionnaire. 49/69 of students stated that they can handle tablet computers very well or well (1.85 ± 1.1, mean ± SD on a five-point Likert-scale 1=very good, 5=bad). 36/69 own a tablet computer and 66/69 own a smartphone. 44/69 students felt very well or well prepared (2.24 ± 0.75), 62/69 assumed that they mastered the exam-subject at least reasonably (2.54 ± 0.66). Primary reasons for the preference of paper-based over tablet-based exams were 1. habit, 2. possibility to use a highlighter pen and 3. lack of technical risks. Although the majority of students stated that they are proficient in handling tablet computers and own a tablet and/or a smart phone, only few chose the tablet over the classical paper-based exam. Exam subjects influenced selection as tablets were chosen more than twice as often in the radiology exam, i.e. a subject relying on images. Otherwise, as paper- and tablet-based exams were identical in structure and content, students apparently saw no benefit in using the novel tablet-based exam and went for the method they were familiar with. This can be

related to findings of other studies that the design of e-assessments should be in line with the subject area which is assessed [2, 3].

More innovative competency-based assessments formats should be used in future computer tablet-based exams, in order to clarify benefits of digital assessment to students.

5CC8 (2564)
Students´perceptions of online assessment with their own devices

Authors

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Presenter: Sanna Siirilä, University of Helsinki, Finland

Background: The Faculty of Medicine in Helsinki has since 2013 provided the students with iPads. The survey data from the iPad project showed that students were seldom assessed online. They wished for more electronic tests and feedback. In 2017, we started a Digital leap project developing bring your own device (BYOD) online assessment. This study explores the students' perceptions of and attitudes towards online examinations. (49)
The Digital leap project started in 2017 by focusing on summative online assessment. We aimed at comparing the 1st year students' perceptions of three platforms for summative online examinations where access to the Internet and hard disk were blocked (Abitti, Inspera and UNIwise). The research data consisted of web-based and paper questionnaires, interviews and observations in 2017 and 2018. 31/200 students voluntarily participated in the pilot in high stake examinations.
Few students had experience in online assessment. 31 volunteers were pleased with electronic examinations and did not want to return to paper exams. However, they needed support in new assessment practices, especially in the BYOD context. Students who did not participate in the pilot felt safer taking examination in paper format and were afraid of technical problems. They reported that the most important aspect in digital examinations was to have an easy-to-use platform. Most of the students in both groups replied that online assessment could improve their learning results by providing instant feedback.
As modern technology is incorporated into medical education in Helsinki, assessment should not lag behind. Students' perceptions of the digital platforms piloted are important, since the shift from paper-based to electronic assessment should not cause the students additional stress nor hinder their learning.
Quality assessment is vital for students' learning. Students need support in adapting to the assessment technology. Teachers and administration require efficient technical and pedagogical support.

Technology enhanced learning requires update in assessment practices. The development of summative online assessment requires piloting and support for the teachers and administration. The students need tailored support and training for online assessment.

5CC9 (1090)
The Global Performance Assessment Form as a formative Workplace-Based Assessment tool in the Singapore Radiology Residency Programme –Has it been effectively utilized?

Authors

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Presenter: Nur Ayudia Kassim, National Healthcare Group, Singapore

Background: The American Accreditation Council for Graduate Medical Education (ACGME) Residency Program was adopted for Radiology training in Singapore beginning in 2011.It comprises 6 clinical competencies - Patient Care,Professionalism,Interpersonal&Communication Skills,Medical Knowledge,Practice-Based Learning&Improvement and Systems-Based Practice.The Global Performance Assessment (GPA) form is one of the few Workplace-Based Assessment (WBA) tools able to assess trainee doctors in all 6 dimensions.The purpose of this study is to evaluate the effective utilization of this form for all trainees belonging to one of the 3 local Radiology training centres.
The form comprised 22 specific questions.Each question used a 9-point Likert scale with a space for comments.A trainee was assessed by a single rater and completed 1 GPA form at the end of each 3 month posting.The rater was a senior doctor who may or may not be a member of the Residency faulty.Internal raters were those who belonged to the parent institution whereas external raters were those in peripheral hospitals the trainee rotated to.Data for all trainees was collated from 2011 to 2017. There were 297 GPA forms from 42 trainees.The Exploratory Factor Analysis results indicated only one latent structure underlying the 22 questions.Internal raters (M=6.0040, SD=0.80) gave significantly lower scores compared to external raters (M=6.9638, SD=0.77).There was no significant difference between scores given by faculty (M=6.49, SD=0.92) versus non-faculty (M=6.3548, SD=0.91) raters.Comments were provided only 5.4% of the time.
Raters were not able to distinguish between these 6 competencies. This may be due to the influence of the preceding British system whereby the rater would pass a trainee once he/she felt that "Total Patient Care" had been delivered.The rater would then retrospectively fill in the 6 competency scores to justify the end result.The added good intention of a WBA in providing formative feedback was under-utilized.Again, this may be related to the pervasive mindset that negative comments will affect the resident's future,wrongly assuming this to be a summative rather than formative task.

Rater training is necessary to enable them to differentiate and assess in these 6 dimensions as well as be comfortable giving qualitative feedback.

5CC10 (866)
The Application of Milestone and Entrustable Professional Activity in Clinical Skills Training-the First Year Result

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Presenter: Chia-Chang Huang, Taipei Veterans General Hospital, Taipei City, Taiwan

Background: Clinical Skills is one of the Minimum 7 Essential Core Competences of the Institute for International Medical Education (IIME) Core Committee. In recent years, Milestone and Entrustable Professional Activity (EPA) were applied in postgraduate medical education training programs at the United States and Canada. The undergraduate year (UGY) training had the clinical skills training in the division of clinical skills training or in the ward. The Objective Structured Clinical Examination (OSCE), Direct Observation of Procedural Skills (DOPS), and Modified mini-clinical evaluation exercise (Modified mini-CEX) were used to do the assessment in clinical skills. The application of milestones and EPAs is the first attempt in UGY training programs. During January ~ March 2017, we invited 5 clinical teachers to form a "Clinical Skills Training Milestone and EPA Working Group". They listed the Milestone of procedure skills include male urinary catheterization, blood sampling and blood culture, wound dressing, and intravenous catheterization. In April 2017, we invited another 5 clinical teachers to validate the content of EPA and milestones of these 4 procedure skills. Then, we conducted a pilot test based on the EPA and milestones of the clinical skills. Finally, we collected the questionnaires from medical students about the application of Milestone and EPA in Clinical Skills Training.
We had created the good validity (1-5) EPAs and Milestone in these 4 procedure skills, include male urinary catheterization (4.13), blood sampling and blood culture (4.09), wound dressing (4.12), and intravenous catheterization (4.31). The pilot test in medical student showed the EPA's mean scores(1-9): male urinary catheterization (6.7), blood sampling and blood culture (5.6), wound dressing (5.7), and intravenous catheterization (6.0). Most of the participants' were positive feedback and suggested to demonstrate the effectiveness of clinical skills training with milestones and EPA through rigorous research
Most students had the positive attitude to face the application of Milestones and EPA in Clinical Skills Training. The application of Milestones and EPAs in Clinical Skills Training need good validity contents and pilot tests with a rigorous research to proved the effectiveness.

5CC11 (562)
Satisfied students are not necessarily well educated students

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Presenter: Erik Hulegårdh, Institute of Medicine, Sahlgrenska Academy, University of Gothenburg, Sweden

Background: There is no correlation between the students´ assessment of the teaching and the final exam results. Other methods must be used in order to evaluate the true quality of a course and it´s teachers.
The general belief is that there is a positive correlation between the medical student´s course-evaluation and the results on the examination. It is hypothesized the students learn more if you enjoy the education, the teachers and the course as a whole. There are institutions, which use the students rating as a quality index of their university and teachers for use in grant applications.
To investigate this hypothesis, we performed a study at the 6th term course, i.e. internal medicine of the medical programme, Sahlgrenska Academy, University of Gothenburg, Sweden.
The student´s course evaluations were correlated with the results at the final written exam. The participation rate was n=91 (60%).
The correlation coefficient (Pearson) between the question "I am in general satisfied with the clinical tutoring and education and what I have learned" and the written examination score was r= 0.30 (p=0.38). The correlation between the question "The pedagogic which was used during the course facilitated the optimal learning for me" was as low as r= 0.0072 (p=0.84).
The study clearly showed that there was no correlation between the course evaluation and the results at the written examination. It is most probable that the students' subjective evaluation is not a reliable tool, neither for measuring students´ learning, nor for the quality of teaching. The results are in line with those at a technical programme at the University of Linköping, Sweden (Öberg et al.).
Hence, there is no reason to draw any firm conclusion based on the students' course evaluation and gained knowledge, or the quality of the education, academic environment or the competence of the teachers, respectively. However, it is positive to offer a programme that is well accepted by the students.

5CC12 (1366)

The effectiveness of OSCE mentorship for Passing on OSCE UKMPPD : an Experience from School of Universitas Muhammadiyah Yogyakarta (UMY) in Indonesia

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Presenter: Nur Shani Meida, UMY, Yogyakarta, Indonesia

Background: Qualified and competent doctors in Indonesia has been produced for at least six years. At the end of their study they must be assessed by A High-Stakes National level examinationcalled UKMPPD (Uji Kompetensi Mahasiswa Program Profesi Dokter) to assure national health quality services. There was many ways to enhance skills and OSCE UKMPPD passing score. One of effort from school of medicine UMY is using mentorship.This study was conducted to analize whether OSCE mentorship can be effective to pass on OSCE UKMPPD.

This study used a pre-post experimental design with 153 participants who followed OSCE UKMPPD for period Januari-Oktober 2017. Pre-test has been held 1 month before final exam with local comprehensive OSCE. The mentorship conducted in 1 month with 20 times departemental expert lectures, 40 times regulated independent learning OSCE and one time for formative simulated OSCE with direct feedback. OSCE UKMPPD result has been recorded as a post-test. The data was analized using chi-square.

There were significantly increased between pre and post test (p 78) successfully passed this exam with lower increase of pre and post result (0,52;0,73). Generally there was improvement in passing score between local comprehensive OSCE and OSCE UKMPPD which was 54% to 98%.

Students must prepare for exams. This should include preparation countdown with keydates and preparation on finals. Therefore, School of Medicine UMY has conducted mentorship and the result showed that OSCE mentorship was effectively improves for passing on OSCE UKMPPD. A small discussion group, mentorship could bring motivational environment with constructive feedback and closely relationship between mentor and mentee.
You can try this method or combination of this.

5CC13 (457)

Team Work Competency Assessment (TWCA) during the first year medical school LifeStages course

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Presenter: Anuradha Lele Mookerjee, Cooper Medical School of Rowan University, New Jersey, USA

Background: Teamwork is a critical competency for health care professionals. There is lack of assessment tools to measure teamwork among medical students.

Summary of Work: We piloted Team Work Competency Assessment (TWCA) for 71 students. Nine active learning groups of eight students worked as a team for ten days to develop a clinical case with learning objectives and a structured facilitator's guide on an assigned topic from our LifeStages curriculum based on the biopsychosocial model. The case and facilitators guide were assessed by the course directors using a three-category rubric and was 40% of TWCA grade. Each active learning team conducted anonymous peer assessments using the Carnegie rubric which accounted for 20% of TWCA grade. The developed case was assigned to a different student team, charged with executing the case by developing their own learning objectives and corresponding content in a two hour CBL/PBL session. This case discussion was assessed by faculty facilitators using a 4-point rubric and was 40% of TWCA grade. A formative feedback and reflection session by the developer and executor teams closed the loop in the assessment process.

Summary of Results: The student scores ranged from 70 to 95%. Student reports showed that the challenge of case development and execution fostered a rich educational exercise in teamwork and empowered them as student teachers.

Discussion & Conclusion: The students benefited from this cooperative learning process. The students acted as cohesive team players and showed commitment to this practice. The multifaceted assessment rubric assessed higher order thinking and problem solving skills as a functional team.

Take home message: TWCA identifies communication, problem solving, and decision-making skills. Team Work exercise inspires cooperation, collaboration and partnership. Team work can be assessed in basic science courses in medical schools.

5DD: Posters: Faculty Development

Location: Hall 4.1, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

5DD1 (1343)
A place to grow - evaluating how a faculty development program enables improved teaching practices

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Presenter: Yvonne Carlsson, Sahlgrenska Academy, Gothenburg, Sweden

Background: In higher education, teachers often lack educational qualifications. To address this issue, an increasing number of faculties offer courses, often referred to as faculty development programs, to enhance teaching skills. Qualitative evaluations of these initiatives are rare, though necessary in order to better understand its impact on the participants, and ultimately to inform faculties aiming to enhance the quality of teaching. The aim of this study was to understand how a short course on teaching, called Teaching in Health Professions (THP) at Stellenbosch University, South Africa, enabled the participants to grow as teachers. Additionally, enablers and barriers in this development were investigated.
Methods: A qualitative approach was adopted since human experiences were in focus. Data was collected through ten individual, in-depth interviews, followed by a thematic analysis where patterns and themes in the data were search for.
Results: In the teachers' experience, the course enabled them to look at teaching differently, to change their teaching in terms of becoming more student-centered, to increasingly reflect upon their teaching and to engage in scholarship. Enablers to change were the course in itself, favorable working conditions, to belong to a community and personal motivation. Barriers to change were competing tasks, unfavorable working conditions, to be stuck in one's comfort zone and barriers on a structural level.
Conclusions: This study supports faculty development programs focused on teaching skills as a method to enhance teachers' growth. Additionally, it plausible that the course had a positive impact on the students, considering that student-centered teaching has shown to result in a deeper learning process. Furthermore, to ensure that shorter teaching courses apply a practical focus and are offered early in the career of its members seems pertinent. To create an enabling environment where teachers feel supported in their practice appears to be an important factor for teachers to grow and flourish.
Take-home messages:
- Teacher trainings contribute to teachers pedagogical development
- A practical focus of the course appears beneficial to the teachers
- There is a need for this place to grow.

5DD2 (134)
Developing a group based objective structured teaching evaluation program to improve clinical teaching skills for senior resident faculty and compared with an objective structured teaching evaluation program – a pilot study

Authors
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Presenter: Yi-Hsuan Hsiao, Changhua Christian Hospital, Changhua, Taiwan

Background: The objective structured teaching evaluation (OSTE) is an assessment method for clinical teaching skills of faculty members and residents. We developed a group based objective structured teaching evaluation (GOSTE) program for senior resident faculty and compared with an OSTE program.
Method: Both OSTE and GOSTE programs consist of four stations, including communication (telling the bad news), clinical skills evaluation (mini-CEX evaluation), case based discussion (CbD) and One-Minute Preceptor skills. Each scenario was presented by a video for the GOSTE program group and a standardized patient with or without standardized patients for OSTE program group. Each station in GOSTE program engaged 3 to 4 senior residents to test their performances in teaching abilities. In OSTE program group, each senior resident filled the checklist individually; in GOSTE program group, the checklist was filled by each senior resident after the video played. The group members discussed to gain a concise checklist and the group leader reported to the assessor.
Results: A total of 92 senior residents in OSTE and 98 senior residents in GOSTE from 2013 through 2017 were included. The scores for OSTE and GOSTE group in test of communication (telling the bad news) were mean value 76.7 (SD, 10.0) and 86.2 (SD, 7.4) respectively; p value is <0.001. In test of clinical skills evaluation (mini-CEX evaluation), the scores for OSTE and GOSTE group were 76.7 (SD, 10.1) and 89.3 (SD, 4.7) respectively; p value is <0.001. In test of case based discussion (CbD), the scores for OSTE and GOSTE group were 78.1 (SD, 12.2) and 79.3 (SD, 11.2) respectively; p value is 0.45. In test of One-Minute Preceptor skills, the scores for OSTE and GOSTE group were 82.3 (SD, 13.4) and 87.4 (SD, 6.9) respectively; p value is <0.001.
Conclusion: In the tests of communication (telling the bad news), clinical skills evaluation (mini-CEX evaluation) and One-Minute Preceptor skills, there were significantly higher scores in the GOSTE than in OSTE group.
Using a group based objective structured teaching evaluation in faculty development program could improve medical faculty teaching skills in selective scenarios.

5DD3 (2953)
Diffusing the Fear and Restoring the Faith in Upward Feedback via Project Princess

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Background: In Singapore, Master of Nursing graduates undergo a one-year internship as Advanced Practice Nurse Interns (APNI). To facilitate APNI training, a Faculty for APN Internship Training (FAT) comprising 7 senior APNs was set up in 2016. As part of faculty and program evaluation, trainees provided upward feedback to faculty members.

Method: We designed an online questionnaire for the APNIs to rate the faculty. Feedback was provided anonymously to maintain psychological safety for both learners and teachers. The questionnaire rated 7 domains: teaching skills (TS), clinical reasoning (CR), clinical knowledge (CK), teaching attitude (TA), provision of constructive feedback (CF), if the teachers stimulate and motivate the learners to learn (SM) and model professionalism (MP). Trainees were encouraged to provide comments.

An administrator aggregated the scores and anonymized each faculty member with a unique code name, using Disney Princesses. Anonymized scores (on 5-Point Likert scale) are presented to all FAT members. Each member is informed of her own Disney Princess identity, and can compare her scores with other faculty members' scores without feeling threatened.

Results: 10 APNIs rated the faculty. The average scores for the 7 faculty members were 4.2 (3.6-4.7) for TS, 4.3 (3.4-5.0) for CL, 4.2 (3.2-5.0) for CK, 4.4 (3.9-4.8) for TA, 4.3 (3.7-4.7) for CF, 4.3 (3.8-4.8) for SM, and 4.4 (4.0-4.7) for MP. The comments given were overwhelmingly positive and included: "she is very humble and experienced…guide us as a friend rather than a teacher", "goes the extra mile to teach students, has good teaching strategy" and "she is learning with us and always very reassuring…I had learnt a lot of communications skills from her".

Conclusion: We provided psychological safety for trainees by allowing them to feedback upwards anonymously. At the same time, we provided psychological safety for faculty and allowed them to benchmark themselves against fellow faculty by displaying the whole group's scores anonymously. This may encourage faculty to reflect on their own scores and promote self-improvement.

Take-home message: Providing a psychologically safe process of upward feedback is beneficial for both trainees and faculty.

5DD4 (2595)
Team Appraisal for Faculty Teams: From Effective Structures to Excellence

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Background: The Wales Deanery appointed Faculty Leads (for support of Trainees, Trainers and Quality) to each Local Education Provider in Wales in 2012 to work within their LEP in partnership with the Deanery to support, deliver and manage postgraduate medical training. Subsequently, 'Faculty Teams', comprising all relevant stakeholders in each locale (Faculty Leads, Assistant Medical Directors for Training, Foundation Programme Directors, Education Managers, Librarians, GP Programme Directors and SAS Tutors), were established to collaboratively support postgraduate medical training management.

Method: The Deanery introduced annual Faculty Team Appraisals in 2013 with the aim of supporting continuous improvement in Faculty structures and function. The initial objective was to understand organisational structures and systems within which Teams operated. 2014 Appraisals focused on development of Team structures and processes with performance appraised against five key elements of internal group processes. By 2016, factors impacting team function were explored aiming to measure team effectiveness through goal setting and review. 2017 Appraisals focused on identification and dissemination of best practice in Teams' operation and activity.

Results: Over five years Appraisals have facilitated seamless transition from considering organisational environments to demonstrating team effectiveness and generating excellence in training provision. Teams demonstrate increased cohesiveness and exhibit strengths including planning supported by a team approach, actively seeking opportunities for members' development, increased engagement with Deanery and local training structures and an environment in which a Team and constituent members are proactive and innovation is encouraged.

Conclusion: Outcomes include Faculty Lead participation in scholarship and professional development, stakeholder involvement in Team activity facilitating succession planning, use of training quality concerns as the basis for quality improvement projects (sometimes led by non-clinical Team members), and direct, measurable improvements in postgraduate medical training quality pursuant to achievement of Team objectives set via Appraisal. Implementation of Team Appraisals has supported the evolution of Faculty Teams from a position of uncertainty over members' roles and Team function to a mechanism for effective training support for within Local Education Providers and, increasingly, a source of excellence in postgraduate medical training management.

5DD5 (513)
Use of instant messaging software to promote faculty development courses - a regional hospital experience

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Background: Busy clinical work and lack of communication way of faculty development courses are the mean reasons why faculty development courses participation rates cannot be effectively improved, but the on-the-spot sense of the real curriculum cannot be replaced by online learning. Therefore, how to effectively increase the participants number of real curriculum is an important issue.

Method: Our institute set up faculty development center to develop programs in 2008. At the beginning of the faculty development center, faculty development courses use different ways to attract colleagues to participate in the curriculum like provided meals, posted course poster, etc. But the number of students in each course has been maintained between 20~30.

Results: After discussion, attempts to use e-mail to inform the relevant messages have not increased attendance. Until the use of instant messaging software to publish the course information and invite participants to join the course communication group, so that when the new courses are notified again.

Soon, this approach has been effective. The number of participants increased to 100 ~ 150 people, the effect is very significant. After improving and increasing the propaganda mode of the faculty development courses, the number of participants increased dramatically to 5 ~ 8 times of the original number.

Conclusion: Excellent faculty development courses are designed to train senior medical professionals as clinical instructors for graduate clinical training. Convenient notification and two-way communication platform to release the courses related information, so that more senior medical staff can receive relevant information, further acceptance of relevant training

Take-home message: Immediate and fast messaging is crucial to the promotion of faculty development courses.

5DD6 (2711)
A Reflective and Longitudinal Faculty Development Program (FDP): Yeditepe University, School of Medicine FDP

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Background: Yeditepe University, School of Medicine FDP has been maintained since 2014, under the responsibility of the Department of Medical Education.

Method: The aim of this study is to share the development process which based on the curriculum development model, "ADDIE" and the program evaluation results of the YFDP. During the analysis phase; the strengths and weaknesses of our faculty, students' feedback results, educational needs assessment results of faculty members, learners' characteristics and educational environment are investigated. The results showed that there was a need for faculty development, especially for skills regarding the following six roles and responsibilities. 1. Teaching 2. Assessment 3. Planning and evaluation 4. Coordination skills 5. Academic counseling 6. Communication and professionalism.

At the design phase each of the above topics became an educational module. We've added as the seventh module "reflection". Adult learning principles have been taken into consideration during the process.

Instructional materials such as session plans, blog site etc are developed.

Twenty faculty members were involved into the first two modules. The program took 9 months, one unit each month.

Program evaluation covered oral and written feedback (feedback forms), evaluation of factual knowledge (pre-post tests) and applied knowledge (learning tasks). Additionally a qualitative study is aimed to evaluate at which level the participants have reflected the YFDP outcomes to their daily educational practice.

Results: The average scores of the participants regarding the written feedbacks of the first two modules were analyzed. We established that the score of "contribution of trainers to learning" (2.9) was highest. The lowest score was about "time use of instructors" (2.5) and instructional environment (2.5). The highest possible score is 3.

The average of the pre and post test scores of the participants are 46.2 and 83.4 respectively.

Conclusion: YFDP is recognized by our instutition as an essential support framework. It enhances faculty members' attitude in responding to the challenges of their multiple roles and evolving responsibilities.

Take-home message: Successful faculty development program will require attention to and efforts on observing the changing behaviors of the faculty members and giving them opportunity to reflect on their own behavior.

5DD7 (813)

Investigating faculty intentions to adopt active learning methods in instructing difficult nephrology topics to immediate postgraduate medicine learners

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Background: Internal medicine (IM) postgraduate learners face challenges mastering complex nephrology tasks resulting in general apathy towards nephrology. Although substantial evidence points to the effectiveness of active learning (AL) in promoting learning, its adoption by nephrology faculty remains low. Further, AL adoption in an Asian and postgraduate competency-based learning context has not been well studied. In this explanatory quantitative study, the Theory of Planned Behaviour (TPB) constructs were used to examine nephrology faculty AL-behaviour.

Method: Nephrology faculty involved in teaching IM PGY1-3 at 6 sites within Singapore 3 ACGME-I programs were surveyed by purposive sampling using a 28 5-point Likert item validated questionnaire describing 12 decomposed TPB constructs. Descriptive, correlation and regression statistics were used to interpret the faculty attitudes, subjective norms (SN), perceived behavioural control (PBC) and intentions towards AL adoption.

Results: The sample (N=49; response rate 60%) comprised 43% females and 35% holding leadership role (program director or core faculty member). Median (IQR) age and experience were 39 (10) and 6 (9) years respectively. AL was interpreted as self-directed learning, interactive lectures and case-based learning by 49, 43 and, 6% respectively while 4% had no idea about it. Electrolytes and acid-base disturbances, transplantation and glomerulonephritis were deemed difficult areas by 76, 63 and 49% respectively. Only 59% taught these topics >once/year. AL behaviour was integrated by 55%, while 71, 75 and 63% harboured AL intentions, attitude and PBC. Only 26% felt SN in the form of peer influence had an impact. Faculty in leadership, with >5-year experience and teaching >once/year were better AL adopters (OR 2.44 (CI 0.93-6.41), 1.69 (CI 0.92-3.31), 2.36 (1.25-4.48) respectively). There was a strong correlation (Spearman rho >0.6) between attitude and intention but not SN and PBC. However regression analysis did not show significant attitude-intention predictability.

Conclusion: Nephrology faculty has a varied notion of AL and difficult nephrology topics. More experienced faculty and those in leadership roles are more likely AL adopters. There is a strong association between faculty attitude and AL intention.

Take-home message: AL-focused faculty development initiatives should therefore be customised to individual faculty specificities.

5DD8 (579)

Early Experience with an Interactive Faculty Development Program with an OSTE

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Background: Tremendous changes in medical education, (e.g. Milestones), have necessitated greater emphasis on faculty development. We sought to develop a short, interactive program to meet faculty development needs of multiple specialties and study its impact.

Method: An institutional educational needs assessment was sent to teaching faculty, and learning environment surveys were sent to residents and medical students in 2016. Priorities were to effectively teach in busy settings, assessment of performance by direct observation, providing effective feedback, and procedural teaching. A 2 day course, including a half day Objective Structured Teaching Encounter (OSTE), was developed. All modules included lecture, small group discussion, role play with feedback, and self reflection. The modules were: Assessing Performance, Giving and Receiving Feedback, Difficult Feedback Conversations, One Minute Preceptor, Teaching Procedural Skills, and Coaching/Advising/Mentoring. The OSTE consisted of 3 stations. Participants completed a self-assessment of confidence in performing a variety of faculty tasks before and after completion of the course. Other assessments included post course satisfaction survey, OSTE checklists, and the development of an individualized learning plan (ILP). The pre/post self-assessment of confidence was analyzed using linear regression.

Results: To date, over 2 monthly sessions, 13 voluntary participants from a variety of specialties completed the course. Pre/post self-assessment of confidence improved significantly in the following: teaching in time compressed settings (p=0.036); providing constructive feedback (p<0.001); assessing performance based on direct observation (p<0.001); mentoring learners (p=0.025); advising learners (p=0.001); coaching learners (p=.028); developing an ILP (p=0.006); and overall (p<0.001). No change was seen in confidence at bedside teaching (p=0.36), ambulatory teaching (p=0.228), and teaching procedures (p=0.072). All participants successfully completed the 3 OSTE stations.

Conclusion: This quasi-experimental analysis of participant self-assessment of confidence in performing a variety of faculty tasks, and OSTE completion, demonstrated short term improvement after participating in a new faculty development workshop. This study was limited by a small

number of participants to date, limited short term outcome measures, and lack of a control.
Take-home message: Short term improvements in a variety of faculty tasks were seen after an interactive 2 day faculty development program with an OSTE.

5DD9 (1308)
Bedside teaching as an Entrustable Professional Teaching Activity?

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Background: Teaching at the bedside is an invaluable tool in medical education. Much knowledge acquired at the ward is taught by faculty or senior residents. However, they are usually not specifically trained in delivering bedside teaching.
Method: This pilot project examined the possibilities to put the requirements for successful bedside teaching in a framework. Entrustable Professional Activities (EPA) have previously been suggested a suitable framework for teaching activities[1]. The EPA format includes title, specification and limitation, links to a competency framework, required Knowledge, Skills and Abilities, information needed to assess, level of supervision and expiry date of entrustment, but not all apply.
The literature defines bedside teaching with its basic requirements. A planned and deliberate approach promotes effective learning, and teaching should include establishing a safe learning environment, observing the learners and giving timely feedback[2]. Bedside teaching itself can consist of a broad spectrum of actions including skills in history taking and physical examination, but also how to perform a new clinical skill (eg lumbar puncture) or teaching how to use medical equipment (eg ultrasound or mechanical ventilator).
The diversity of actions makes it complicated to define an EPA encompassing all bedside teaching alike. We believe however, that every form of bedside teaching should meet with basic criteria of "bedside teaching hygiene".
Results: After selecting and informing the patient or family and obtaining consent (1), the students are informed (2). Then the bedside teaching is performed (3) followed by debriefing, preferably including provision of feedback by students and patient (4).
The bedside teacher should act as a role model for students, both in knowledge, professionalism and communication while recognizing the level of the students.
Conclusion: This reconnaissance shows that bedside teaching, although consisting of many different activities can be defined as EPA with potential benefit for faculty, students and patients. If teachers must be certified, Bedside teaching may be a suitable EPA.
Take-home message: Bedside teaching can be defined as an EPA which can lead to better teaching.
[1] *Dewey CM et al. (2017) Medical Teacher;39(8):894-896*

[2] *Ker J et al. BMJ 2008;337:a1930*

5DD10 (1232)
Capacity development indicators for faculty development programs: a narrative review

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Background: A major goal for faculty development is organizational development and one of the key processes is capacity development. Capacity development has been loosely defined as the ability of organization to use resources effectively, achieve goals and improve performance. There is a practical need to identify the indicators of capacity development in the context of faculty development programs and this narrative literature review is the first to systematically identify these indicators.
Method: A systematic search was carried out in Medline, ERIC, Web of Science, Scopus and EMBASE databases from 1980 to 2017. A total of 874 articles were initially identified, with 20 included in the review based on title/abstract and full text. In total, 230 indicators of capacity development were extracted and were categorized into subcategories and themes.
Results: Six themes were identified: developing innovations in teaching and learning; developing and advancing scholarship; developing effective leadership and management; developing clinical practice; developing linkages, collaborations and partnerships; and developing and sustaining faculty development. Innovative teaching methods, changing attitudes toward scholarship, developing policies to support faculty development were important subcategories. Indicators related to linkages, collaborations and partnerships were the most frequently mentioned indicators of capacity building in the context of faculty development programs.
Conclusion: Faculty development impacts organizational development through indicators identified in this review. Policy makers and planners may benefit of the results of this study to enhance the impact of faculty development programs on both participants and their institutions.
Take-home message: Faculty development programs must move beyond delivering content to individual faculty towards becoming a facilitator of organizational improvement.

5DD11 (209)
Old dogs can learn new tricks!

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Background: Psychological studies have shown that older adults are more set in their ways and less receptive of feedback to effect changes. We studied whether changes in faculty performance in response to resident feedback were different between senior consultants (SCs) and their younger non-SC colleagues.
The hypothesis is that SCs are older and are less receptive to feedback to effect changes and thus any significant improvement in faculty performance is due to the non-SC group.
Method: We compared the mean scores of our residents' feedback assessment of the SCs and non-SCs in our faculty between 2 consecutive years. The feedback assessment consisted of 10 questions with Likert score of 1 to 5. Five questions pertained to attitude towards teaching, 3 to teaching skills and 1 to knowledge. The final question was an overall assessment.
Results: We had 9 SCs and 15 non-SCs in our faculty. Median age was 52 (range 42-60) years versus 25 (range 32-49) years in the SCs and non-SCs respectively (p<0.001). Median number of years post-graduation was 25 (range 17-36) years versus 13 (range 8-25) in the SCs and non-SCs respectively (p<0.001). There was a significant overall improvement in the feedback assessment score (4.38±0.47 vs 4.69±0.38, paired t test p=0.037) with no significant difference in the extent of improvement in the SC and non-SC groups. The individual questions in the residents' feedback assessment form encompassing the faculty's teaching attitudes, skills and knowledge all showed significant improvement (Kruskal-Wallis p<0.001).
Conclusions: The extent and areas of improvement in the performance of the SCs in response to resident feedback were similar to that of the younger non-SC faculty. Contrary to popular belief, SCs can also accept feedback and change their teaching attitudes, skills and knowledge as readily as the younger faculty members.

5DD12 (3281)
Integrated faculty development program on holistic care and leadership may reduce work-place burnout

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Background: The education domain in our hospital for interprofessional collaborative patient centered care included professional knowledge, evidence base practice, patient safety, communication, team resource management (TRM), interprofessional collaboration (IPC), palliative care and chronic long term care. However, there was few integrated interprofessional practice educational model in the literature.
Method: We developed a two-day faculty workshop composite of mindfulness, communication, TRM, IPC and basic teaching skills in 2016. 92 participants including doctors, dentists, traditional Chinese medicine doctors, senior nurses, pharmacist, physical therapist, occupational therapist, speech therapist, medical technicians, dietitian, respiratory therapist, hearing therapist completed two-day course. After workshop, attendee was requested to give lecture upon holistic medicine at least once per year and to facilitate holistic issue discussion in case-discussion meetings at least twice per year. Furthermore, we investigated burnout level upon these clinical teachers via yearly questionnaire.
We held faculty development workshop on holistic care in 2016. 97% of attendees gave lecture and 89% of them became facilitator in holistic care discussion. Burnout level was assessed through Copenhagen Burnout Inventory during June to July every year.
Results: 81 participants completed first year questionnaire and 91 participants completed second year questionnaire.
Conclusion: The results showed nurses had the highest personal burnout scores and work-related burnout scores among physicians and other health professions. The percentage of high risk group faculty decreased in the second year.
Take-home message: Integration of mindfulness, communication, TRM, IPC and basic teaching skills not only could increase faculty's confidence education upon holistic care in daily practice, but also could reduce burnout level in high risk group.

5DD13 (2982)
ABEM's Faculty Development Programme

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Background: One key aspect in medical education is faculty development, because it is essential to support changes in medical curriculum. It is necessary to prepare teachers and physicians to act as facilitators in the learning process. Brazilian Medical Education Association (ABEM) has experience offering courses to teachers and medical doctors in many fields of Education.
Method: The purpose of this paper is to present some results of courses offered and strategies adopted to prepare preceptors (tutors and supervisors) as part of ABEM's faculty development program, since 2010. The courses were meant to prepare health professionals to be preceptors for internship of medical undergraduate courses and medical residency, and were developed both in distance education and presential meetings, in partnership with Universities, in eight regions of Brazil and in two editions. These courses had financial support of Ministry of Health and PAHO.
Results: Results of two courses were: (1) 20 Universities participated and certified the students; (2) 80 tutors (course instructors) were trained; (3) 874 health professionals (preceptors) were certified. Tutor's training was not certificate as CPD course. Database of tutors and students were fragmented in the 20 Universities. Based on results of two editions, the third one was planned to increase number of preceptors and improve the distribution of formation centers to reach all Brazilian states. The selection process of tutors, and implementation distance learning using Moodle was done by ABEM. The third course was validated by Ministry of Education and Health, PAHO, Federal Council of Medicine and Brazilian Association of University Hospitals.
Discussions & Conclusions: Teaching learning methodology of the third course was student centered and based on students needs. ABEM's Faculty Development Program is becoming more comprehensive, aiming to prepare health professionals as well as teachers of Medical Schools to act as preceptors in internship and medical residency. Faculty Development Programs are encouraged in all medical schools, by the national guidelines and are supported by ABEM.
Take-home message: Planning faculty development programs needs to be incorporated by all stakeholders of the school to improve medical courses.

5DD14 (2826)
Establishing a community of practice for a new medical curriculum

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Background: For the newly developed bachelor in human medicine at ETH Zurich we have highly motivated and knowledgable lecturers. So, we focus on nurturing a community of practice to share information and experiences around the curriculum to establish a well-connected faculty.
Method: The teaching philosophy was generated together with all stakeholders. Newsletters and an online portal provide all information about the project to build up a new curriculum. The curriculum database LOOOP supports the exchange of information on the curriculum and the alignment of learning outcomes, instructional design and assessment. Informal happy hour education meetings provide opportunities to share information and inputs on innovative teaching approaches by experts in higher education. Interactive workshops between the semesters allow faculty to share experience from the past courses and ideas for the upcoming semester. There is also room to instruct faculty on new tools and resources, and to answer individual questions face-to-face.
Results: Within this first year of implementing faculty development we could already observe a growing participant rate in our regular meetings. Lecturers contribute actively in the meetings e.g. by providing feedback on their courses and by sharing experiences on educational methods and tools. As an example, the flipped classroom approach with weekly topics around a case was adopted by the nerve system team after discussing with the lecturers from musculoskeletal system during a happy hour education meeting. Our faculty is encouraged to pilot innovative teaching approaches without fear for failure, but fun for teaching e.g. with the instructional design for doctor-patient relationship or with a collaborative "eSkript" to document the results of a moderated session on diseases.
Conclusion: Instead of taking a remedial view of faculty development we feel faculty can learn from each other in a community of practice. Growing participant rate and positive first feedback shows that faculty are interested in contributing.
Take-home message: A community of practice among faculty in a curriculum can deliberately be established and nurtured.

5DD15 (2418)
From individuals to teams: A proposal to understand faculty development impact in the workplace

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Background: We present the evolution of faculty development (FD) planning at National Neuroscience Institute (NNI), Singapore. From studying FD impact on individual participants, we plan to examine FD impact on collaborative practices in the workplace.
Method: In Phase 1 (2013 to 2017) of our annual Education Day, half-day workshops involving doctors, nurses, allied health professionals, researchers, faculty and residents focused on three Academy of Medical Educators (UK) domains: Teaching and Facilitating Learning (Engage), Assessment of Learning (Assess), and Designing and Planning Learning (Design). These sessions were facilitated using Kolb's experiential learning theory and four-stage cycle of learning where participants were taught using a combination of pre-readings, didactic teaching, active experimentation and reflections.
Results: A total of 248 participants attended 2013-2017 Education Day. Participants scored 4.4/5 for "relevance of topics", 4.2/5 for "learning about medical education" and 4.5/5 for "learning about other health professionals". Participants' qualitative comments included the following: "well balance topic and good mix of people", "good interaction and teamwork", and "I have learnt through the different groups sharing". Reflections and action plans by participants included: "I will encourage pre-reading and post teaching reflections", "I will use different teaching methods depending on the learner", and "I will be more active in giving and asking for feedback".
Conclusion: Our FD program seemed to be effective for individual participants. However, to produce generalizable knowledge that can guide future FD, we need to apply Irby & O'Sullivan's expanded FD model and evaluate our program's impact on two communities of practice: the community among participants in FD programs, and how their learning together facilitates collaborative practice in the workplace. Thus, in phase 2 (2018 to 2022), we will continue to run our annual Education Day addressing the Engage, Assess, and Design domains. The difference will be that our lesson plan will utilize a conceptual framework comprising shared mental models and knowledge construction to understand how teams learn and collaborate in the workplace. Constructivist grounded theory will inform our data collection and analysis procedures.
Take-home message: Faculty development efforts need to address impact on workplace practices.

5DD16 (1487)
When clinicians become teachers: a long-term outcomes of faculty development

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Background: Clinical teaching is not by default especially in the institutions where medical services used to be the primary focus. Since the implementation of the Collaborative Project to Increase Production of Rural Doctor (CPIRD) in 1995, the faculty development program was carefully planned and carried out over the 20 years period to ensure that all clinicians in the hospitals with new medical education centers (MEC) were qualified in their new roles as clinical teachers. This study aimed to report long-term outcomes of the Essential Course for Medical Educators (ECME).
Method: ECME is a year-round program comprises six 3-to 5-day workshops. The program was designed based on 3 concepts: integration of the existing courses with the new ones, feasible for busy clinical teachers, fostering in-depth knowledge. The themes were teaching and learning, curriculum development, instructional design, assessment and medical education in practice. All participants must attend at least 80% of total times and complete 12 out of 22-25 assignments to receive a certificate. The program was evaluated based on Kirkpatrick model. An online questionnaire was used to assess long-term outcomes at year 4 since the beginning of the program.
Results: Over the 5-year period since 2013, there were 183 participants from 37 MEC and 6 medical schools. The completion rate was 74%, 50%, 69% and 83% from 2013 to 2016 respectively. The program received high students' satisfaction in content delivered, lecturers and usefulness of assignments. All responders will recommend the program to their colleagues. 60% of all responders are in executive positions, 62% completed up to 6 medical education research and 87.3% created up to 10 e-learning modules and study guides. All reported that they gained knowledge and changed their teaching practices, 97% were more confident in teaching roles, 95% could be consultants to colleagues, and 84% played major roles at an institutional level in medical education. Seventy-three and 71% observed some changes at an institutional level of teaching practices and assessment process.
Conclusion: Long-term evaluation showed positive outcomes both personal and institutional levels in various aspects including leadership, changes in practices, and creating learning tools and research.

5DD17 (1832)
Impact of a 'Leaders in Higher Education' workshop at AMEE 2017

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Background: Within medical education, faculty development, particularly focusing on leadership within medical education is a growing field of research. Evidence suggests that leadership training interventions are well received, however evaluation is not often theoretically grounded.

This study aims to investigate the impact of attendance at a brief career development workshop during AMEE 2017. An additional aim is to uncover whether components of the Theory of Planned Behaviour and goal setting predict whether intentions to alter behaviour formed during or immediately following the workshop are actually carried out by the individual.

Method: All attendees of a workshop during AMEE 2017 (run by Stephanie Marshall CEO of the Higher Education Academy (HEA) in the UK) were invited to complete an online questionnaire which examined attitudes towards making changes to forward their careers, what control they perceive they have over such changes and their perceptions of the views of others towards them forwarding their career. The impact of these factors, goal setting and the workshop content on their career in the 6 months following the workshop were examined. Quantitative data was analysed using appropriate statistical techniques whilst qualitative responses were analysed using thematic analysis.

It is predicted that the attitude the attendees have towards forwarding their careers, their perceived control over career changes and the perceived beliefs of those around them towards their careers will influence intention to forward their careers. It is also predicted however, that goal setting will be the major factor to predict whether any action to forward their careers has taken place.

Conclusion: The evidence presented can be used to inform the format of future faculty development workshops, specifically the value of ensuring goal setting occurs within development workshops. The evidence also highlights the importance of evaluating the impact of faculty development workshops.

Take-home message: Faculty development workshops should be evaluated to assess their impact and inform future development.

5EE: Posters: Formative Assessment and Feedback

Location: Hall 4.1, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

5EE1 (3276)
Students' and examiners' feedback of Objectively Structured Clinical Examination: a Caribbean experience

Authors

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Presenter: Md. Anwarul Azim Majumder, Faculty of Medical Sciences, The University of the West Indies, Cave Hill Campus, Bridgetown, Barbados

Background: Objective Structured Clinical Examination (OSCE) is used in medical education for assessing students' clinical competence in a more comprehensive, consistent and structured manner.
Method: Final year MBBS students of the Faculty of Medical Sciences, The University of the West Indies, Cave Hill Campus, Barbados, were assessed by OSCE for the clinical competencies in Medicine and Therapeutics course. At the end of clinical exam, students and examiners were provided with feedback questionnaire to obtain their views and comments about the OSCE.
Results: A total of 52 students and 22 examiners completed the questionnaire. Majority of the students provided positive views regarding the attributes (e.g. exam was fair, well administered, well-structured and well-sequenced, and wide knowledge area and clinical skills covered), quality (e.g. fully aware of the nature of the exam, instructions were clear and unambiguous, tasks asked to perform were fair and sequence of stations logical and appropriate), validity and reliability of OSCE (e.g. scores provide true measure of essential clinical skills, scores are standardized, practical and useful experience), and perceived organization of the OSCE (e.g. orientation, timetable, announcements and quality of exam rooms). Majority of the examiners also satisfied with the organization and quality of the OSCE.
Conclusion: Overall, OSCE was perceived very positively and welcomed by the students. Students mention certain negative views such as stress and difficulty, however these could be overcome through better orientation and preparation of the students.
Take-home message: Students and examiners are satisfied with the overall organization and quality of the OSCE; however, students' stress and difficulty associated with OSCE can be overcome by orientation and preparation of the students.

5EE2 (2100)
Assessing validity of multisource feedback in a international medical education programme in a southern Taiwan hospital

Authors

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Presenter: I-Ting Liu, Department of Family Medicine, Department of Medical Education E-Da Hospital/ I-Shou University, Kaohsiung, Taiwan

Background: There are increasing international medical education programmes developed to improve global health and strengthen cross-country cooperation in public health. This is the first study to assess the validity of multi-source feedback (MSF) for international medical students and assessors selection bias in a transcultural environment with significant language gap.
Method: This study is conducted with a 4 -year graduate-entry course in medical offered by a teaching hospital in Taiwan (E-DA). Students came form africa, middle/south america, caribbean, pacific islands. Chinese Sheffield Peer Review Assessment Tool was used as MSF. There are 14 assessors included faculties, residents, nurses and standard patients.
Results: 216 MSF were collected from 32 international medical students. Construct validity of MSF was proved by mutiple linear regression after adjustment for age, gender, language and nationality of the trainees. Patients (b=0.574, p=0.027) rated trainees most positively, followed by nurses (b=0.508, p=0.039), residents, faculties. MSF score was found to correlate with mini-CEX (r= 0.169, p=0.018), which shows MSF is measuring expected construct.
Conclusion: Our results showed patients tended to rate trainees most positively, followed by nurses, residents, faculty assessors which provide evidence of construct validity of MSF. Patients and nurses rated trainees significantly higher than faculties. One of potential explainations is halo effect, which is the tendency to give "global perception" rather than assessing a specific construct. Another is leniency bias which means raters'

confidence in their abilities may change their standard for scoring.

Take-home message: Our results showed patients and nurses rated trainees significantly higher than faculties, which provide evidence of construct validity of MSF in assessing international medical students with language barriers.

5EE3 (3093)
Postgraduate students' perceptions of assessment feedback: A case study of a Clinical Dermatology Masters course

Authors
Sofia Hadjieconomou
Hamish Cox
Michal Tombs

Presenter: Michal Tombs

Background: Students' perceptions on feedback have been explored by a large number of studies in recent years. The growing interest to understand students' perceptions originated from dissatisfaction scores reported on student surveys. Although undergraduate students' perceptions have been explored extensively, only a limited number of studies have been completed with postgraduates. This qualitative study explored the perceptions of taught postgraduate students enrolled on a Clinical Dermatology Masters Course.
Aims: 1) To understand students' perceptions regarding their received feedback; 2) to inform the literature on the perceptions of taught postgraduate students and; 3) to inform local stakeholders of the Masters course.
Method: Critical Incident Technique (CIT) was used via semi-structured interviews to allow an in-depth investigation of participants' perceptions. Ten students participated in the study with one dropping out, providing a total final number of 20 CITs.
Results: Content, process and outcome were the three higher-order themes that resulted from a thematic analysis. Moreover, the analysis indicated likes and dislikes expressed by students. A preference was expressed towards feedback where content was: specific and clear, used positive tone of language In terms of process, students valued feedback that reflected their grades, was individualised and delivered in a standardised format, where the marking criteria was explicit and when feedback promoted dialogue. Depending on the type of task students received feedback for, both delayed and immediate feedback was perceived as effective. Effective feedback was linked to increased confidence and improvements in future assignments. Students disliked feedback that was provided by anonymous graders, related to grammatical errors and contained personality judgements.
Conclusion: Educators and programme directors should consider the content, process and outcome of feedback when working with postgraduate students. Early recognition of students' preferences is advised to maximise their learning experience.

5EE4 (3702)

ARLO - Asynchronous Repetitive Learning Opportunities in a medical trainee environment

Authors
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Presenter: Jerry Maniate, University of Toronto, Canada

Background: Feedback plays an integral role in training environments. Feedback plays a vital role in learning and retention of knowledge. The role of formative and summative feedback has been extensively studied in undergraduate medical education and, to a lesser extent, in postgraduate medical education. The nature of feedback in undergraduate medical education has been well described (Erikson) and ranges from OSCEs and simulation to ITERS and one-on-one feedback. As training environments continue to evolve and move beyond the traditional clinic format, it is essential that forms of feedback that support these nontraditional forms of environments are also developed. During the development of these forms of feedback, it is important that multiple factors be considered. These factors include: the training environment, the level of the trainees, the type of training (face to face vs distributed), and the training topics.
Method: The purpose of this project was to describe the role and nature of feedback in the medical education continuum and how it is evolving as the medical education continuum evolves towards a competency based curriculum.
Results: The role of formative and summative feedback has been extensively studied in undergraduate medical education and, to a lesser extent, in postgraduate medical education. In terms of continuing medical education, the role and nature of feedback is less rich. In order to enrich the discussion regarding feedback in continuing medical education, experts in the field are being surveyed to see if the themes that were identified resonate and reflect the current status of the field.
Discussion & Conclusion: As medical education moves towards a competency based format and away from a traditional training environment, the role and nature feedback will need to be described and developed to complement the changing environment. It is important that medical educators create feedback modalities that compliment and support the training environments that emerge.
Take-home message: The evolution of medical education emphasizes the importance of understanding the role and nature of feedback across the continuum. This understanding is vital to ensure that feedback is used effectively to support the training environments that are developed.

5EE5 (1661)
Diversity of narrative feedback (NF) of formative comprehensive examination (FCE) in medical students in tertiary care hospital

Authors
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Background: Narrative feedback (NF) referred to students comments, in writing to assess the performance. The comments could be any aspect including contents and skills, interactions with peers and professionalism. The comments should be based on individual, small groups and used in formative assessment, to improve their performance through reflection strengths and weakness. Recently, NF became more familiar used because of it opened in opinion to explore in-depth information. Combination of using NF, group NF (gNF), formal constructive questionnaires and online feedback (FQF) to reflects student assessment in post FCE compared to tradition. The context of NF included all dimensions of history taking, physical examination, counselling, communication, procedural skills, attitude.
Method: Twenty eight of 6th year medical students after complete FCE were assigned to individualized NF using A4 paper by writing their own opinion (Station 1; NF), formal constructive questionnaires and online feedback (station 2; FQF), group of three students with one A4 paper of NF (Station 3; gNF). Each station were 15 minutes. The results of three stations were analyzed in-deep appraisal in both contents and learning inspiration.
Results: The NF expressed in pictures and narrative wording of students knowledge, learning methods, in-confident, fearful and stressful in FCE, frightened with real patients, emotional stress, failure to prepare or competency, frightened and excited of the bell time of OSCE. While gNF received more details of story-telling, connection thought between other students, creativity to empower their peer. They also drawn the picture of plant grown up, in cartoons styles, sitting in the safe atmosphere and expressed in empowerment of Thai idiom, even though pressure of recent examination. Students appreciated in both NF and gNF with more satisfaction scores.
Conclusion: Various tools in feedback method can be combination used to get the more details of learners. FQF get information of trends, and numeric results, NF get more information of emotions while gNF get in-deep of power of creativity and effort the leaning groups to meet the goals.
Take-home message: Diversity of feedback methods contributed to various and different perspective views of the learners in medical evaluation.

5EE6 (2031)
Effect of Direct Feedback on Success Rate of Pediatric Intubation in Final Year Medical Students

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Presenter: Woranart Ratanakorn, Chonburi Hospital, Chonburi, Thailand

Background: Pediatric airway anatomy differs from adult anatomy in multiple significant ways, making intubation of a pediatric patient a unique challenge to medical personnel. In Thailand, last year medical students perform intubation at varying degrees of frequency and may not have access to training opportunities to reach competency in the skill. Simulation-based interaction demonstrated improvement in intubation performance, while also decreasing instances of harmful actions. Hands-on practice with pediatric mannequins with one-by-one direct feedback may ameliorate success rate on pediatric intubation.
Method: Forty final year medical students were randomly divided into two groups. First group was trained by simulation-based interaction plus one-by-one direct feedback, while second group was trained by simulation-based Interaction only. Objective Structured Clinical Examination (OSCE) and self-evaluation was used to assess efficacy of intubation skills and student's confidence respectively. Successful intubation was defined as placement of the endotracheal tube in the trachea within a duration of 30 seconds in the first-attempt.
Results: The group with direct feedback had success rate on pediatric intubation of 65% compared to 34.38% of no direct feedback group ($p < .05$). The average time to first successful intubation was 30.78 VS 43.18 second in group with and without direct feedback respectively. The group with direct feedback reported more confident significantly based on 0-2 scale (0.95 VS 0.61, $p < .05$).
Conclusion: Direct feedback is the interactive method leading to gain more experience and motivation. Using hands-on practice with one-by-one direct feedback demonstrated enhancement in first-attempt and overall pediatric intubation success.
Take-home message: Direct feedback is essential tool to promote learning.

5EE7 (347)
Peer Feedback: A Mixed Methods Analysis of Quantity, Quality and Content Over Time

Authors
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Presenter: Nathalie Zgheib, American University of Beirut Faculty of Medicine, Beirut, Lebanon

Background: Despite the obvious role of feedback in effective learning, a common complaint from students is that they do not receive enough helpful (or quality) feedback defined as being descriptive and not evaluative, specific, relevant to their needs, and usable. The aims of this study were to evaluate the quantity and quality of written comments provided by medical students to their peers at different time points, describe the prevailing themes, assess whether the peer feedback process is useful to students, and examine how it can be improved.
Method: Quantitative analysis of peer comments of two different medical school classes at three different time points was carried out. Prevailing themes were also extracted, and 4 focus groups were conducted.
Results: There was a notable deficiency in both the quantity and quality of the peer comments. Prevailing themes were personality traits, contribution or participation, and cognitive abilities. Several factors were identified, including some that are logistical and operational and can be corrected easily, such as timing of the assignments and the need to provide more training. Other factors stood out as major substantive limitations, and these can be summarized in three broad themes: 1) the students' misunderstanding of the meaning, purpose and process of feedback, 2) the idea that students are a cohesive group that wants to support each other, facing an Administration that they do not fully trust, and 3) the preference for either anonymously written or oral face-to-face communication.
Conclusion: This study provides important insights into the behavior and views of medical students as regards giving and receiving peer feedback. Findings suggest the need for further training and periodic reinforcement, continuous monitoring and advice from mentors, a trusting relationship with the Administration and assurance of a "safe" environment, a culture of openness, tolerance and forthrightness, and demonstration of how beneficial feedback can be.
Take-home message: Students misunderstand the meaning, purpose and process of peer feedback. They are a cohesive group that wants to support each other, facing an Administration that they do not fully trust. They prefer face-to-face oral communication over anonymously written feedback.

5EE8 (336)
Utilising a wasted resource at conferences: The Online Audience Feedback Platform

Authors
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Jessica Gallagher, Severn Foundation School, Bristol, UK
Clare van Hamel, Severn Foundation School, Bristol, UK

Presenter: Maisie Shrubsall, Severn Foundation, Bristol, UK

Background: People want more feedback, but often don't receive it because of the time and resources required to provide it. At conferences, there is a potential wasted resource for providing feedback to presenters: the audience.
Method: We trialled an Online Audience Feedback Platform (OAFP) for audience members to provide feedback to presenters at the National Foundation Doctors Presentation Day (NFDPD) on 13th January 2018. NFDPD is an annual conference where Foundation Doctors are invited to present research and Quality Improvement Projects they have undertaken. The online feedback platform was created on the open access website Padlet™. A homepage outlined the idea and lists the 19 oral presentations at the conference; each presentation then had an individual page where audience members can post feedback during and for 10 days following the conference. The idea and link were shared with attendees via email, flyers, posters and a presentation at the start of the conference. Quantitative and qualitative analysis of the feedback left on the platform will be undertaken. Audience members and presenters' views of the platform itself will be collected via the post-conference survey.
Results: A total of 203 comments were left on the platform across the 19 presentations. The number of comments left per presentation ranged between 3 and 27 (mode=8, mean=10.7). Qualitative analysis of the feedback left on the platform will be undertaken and the findings of the post-conference survey will be presented.
Discussion & Conclusions: The platform was well utilised and all presenters received feedback on their work. Qualitative analysis of the feedback provided for presenters, and audience members and presenters views on the OAFP itself, will be presented and used to inform how the OAFP can be improved for future conferences.
Take-home message: Presenters at conferences put a lot of time and effort into their work, but don't always receive the feedback that they want and need to improve in future. We propose that utilising the time, knowledge and experience of the audience at a conference to provide feedback for presenters will improve the experience and learning for both parties.

5EE9 (2353)
Online formative evaluation: a tool to improve learning outcome

Authors
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Presenter: Pakwimon Subhaluksuksakorn, Institute of Medicine, Suranaree University of Technology, Nakhon Ratchasima, Thailand

Background: Various methods of formative evaluation are developed and challenged to answer its concept. The aim of this study was to create an online formative evaluation in order to promote learning among students and to identify the correlation between formative and summative evaluation scores of students.
Method: An online formative self-assessment was developed comprising of 46 multiple choice questions (MCQ) that covered 6 classroom topics of epidemiology. Hundred and twenty third-year medical and dental students were participated in the epidemiology subject. Epidemiological handouts were provided to all students. Students performed online self-assessment before and after and got feedback after classroom on their performances both scores and contents of what they have learned for each classroom topics.
Results: Students did not read handouts before 6 classroom participation in range of 42.5%-76.7%. Mean scores of online test before and after classroom were 13.9 (SD 3.4) and 24.1 (SD 5.3) respectively and mean difference was 10.3 (SD 4.9). Mean scores of online test before classroom was higher among students who read handouts in comparing with those who did not read handouts. While mean scores of online test after classroom was not statistically different. The correlation coefficient (r) of online test before and after classroom in relationship to paper-based final examination (70 items of MCQ) were 0.32 and 0.45 with p-value < 0.01 respectively. In addition, mean scores of final examination was higher among students who read handouts before classroom in comparing with those who did not read handouts. Students were satisfied to online formative evaluation with timely feedback both scores and contents.
Conclusion: Online formative evaluation is positive, simply and timely feedback for students. However, self-study before classroom and active attending during classroom will enhance learning outcome in parallel with online formative evaluation.
Take-home message: Online formative evaluation and self-study can lead to better learning outcome for medical and dental students.

5EE10 (3263)
Using mock written exams to deliver Obstetrics & Gynaecology teaching to year 4 medical students

Authors
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Presenter: Siew-Veena Sahi, Princess Alexandra Hospital, Harlow, UK

Background: Medical school curriculum in the UK is such that written exams form a substantial part of formal assessment. The benefits of a peer-assisted mock OSCE, and its role in reducing anxieties, have been demonstrated. However, medical students have limited opportunities to practice written questions under exam conditions prior to the final exam itself. This study aims to identify how mock written exams are a valuable tool in improving confidence sitting Obstetrics & Gynaecology final exams in fourth year medical students.
Method: This project involves two parts. The first part is the creation of a mock exam consisting of single best answer (SBA) questions, and a second is a PowerPoint based teaching session to go through the questions. Prior to sitting the mock, students will first complete a pre-exam survey which evaluates baseline confidence and attitudes towards different modalities of delivering non-clinical teaching. Upon completion of the mock, there is an hour long session to mark their own paper and go through the questions & answers in detail. Finally, the students will fill in a post-exam survey to elicit any changes in confidence, perceived usefulness of the mock exam, and if the students would attend another.
Results: Using a paired T-test, mean confidence in sitting a written exam rose by 1.6 points (95% CI 0.92-2.28) from 2.2 to 3.8 with a p value of 0.0028. In the pre-course questionnaire, 100% of students expected the mock to be extremely useful, and this was unchanged post-course. 100% of students said they wanted to attend another mock exam.
Conclusion: Mock exams with answers would be useful for all specialty exams for 4th years, especially due to the difficult nature of the topics. The GMC recently published data illustrating that medical students moving from year 4 to 5 had the highest failure to progress rates, demonstrating the need to explore more teaching methods to better prepare students for specialty exams.
Take-home message: There is clearly scope for the implementation of mock written exams as a method of preparing year 4 students for formal exams in Obstetrics & Gynaecology.

5EE11 (3239)
The role of peer assessment as a learning tool in history taking and history presenting skills

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Presenter: Alba Bajrami, Mid Cheshire Hospitals, Crewe, UK

Background: History taking and subsequent oral case presentation is an essential skill in clinical practise. It is poorly taught and assessed in medical curricula. Yet fluent case presentations are often expected from newly qualified doctors. Peer assessment as a learning tool aims to provide students with practise and feedback.
Aim: To assess the effect of peer assessment as a learning tool for developing skills in history taking and oral presentations.
Method: Twelve medical students on clinical placements and two post-graduate faculty members as assessors, based at Leighton Hospital in May 2016. Students from different wards were paired and asked to identify suitable patients for history taking and subsequent history presentation away from the bedside. A standardised checklist was provided to aid peer assessment and feedback. Students repeated patient history to the faculty member who marked them using the same checklist to look for discrepancies in marks and provided additional feedback.
Data collection: Checklist from peer and faculty assessor. Questionnaires were provided before and after to the medical students to assess students' confidence in history taking and oral presentation before and after the assessment, and the usefulness of peer assessment in identifying areas for improvement. Discrepancies in marks between peers and faculty assessors was reduced with subsequent presentations.
Results: More than 75% of students felt more confident in presenting histories to their peers post-assessment.
All 12 students agreed a structured proforma was a useful tool in assessing their peers. 100% agreed that the peer assessment session has motivated them to improve their history taking and presenting skills further.
Conclusion: Peer assessment is a useful tool in highlighting areas for improvement and motivating students to improve history taking and oral presentations. This has been supported by a number of studies which have reported positive effects from peer assessment in medical education. Other studies have shown that peers uniformly over-rate due to lack of anonymity. However, our results show that this is reduced with subsequent presentations.

5EE12 (823)
Peer-Assessment predicting learning achievement in undergraduates

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Presenter: Ratana Jirakalvisan, Hatyai Hospital, Songkhla, Thailand

Background: Peer-Assessment (PA) is a form of assessment, which can be designed with summative or formative goals. It provides students evaluate the academic products or performances of their peers in the realm of automated peer observation. PA should be a tool to build student to learn actively in and out classroom during the course. Objective: To determine PA as a predicting factor of learning achievement.
Method: Cross-sectional study was conducted. All of 41 Yr-4 medical students rotating to health promotion discipline in 2017 were divided into small groups of 10 and evaluated the performances of their peers in learning activities such as lectures, workshop, research project, and teamwork. Seventy-one percent are female students. PA form was developed as a part of summative assessment using 5-point rating scale including 6 aspects such as curiosity, teamwork, leadership, generosity, knowledge application, and punctuality. Multiple regression analysis was performed to determine the association between PA and learning achievement with the final grade point of discipline).
Results: Alpha reliability of PA tool was 0.98. The mean score of performances by PA was somewhat equal in all 6 aspects (4.6+0.5 to 4.7+0.4). No any aspects were associated with total performance scores. Final grade point was 3.45+/-0.38. The prediction model of learning achievement showed that teamwork, knowledge application and paper test were associated with final grade point (p-value 0.026, 0.017, and <0.001 respectively). Gender and research project were not found as predictors of learning outcome.
Conclusion: Not surprisingly, a paper test can determine the final grade point. Moreover, PA can predict learning achievement particularly in the aspect of teamwork and knowledge application. The advantage of PA is that it can be applied as a formative goal during coursework with feedback. The contents of performance assessment using PA can be modified by context.
Take-home message: Peer-Assessment is a practical tool to evaluate performance during coursework such as knowledge application with teamwork and to predict learning outcome.

5EE13 (249)
Self-prediction of exam result on a high stake MCQs examination. Can you believe your gut feeling?

Authors
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Presenter: Panwara Paritakul, Faculty of Medicine, Srinakharinwirot University, Bangkok, Thailand

Background: After finishing an examination, students usually form an idea about how well they have performed. We aim to investigate how accurate are the medical students' perceptions of their performance on a high stake MCQs examination.
Method: Immediately after finishing 200 items MCQs covering clinical science subjects, which is part of an exit examination at our medical school, we asked the 6th year medical students to predict their score and to predict if they will pass or fail the exam based upon their instinct.
Results: Of the 170 students invited, 148 participated in the study. The self-predicted score has a positive correlation with the actual obtained score (R 0.45, p <0.01). 68 (46.6%) students accurately predict their score (the obtained score was within ± 10 range from the predicted score). 48 (32.9%) underestimated their score, and 30 (20.5%) overestimated their score. Among the students that believe they will pass the exam, 98.5% eventually pass the exam, and only 1.5% fail the exam. Among the students who believe they will fail, only 18.2% subsequently fail the exam, and 81.8% pass the exam.
About half of the students self-predicted their score accurately. The feeling that they will pass the exam has a high positive predictive value (98.5%), but the feeling that they will fail the exam has a low positive predictive value (18.2%).
Conclusion: A positive feeling towards passing an examination is a reliable predictor of the "pass" examination result, while a self-perception of failing the exam is not a reliable predictor of a "fail" exam result.

5EE14 (1561)
Self- and assessor ratings on entrustability scales in simulated advanced life support

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Presenter: Antje Degel, Charité Universitätsmedizin Berlin, Dept. of Cardiology and Office of Study Affairs - Central Organization of Emergency Curriculum, Berlin, Germany

Background: The belief in one´s competence in applying life support (ALS) has been linked to bystanders´ willingness to provide ALS in a real or hypothetical cardiac arrest scenario. Students at the end of their undergraduate studies and in their advanced emergency course are neither lay bystanders nor professional resuscitation officers. For them and their future patients, a calibration of self-perception and instructor assessment is vital. Entrustability decisions on entrustable professional activities lend an intuitive tool with high practical relevance.
Method: Medical students themselves and their instructors serving as assessors rated the performance in the 5th year emergency simulation training. Rating was based on an entrustablity scale for undergraduate medical education and reflected the assignment of a supervision level needed to carry out and lead advanced life support procedures under real-life conditions. Both ratings were compared.
Results: A total of 113 students and 13 instructors took part in the study. Levels of supervision in instructor and students´ self-rating differed. Students assessed themselves on significantly lower supervision levels than their instructors did. Students rated themselves on a mean level of 3.1 (SD 1.4) while instructors attributed them a mean level of 4.2 (SD 1.2), p<0.01.
Conclusion: Students seem to underestimate their ability in administering advanced life support. This could result in a reluctance of junior doctors to provide said help when needed with deleterious effects for their patients. Withholding mastered interventions in ALS can be as dangerous as performing unnecessary or untrained ones. External calibration of their skills in advanced life support might improve self-efficacy and patient care.

5EE15 (631)
The Validity of Medical Students' Self-Assessment of Proficiency in Clinical Examination

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Presenter: Nazimah Idris, International Medical University, Seremban, Malaysia

Background: The ability to self-assess is essential to the lifelong learning in the practice of medicine. It can identify strengths and weaknesses to promote reflection and improve of performance. However, the validity of self-assessment has not been well supported in the literature. This study intends to evaluate the validity of medical students' self-assessment of proficiency in clinical examinations.
Method: The study was conducted in the context of a clinical long case examination at the end of Obstetrics and Gynaecology rotation. The 80 students who participated in the study were all given a case each for them to work on. Both the student and examiner graded the student's performance using a standardized grading sheet, comprising the components of case presentation (four items), case discussion (four items) and professionalism and the overall approach towards patient care (two items). The self-assessment scores from the medical student and actual proficiency scores as given by the faculty were analysed for bias index and correlation coefficient to evaluate the validity of self-assessment.
Results: There was significant correlation between students' self-assessment and actual proficiency scores. The correlation coefficient was 0.307, $p<0.01$, indicating validity in self-assessment in the context of a clinical examination. Students underrated themselves in all areas with bias indexes of -0.35 in case presentation, -0.26 for case discussion and -0.35 in the professionalism and overall approach to practice. The correlation coefficients were 0.186, 0.360 and 0.170 respectively, indicating that in isolation only the component of case discussion showed significant correlation ($p<0.01$). Both high achievers and low achievers underrated themselves, but high achievers showed better correlation with the actual proficiency scores.
Conclusion: Self-assessment in clinical examination is shown to be a valid assessment method when multiple assessment items are combined. The findings of this study can be used to identify areas where students can be helped in doing self-assessment to improve their performance in clinical setting

Take-home message: Students should be encouraged to perform self-assessment of their proficiency in clinical setting.

5EE16 (496)
The Relationship between Performance on the IFOM Clinical Science Self-assessment and the IFOM Clinical Science Examination

Authors
Carol Morrison, National Board of Medical Examiners, Philadelphia, USA
Natalie Brown-Hunter, National Board of Medical Examiners, Philadelphia, USA
Beth Gallagher, National Board of Medical Examiners, Philadelphia, USA
Brownie Anderson, National Board of Medical Examiners, Philadelphia, USA

Presenter: Carol Morrison, National Board of Medical Examiners, Philadelphia, USA

Background: Self-assessments allow students to evaluate their knowledge and gauge their readiness for higher stakes assessments. Further, self-assessments may enhance learning through the process of taking a test. Research on test-enhanced learning or the testing effect has found that material is remembered better if one or more tests are included as part of the learning strategy. The web-based International Foundations of Medicine Clinical Science Self-assessment (IFOM CS SA) is available for international medical students to assess their knowledge of the clinical sciences prior to taking the International Foundations of Medicine Clinical Science Examination (IFOM CSE). Both examinations are available in international English, Spanish and Portuguese and are built to the same content specifications. Self-assessment users are provided with a table that allows them to translate their score to an approximate IFOM CSE score.
Method: The purpose of this study was to investigate use patterns for the IFOM CS SA for English and Spanish takers and to determine the strength of the relationship between performance on the IFOM CS SA and IFOM CSE for examinees who took both exams. In addition to descriptive analyses, linear regression analyses were run on English and Spanish takers separately with first IFOM CS SA score as the predictor variable and first IFOM CSE score as the dependent variable. An additional linear regression analysis based on all examinees tested whether the models were the same for the English and Spanish groups.
Results: Students generally took the self-assessment within a few days of taking IFOM CSE. IFOM CS SA scores explained 54% and 49% of the variance in IFOM CSE scores for the English and Spanish groups, respectively. The regression models were not the same for the two groups as indicated by significantly different slopes and intercepts ($p<.01$).
Conclusion: Results confirm that there is a moderate relationship between performance on IFOM CS SA and IFOM CSE. Students generally take IFOM CS SA shortly before they take IFOM CSE.

Take-home message: The IFOM CS SA provides students with a valuable learning tool to assess their clinical science knowledge and readiness to take the IFOM CSE.

5FF: Posters: Curriculum Content including Palliative Care

Location: Hall 4.1, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

5FF1 (559)
The medical students will become expert nutritional advisors if they learn to cook

Authors
Pornpimon Kasemsook, Buddhachinaraj Phitsanulok Hospital Medical Education Center, Phitsanulok, Thailand

Presenter: Pornpimon Kasemsook, Buddhachinaraj Phitsanulok Hospital Medical Education Center, Phitsanulok, Thailand

Background: Uncontrolled of glucose level in diabetic patients greatly increases the risk of cardiovascular disease, the serious medical condition leading cause of death worldwide. Inappropriate eating habit is one of uncontrolled diabetes cause. To encourage the patients for changing their eating behavior is important thing as well as medication. Nutritional advice giving is necessary and should be given to people with diabetes at the earliest possible. For this reason the medical students should learn to be good nutritional advisors.
Method: In extracurricular hours, we set up cooking class for medical students. They were instructed by physician nutrition specialists and assigned to cook for diabetic patients by using the main ingredients, eggs which are cheap and easy to find but nutrient-rich. After the session, we asked them to answer the activity evaluation surveys, Likert scale and rank order questions.
Results: There was 82% rate response of questionnaires. The result showed 75.0% increased empathy with the patients, 73.8% had more nutritional understanding and 65.5% had more nutritional advising confidence. The other benefits which the students received were enjoyment, team building and planning skill respectively.
As you know, the diabetic food is limited of seasoning that makes it more tasteless than regular Thai food, spicy and extreme flavor. After this session the students realized it is not easy to change the eating habit especially for Thai people. Most of them said they empathized with the patients who have to eat this kind of food for a long time and understood why some patients cannot control their blood sugar level well. Understanding and empathy from direct experiences are important characteristics for someone who wants to be a good advisor.
Conclusion: Cooking class for medical students can help them give better nutritional advice to their patients. Doing is a good way for learning. It not only helps our students understand the medical knowledge intensely but also help them improve necessary skills which are important for being medical experts in the future.

5FF2 (2445)
Human Trafficking: A Curriculum Module for Medical Education

Authors
Laurie Dunn-Ryznyk

Presenter: Laurie Dunn-Ryznyk, Southern Illinois University School of Medicine, Carbondale, USA

Background: Human trafficking is a global problem that may encompass the sex trade, forced labor, domestic servitude, as well as other nefarious acts. This poster presentation will give an overview of core information regarding this problem, educational methods, content, and resources utilized in teaching didactic phase physician assistant students about this topic, with a focus on information about sex trafficking for clinicians. Most medical education programs do not include curriculum on recognizing and treating victims.
Method: A real patient problem-based learning module was developed and served as the anchor for the curriculum module. Lecture-learner, observation of curated videos, and reflection papers were also utilized. A flipped-classroom model helped to solidify and evaluate the richness of students' knowledge in this discipline. Content included an overview on trafficking, statistics, and information regarding the medical encounter, examination, assessment, and plan options for patients.
Results: Students satisfaction with the learning opportunities, acquisition of knowledge, and activities was positive. Reflection papers revealed a general lack of knowledge about this problem with regard to local, national and global incidence. Level of knowledge improved as evidenced by pre and post-test scores.
Conclusion: It is estimated that 80% of trafficked individuals are female and 50% of victims are minors. In the USA, it is estimated that 88% of trafficked persons have contact with health care workers at some time during their captivity. However, only 5% of health care workers have been trained in the recognition and treatment of these people. Victims of sex trafficking may present with a multitude of health concerns, including sexually transmitted infections, burns, lacerations, pregnancy, fractures, mutilation, abdominal pain, and dental complaints. Additionally, associated conditions include poor mental health, drug and alcohol dependence and abuse. Learners need to be aware of signs and symptoms common in trafficking victims, trauma-informed care, options for assisting patients, action plans for facilities, and resources available at the local, national and international levels.
Take-home message: Human trafficking awareness should be included in medical education programs.

5FF3 (1822)

Are doctors good enough in Sexual Medicine? - Improving Sexual Medicine Curriculum in Asian Medical Schools Based on Competency Levels of Practicing Doctors

Authors
Yi Heng Seow
Qiuli Angela Tan

Presenter: Yi Heng Seow, Lee Kong Chian School of Medicine, Nanyang Technological University-Imperial College London, Singapore

Background: Southeast Asia has the world's highest prevalence of sexual dysfunction, illustrating the need for good sexual medicine (SM) services here. Asian cultural sensitivities can make this personal topic even more difficult to teach. Studies in the West have demonstrated low competency levels amongst practicing doctors and the need for improved undergraduate curricula, but Asian data has been scarce. We aim to evaluate competency levels of Singaporean doctors in SM to explore ways to improve SM curriculum in medical schools.

Method: A cross-sectional descriptive study was conducted on practicing doctors. We developed, validated and administered a 13-item questionnaire assessing doctors' self-reported competency in SM Knowledge and Skills on a 5-point scale (Cronbach's a>0.871). Respondents' attitudes towards SM and perceptions of SM teaching were also captured.

Results: 55 responses were received from doctors across a range of specialties. Competency levels in SM knowledge (mean=3.32±0.75) and skills (mean=3.15±0.89) were low and were predicted by attitudes towards SM.

Lack of time (50.9%), irrelevance to their practice (41.8%) and sexual health (SH) being an 'awkward topic' (29.1%) were identified as barriers to approaching SH during consultations. Respondents identifying lack of time and irrelevance as barriers in consultations had lower competency levels (p=0.042, p=0.009).

90.6% reported that they would be more confident in SM if they received more undergraduate training. 58.2% and 32.7% of respondents believed supervised patient encounters and small group tutorials were the best way of learning SM respectively.

Conclusion: Our study found 'awkwardness' to be a major barrier in SH consultations, a phenomenon uncommonly observed in Western studies which may be contributed by cultural sensitivities. In these challenging settings, it is important to develop awareness, skills and confidence in SM in medical school to better prepare doctors for clinical practice.

We propose a combination of simulated patient encounters to hone students' clinical skills and interactive small group tutorials with engaging and open tutors to improve awareness and attitudes towards SH while reducing cultural barriers.

Take-home message: Sexual medicine curricula should be improved by focusing on attitudes, cultural sensitivities and clinical skills.

5FF4 (2019)

Undergraduate dermatology course to improve confidence in assessment of skin conditions

Authors
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SZ Imam
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Presenter: Nihethana Jegatheeswaran, The Princess Alexandra Hospital, Harlow, UK

Background: Dermatology is a complex speciality with over 2000 diagnoses. However, at undergraduate level, student exposure to dermatology is limited to few lectures and clinics. Our aim was to increase the confidence of medical students in dermatology, in preparation for their role as junior doctors.

Method: We designed a dermatology course for fifth year medical students, in preparation for their final exams. We ran 4 sessions with different groups of students and constant improvements were made to the course based on the student feedback. The course opened with an introductory lecture, delivered by a dermatology registrar, focusing on the dermatology knowledge required for finals. The students were then split into small groups, where tutorial and assessment style sessions were led by near-peer foundation doctors. These included how to take a dermatology history as well as examining and describing skin conditions. Students received instant feedback from the tutors. The student's confidence at the beginning and at the end of the course was assessed using the Likert scale. Also, students gave detailed feedback on each teaching session with suggestions on how it could be improved.

Results: In total, 27 students attended the course over the 4 sessions. The students were asked to rate the content and the delivery of each teaching session, from 1 to 5 (very poor to very good). The mean average ratings for the content of the three sessions were; introductory lecture: 4.89, dermatology history taking: 4.89, examination of skin: 4.92. The delivery was rated as follows; introductory lecture: 4.89, dermatology history taking: 4.89, examination of skin: 4.85. There was a 31.4% and 32.7% increase in confidence for taking a dermatology history and examination of the skin, respectively (p<0.0001). Overall, 96% of those who attended would recommend the course to a colleague.

Conclusion: The course was successful in improving student's confidence in both taking dermatology history and in examining skin conditions. The content and the delivery of the teaching sessions were rated highly by the attendees.

Take-home message: Dermatology knowledge, skills and confidence can be improved through dedicated, focused teaching courses.

5FF5 (1663)

Does the undergraduate Public Health curriculum meet the recommendations of the Association of Schools & Programmes of Public Health?

Authors

Dana Vackova, The University of Hong Hong, Hong Kong
Janice M Johnston, The University of Hong Hong, Hong Kong

Presenter: Dana Vackova, The University of Hong Kong, LKS Faculty of Medicine, School of Public Health, Hong Kong

Background: To evaluate the merit of multidisciplinary public health (PH) teaching and learning for undergraduate medical students (MBBS) in four main domains recommended by the internationally recognised Association of Schools & Programmes of Public Health (ASPPH).

Method: Undergraduate PH courses were mapped to the highest ASPPH domain: PH knowledge, skills, social responsibility and applied learning. A mixed method study with qualitative analysis of MBBS Year 4 focus group (N=20) and quantitative analysis of the questionnaires distributed to MBBS Year 1 (N=88), Year 2 (N=197) and Year 3 (N=163) were performed to evaluate PH curriculum and students' self-perceived competencies in all four domains. Kruskal Wallis and Chi-squared tests were performed to test differences among three cohorts.

Results: PH courses arrangements, workload, relevance to clinical practice and assessment methods represented the main criteria for students' focus group PH curriculum evaluation. Across three cohorts, students self-reported results showed better recognition of PH as a scientific discipline (p<.001) at the end of each school year; and better ability to perform risk communication and development of inter-professional skills with policy makers in Year 2 and 3 (p<.001).

Results brought the valuable insight into the PH curricula showing that after one year exposure to the PH, the MBBS Year 2 and 3, students were more confident to pursue tasks in higher ASPPH domains. However, the arrangement of multidisciplinary subjects and heavy workload were assessed less favourably.

The undergraduate PH curriculum offers PH knowledge, skills, and social responsibilities and applied learning as recommended by the ASPPH.

Conclusion: Careful planning of the multidisciplinary PH courses in the undergraduate medical curriculum is needed to ensure students' confidence in gaining competencies in all four main ASPPH domains. PH learning activities in the highest domains, social responsibilities and applied learning, can be offered in the preclinical years after providing a PH knowledge and skills training.

5FF6 (411)

Changes in medical student attitudes towards public health following an innovative model of integrated inter-professional teaching

Authors

Samantha Chepkin, University of Buckingham Medical School, Buckingham, UK
Dilly Karunaratne, University of Buckingham Medical School, Buckingham, UK
Kathryn Hollis, University of Buckingham Medical School, Buckingham, UK
Bharathy Kumaravel, University of Buckingham Medical School, Buckingham, UK

Presenter: Samantha Chepkin, University of Buckingham Medical School, Buckingham, UK

Background: Internationally, medical students struggle to appreciate the clinical relevance of public health (Maeshiro 2010). Feedback following public health units demonstrated students at a new UK medical school shared this difficulty, despite grasping the principles of public health. Public health teaching is therefore being embedded into clinical rotations, forming a longitudinal curricular theme.

Method: In the clinical rotations, small group seminars integrating public health with clinical teaching were developed and delivered jointly by clinical and public health professionals. These seminars incorporated interactive lectures, clinical case studies, educational prescriptions and role play. Students later participated in student-led focus groups to share their experiences and perceptions of public health and the integrated teaching. These were audio-taped, transcribed verbatim and analysed using recursive abstraction.

Results: Twenty-nine students participated in the focus groups. In contrast with previous feedback, students enthusiastically recognised the clinical relevance and importance of public health, including health promotion and Evidence Based Medicine. Factors which had influenced their views included the integrated case studies, role-modelling by clinicians, clinician-directed educational tasks and joint teaching by clinicians and public health. However, students found applying their public health skills to clinical practice difficult. Barriers included low confidence and competing course priorities. Students valued activities involving guided practice, including role plays, integrated case studies and educational prescriptions, for building confidence. To encourage regular practice, students recommended prompts in each clinical placement, in the form of public health learning outcomes, mandatory exercises or work based assessments.

Conclusion: Integrated, inter-professional public health teaching, alongside increased clinical exposure, was successful in changing student attitudes about the clinical relevance of public health. Specific, transferable, factors contributing to this phenomenon were identified. Despite understanding the principles of public health and appreciating the clinical relevance, barriers to applying public health skills remained. Guided practice and regular prompts in clinical placements emerged as methods to

promote application of public health skills in clinical practice.

Take-home message: Embedding public health into clinical rotations was successful in helping students appreciate the clinical relevance of public health, overcoming a significant international challenge in public health teaching.

5FF7 (1784)
Changes in medical students' attitudes towards HIV/AIDS over the past decade

Authors
Greta Tam, CUHK, Hong Kong, China
Candy Wong, CUHK, Hong Kong, China
SS Lee, CUHK, Hong Kong, China

Presenter: Greta Tam, CUHK, Hong Kong

Background: HIV epidemiology has changed in the past decade and attitude towards the disease may also have changed. We conducted a survey to compare medical students' attitudes towards HIV/AIDS in the recent years (2014-2017) to a decade ago (2007-2010).

Method: From 2007-2010, we surveyed three cohorts of medical students at the end of clinical training to assess their attitudes towards HIV/AIDS. From 2014-2017, we surveyed another three cohorts of medical students finishing clinical training to compare changes in attitudes towards HIV/AIDS over a decade

Results: From 2007-2010, 546 students were surveyed and from 2014-2017, 504 students were surveyed. All participants were included in the analysis. Significantly less students in recent years were exposed to HIV patients for the first time during their HIV clinic attachment (72% vs 39%, odds ratio (OR) 0.25, 95% CI 0.18-0.34). Significantly more students planned to specialize in HIV medicine (2% vs 11%, odds ratio (OR) 9.46, 95% CI 4.75-18.84), while significantly less students prefer not to work in a field involving HIV/AIDS (17% vs 11%, odds ratio (OR) 0.57, 95% CI 0.4-0.83). Willingness of students to provide HIV care remained the same, with 22% of students unwilling to provide care.

Conclusion: Despite more positive attitudes of future doctors towards HIV/AIDS in relation to career choice, the willingness of future doctors to provide HIV care has remained unchanged in the past decade.

Take-home message: Stigma towards PLHIV from future doctors still remain, which would hinder access to care. The current medical education curriculum and approach needs to be changed in order to address the issue of stigma.

5FF8 (1242)
Development of a Model to Educate and Train the Future Adolescent Health Workforce

Authors
Patricia Kokotailo, University of Wisconsin School of Medicine and Public Health, Madison, Wisconsin, USA
Valentina Baltag, World Health Organization, Geneva, Switzerland
Susan Sawyer, The Univrsity of Melbourne, Melbourne, Victoria, Australia

Presenter: Patricia Kokotailo, University of Wisconsin School of Medicine and Public Health, Department of Pediatrics, Madison, Wisconsin, USA

Background: Unprecedented attention is now focused on adolescents with growing appreciation of their disease burden and of the opportunities of investing in adolescent health. New investments are required to build the technical capacity for policy, programming, research and clinical care across the world, especially in resource-poor countries where most adolescents live. Strategies to educate and train the future multi-disciplinary adolescent health workforce are particularly required in these countries, which have until very recently focused on the health of very young children rather than adolescents. Competency-based education and training is the standard of education in health education and medical specialty training. Competency is difficult to quantify and standardize, however, as are the processes that underpin competency-based education and training.

The primary objective of this work was to identify how quality education in adolescent health and medicine is determined. This information was used to inform the development of a conceptual framework for institutions teaching adolescent health, which can be used to assess the quality of teaching and learning and to monitor the implementation of adolescent health competencies in undergraduate and post-graduate education.

Method: Specific evidence-based teaching modalities and assessment tools used to teach adolescent health were determined to exemplify how an educational program can be delivered and assessed. A conceptual framework integrating core competencies in adolescent health developed by the World Health Organization and health education standards from the World Federation for Medical Education Global Standards for Quality Improvement is described. The framework is informed by relevant adolescent health pedagogy and standards from multidisciplinary sources including nursing and midwifery education.

Conclusion: This framework is a step towards the development of a more adolescent-competent health workforce. The model developed is multidisciplinary and is applicable in low- and middle-income countries, as well as high-income countries. Institutional support with financial and other resources to support teaching and training, including development of faculty to implement curricula and educational standards, remains a challenge.

Take-home message: This educational framework developed could serve as a model for competency-based

and multidisciplinary education in adolescent health and as a template for other subspecialty education.

5FF9 (1200)
Does medical school prepare you for difficult conversations? Assessing the impact of a palliative care study day on the confidence of final year medical students

Authors
Alice Copley, Princess Alexandra Hospital, Harlow, UK
Hannah Costelloe, Princess Alexandra Hospital, Harlow, UK
Andrew Greenhalgh, Princess Alexandra Hospital, Harlow, UK
Andrew Foster, Princess Alexandra Hospital, Harlow, UK
Pratik Solanki, Princess Alexandra Hospital, Harlow, UK

Presenter: Alice Copley, Princess Alexandra Hospital, Harlow, UK

Background: There is anecdotal evidence that final year medical students feel unprepared for the palliative care elements of their final year exams and as a junior doctor. Most new doctors will not have practiced completing a death certificate or prescribing anticipatory medications before starting work. The literature describes that breaking bad news insensitively can cause patients additional distress. There can also be consequences to the clinician including guilt, anger, anxiety and exhaustion.
Method: We organised and delivered a palliative care study day for twenty-four final year medical students. The primary aim was to improve students' confidence by building on current knowledge and facilitating communication skills practice. The course was comprised of ten practical small group teaching, simulation and OSCE-style stations. We evaluated pre- and post-course confidence, measured on a ten-point Likert scale. We also objectively explored the impact of the day by asking participants to complete a validated assessment before and after the course.
Results: The course was highly evaluated with the mean average quality and delivery rated at 4.95 out of 5. 100% of students would recommend the course to a colleague. Confidence improved in all six of the areas evaluated: end of life communication in an OSCE setting (42.2% improvement), end of life communication as a junior doctor (41.7% improvement), filling out a death certificate (43.9% improvement), knowing laws regarding advanced care and treatment withdrawal (47.2% improvement) and being able to confirm death and document clearly (43.9% improvement). All results are significant with a p-value <0.0001 on paired T-test. Likewise there was an improvement in assessment marks by 24.7% (p=0.039).
Conclusion: Palliative care is an area in which final year medical students feel unprepared when taking their final year exams and starting work as junior doctors. Our findings demonstrate that small group sessions improve confidence and promote experience in practically dealing with common palliative care situations and therefore are worthy of any medical school curriculum.
Take-home message: Palliative care is best taught via small group learning, including simulation and OSCE-style

scenarios, as students prefer practical learning and value communication skills practice.

5FF10 (606)
The comparative study of an effectiveness in Palliative care teaching methods between bedside teaching versus paper based class case study exercises in medical students

Authors
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Presenter: Sukhanit Promrub, Roi et Hospital Medical Education Center, Roi et, Thailand

Background: Palliative medicine is is recently introduced to terminally illed patient treatment inThailand somehow none of the medical schools have added a subject into the curriculum. This research compare the effectiveness of each teaching style which will contribute to a future curriculum planning.
Method: This quasi-experimental pretest-posttest designs was conducted. We enrolled the 4th and 5th-year medical students and then divided them into 2 groups;bedside teaching (Group I) and paper based class case study exercises (Group II). Both groups took a palliative care pre-test which consists of 50 questions in 5 following modules; concept and assessment,pain management,non-pain management, final hours of life and subcutaneous drug administration, discharge planning referral system and home care then attended the lectures according to these 5 modules. After that each group was taught by a certified palliative care doctors with 2 different methods then took a post-test which is the same as pre-test.
Results: Group I consists of 22 participants while group II has 15. This study reveals that 64.9% of the participants have seen about palliative care and therefore 59.5% believe that it should be taught in medical schools. The mean pre-test score of both groups were not shown significant differences between Group I and Group II with means scores of (19.6($\pm$ 3.6)vs20.4($\pm$ 3.4); mean difference=0.76; 95%CI -1.59–3.11,P-value=0.514) respectively while post-test score shows a different result where group I had a higher overall scores but still not significant difference with mean score of 28.8($\pm$ 3.7)and27.8($\pm$ 3.4)(mean difference= -0.98; 95%CI=-3.35-1.39; Pvalue=0.406)respectively. However, after compared post-test scores in each module; group I has a significantly higher score in an assessment and final hours of life modules with the mean scores of (5.9($\pm$ 0.8)vs4.9($\pm$ 1.5); mean difference=-0.91;95%CI-1.76- -0.06; Pvalue=0.036) and (7.7($\pm$ 1.3)vs6.1($\pm$ 1.5); mean difference=-1.53; 95%CI-2.50- -0.56 Pvalue = 0.003) respectively.
Conclusion: The bedside teaching is as effective as the case study exercises.Moreover,the bedside teaching group has higher scores than case study exercise in 2 modules included;concept and assessment,final hours of

life and subcutaneous drug administration due to their direct experience with patients.

Take-home message: There should be find the new teaching methods especially on lessons regarding 3 modules as 1) pain management 2) non-pain management and 3) discharge planning referral system and home care which the students in both groups show no significant difference scores.

5FF11
Learners as Educators: Education through community research

Authors

Naira Chobanyan, American University of the Caribbean School of Medicine
Dhara R Patel, American University of the Caribbean School of Medicine
Virginia Asin, American University of the Caribbean School of Medicine

Presenter: Dhara R Patel, American University of the Caribbean School of Medicine

Background: The needs of the underserved community in St. Maarten have brought forth the implementation of the "Assessment and evaluation of breast abnormalities in the population of St. Maarten" research project by AUC clinical faculty. The conclusions drawn from this project will be utilized by the local Ministry of Health (MOH) to better serve this population. The design of this project allows students and fellows to be learners in one setting and as educators of medicine in another setting.
There is currently no data for breast abnormalities and breast cancer in the Caribbean. While the aim of the project is to ultimately report the risk factors and prevalence for breast abnormalities in this population, the design of the project serves as an educational tool to cascade medical knowledge from the fellows to students who communicate this further to the community.
Design: The need for breast and health education in this community are met via AUC's "Breast and health screening events" hosted in collaboration with MOH. During the event, medical students partake in stations including consent, breast/health questionnaire, BP/BMI/vision, blood glucose/cholesterol, clinical breast exam by the oncologist and educational talk. Stations are overseen by fellows (graduated physicians in training) and the events are overseen by licensed AUC clinical faculty and the principal investigator.
Educational Components: Fellows-The fellows train students for each station and partake in conducting medical research. Medical students-The students gain exposure to patients in a clinical setting during their basic sciences. Along with interviewing and communication in various stations, the students enhance their clinical skills by performing physical exam tasks and obtaining blood glucose/cholesterol levels. Community-The events are a platform for screening and education for the local, underserved community. Students educate participants on breast health and the importance of a healthy lifestyle.
Conclusion: AUC has identified community based research as an invaluable tool for medical education through which

fellows and medical students serve as both learners and educators.

5FF12 (695)
Using the integrated palliative care outcome scale (Traditional Chinese version) as teaching materials for simulation education in palliative care to junior medical students in Taiwan

Authors

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Jason J Lee, Taipei City Hospital, Taipei, Taiwan
Oscar K Lee, Taipei City Hospital, Taipei, Taiwan
Sheng-Jean Huang, Taipei City Hospital, Taipei, Taiwan

Presenter: Li-Lin Kuo, Taipei City Hospital, Taipei, Taiwan

Background: Despite the broad support for palliative care training in hospitals, medical school curriculum does not include palliative care, especially for preclinical students. Also, students do not have the opportunity to learn the tool to measure patients' physical symptoms, psychological, emotional and spiritual, and information and support needs.
Method: Taipei City Hospital created a course of palliative care for first-year medical students in National Yang-Ming University. The course introduced palliative care mostly through lecturing, video watching, in-class principles discussion and real-world case study. In one class, the teacher designed a palliative care scenario and used the simulation activity to engage students in active learning, and introduced how to use the Integrated Palliative Care Outcome Scale (IPOS) to measure the outcomes. We evaluated the feedback from the students after the whole semester.
Results: Surprisingly, participating in the simulated learning activity and learning how to use the IPOS was one the most impressive classes. Students showed interests in the development history of the IPOS, how and when to use the IPOS and how to involve in palliative care through using the IPOS to improve the outcomes of the patients and their families.
Conclusion: This was the first time using the IPOS as the teaching material in the palliative care course in Taiwan. Early introducing the IPOS to the students and teaching them the aspects the IPOS covered might be important in the palliative care education. Also, translating and validating the IPOS into the traditional Chinese version is necessary and undergoing in Taiwan.
Take-home messages:
1. Palliative care education is a good material for medical humanity education.
2. Palliative care is different from general medical skills, and need special designed training.
3. Exposure to palliative care is not adequate in the past medical education, however it's tried to be earlier.
4. A curriculum combined with lecture-based learning in classroom and clinical-based learning in hospice ward and at patient's home is a good model of palliative care education for junior medical student.
5. IPOS is quite a good tool in simulation training for young medical students before their clinical observership.

5FF13 (856)
Euthanasia attitude assessment in thanatology - quantitative and qualitative analysis

Authors
Shiu-Jau Chen, Mackay Medical College, New Taipei City, Taiwan
Jiun-Lu Lin, Mackay Medical College, New Taipei City, Taiwan

Presenter: Shiu-Jau Chen, Mackay Medical College, Taipei, Taiwan

Background: The euthanasia concept is important in life and death education. What is the best method to assess the learning outcomes is still a challenge. Here we propose a combination of quantitative analysis of pre- and post-test and qualitative analysis of the after-school assignments as a way to assess students' learning effectiveness.
Method: Eighteen students participated in this course. Before the course starts, we conduct pretests to understand their attitudes towards various forms of euthanasia. We make use of patients' life story and a 10-minute short film to introduce various forms of euthanasia. The students discuss the content of the video and propose their opinions about what is good death and dignity. A post-test was done at the end of the class. A homework was given to let students publish their views on euthanasia. We analyze the homework data to find meaningful words and achieve qualitative analysis.
Results: Students' acceptance of euthanasia increased significantly (69% to 94%), especially among the elderly with voluntary euthanasia (30.8% to 58.8%). The coding obtained from after-school reports includes: social consensus, autonomy, right to life, boundaries and limitation, supporting measures, pain, quality of life, professional assessment, communication, slippery slope effects, family experience, suicide, murder, etc.
Discussion: By integrating the coding data into an interpretive framework, we can summarize the students' understanding of euthanasia: This is a conflict of interests between the autonomy and the right to life. Consensus can only be reached through adequate discussion in the community. Opponents think this to be suicide, murder, and will lead to the slippery slope effects. Proponents believe that under clearly defined boundaries and detailed professional evaluation, it is acceptable for those patients who suffer extreme pain and no quality of life such as end-stage patients, vegetative persons, bed-ridden patients, etc.
Conclusion: By quantitative analysis of the pre-and post-test result, teachers get the percentage of attitude change after the class, but not why they change. With qualitative analysis of after-school assignments, teachers can know what they learn, narrow the distance between teaching and learning, and as a reference for curriculum review.

5FF14 NOT PRESENTED

5FF15 NOT PRESENTED

5GG: Posters: Professional Identity

Location: Hall 4.1, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

5GG1 (2451)
"I found myself a despicable being": Medical Students' emotional reactions to moral dilemmas and their influences on professional identity formation

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Presenter: Diego Ribeiro, Universidade Estadual de Campinas, Brazil

Background: Medical students often face moral dilemmas during their undergraduate course, especially when they start clinical practice. Living these moral dilemmas provokes emotional reactions that can interfere with their future professional attitudes. The aim of this study was to understand these moral dilemmas and the evoked emotional responses to map their influence on professional identity development.
Method: Eight undergraduate students from a Brazilian medical school made a Rich Picture about a complex scenario in which they experienced a moral dilemma. Rich Pictures are visual tools enhancing data collection aiming at capturing the 'hard-to-put-into-words.' The researcher explored through a semi-structured interview the moral dilemmas, the emotions and the reflections of the students in relation to the experience represented in the drawing. The interviews were transcribed and a thematic analysis was performed.
Results: The relevant moral dilemmas revealed by Rich Pictures were: patient-centered medicine versus physician- or system- centered medicine; patient's needs versus system's requirements; excitement with the disease versus the suffering of the human being; patient's needs versus physicians' needs. The emotional reactions involved guilt, impotence, frustration, sadness, anger, feelings of inferiority, anguish and despair. Students valued the participation in the drawing activity as it provided several opportunities for insight and reflection on the often non-conscious influence that these experiences had on the development of their professional identities.
Conclusion: Rich Pictures allowed the identification of intricate moral dilemmas experienced by medical students during undergraduate training. In addition, it enabled students to share and explain the emotional reactions that originated from these dilemmas. Identifying moral dilemmas and accompanying emotional reactions may represent an important mechanism for nurturing a professional identity that is committed to the values of medical practice.
Take-home message: The Rich Pictures methodology helps to understand the moral dilemmas, identify

emotional reactions, and help students in their reflection process. The understanding of this process allows the idealization of pedagogical activities to help young students to maintain their commitment to good medical practice.

5GG2 (1398)
Development of scales to evaluate medical trainees' professional identity formation

Authors
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Presenter: Masami Tagawa, Kagoshima University, Kagoshima, Japan

Background: Medical educators now focus on professional identity formation (PIF), and medical students' and residents' values and attitudes related to PIF have been qualitatively analyzed using reflective writing and interviews. This study aimed to develop an instrument to evaluate PIF that can be applied to a large group of medical trainees.
Method: Using Kegan's human development model as the conceptual framework, a self-administered questionnaire composed of items on a seven-point scale was created. Fourth- and 6th-year medical students and 2nd-year residents at Kagoshima University, and experienced medical doctors (instructors) in private clinics or teaching hospitals responded to the questionnaire. One scale which evaluated personal and professional development and socialization (developing scale; DS), as well as scales that evaluated four of Kegan's stages of development were developed using factor analysis and respondent group comparison.
Results: Using data from 291 respondents, a DS with 15 items was developed (alpha = 0.68). The instructor group had the highest mean score, and respondent group, but not gender, was a significant variable of DS. Kegan's stage 2, 3, and 4, and higher stage specific scales were also developed. Among the respondent groups, the student group had the highest mean score in stage 2, and the instructor group had the highest mean score in stage 4 and higher stage scales.
Discussion: Multiple scales were used to quantitate the complexity and divergent processes of PIF. One scale evaluating the overall degree of PIF combined with scales evaluating different stage-specific attributes might reveal the values and attitudes related to profession among individuals and groups. This study indicated Japanese medical students and residents were on their way towards PIF, and experiences and environments after the residency program may further PIF.
Conclusion: Assessment scales for PIF that can be applied to medical trainees were developed. These scales would provide important information about individuals, groups, and education that is different from assessment data of medical knowledge or professional skills.
Take-home message: PIF of medical trainees, which is a goal of medical education, might be quantitatively estimated by a new self-administered instrument.

5GG3 (1532)

Sense and sensibility: comparative analysis of students' codes of conduct

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Presenter: Zuzanna Nowicka, Medical University of Lodz, Poland

Background: Professional identity formation and development of ethical conduct are embedded in the medical curriculum. Throughout their learning process, medical students get involved in patient care and gain privileged access to patients and their clinical data. It is therefore essential that the student's behaviour justifies the trust placed in medical profession. Concerns regarding unprofessional students' behaviour may arise in several key areas that depend significantly on culture-specific context. To correctly identify and address these concerns, an explicit and implementable code of student conduct is required.
Method: Using search terms related to student conduct and ethics documents from 82 universities located on 6 continents were identified. Of these, 56 met the inclusion criteria (full text in English, document referring to medical students). 20 documents representative for diverse cultural backgrounds were further analyzed using the General Medical Council professionalism guidance for medical students as initial framework for qualitative coding performed with Atlas.ti.
Results: Selected documents varied considerably in content and precision of description. Although many codes presented the disciplinary processes and possible sanctions, the regulations were not always specific. Only two of them presented remediation strategies, student guidance and support in addition to sanctions. Many codes were based chiefly on traditional (nostalgic), Hippocratic values with less than half of the documents including statements referring to 'modern' areas of concern, like social media and electronic information. We've also identified a number of culture-specific themes, especially important in the era of students' and doctors' mobility.
Conclusion: Medical schools, due to distinctive areas of concern regarding student conduct - such as confidentiality of patient information - require specific codes of student conduct, different than general university regulations that apply to students of all faculties. Absence of regulations describing the process of addressing contemporary professional concerns (including minor professional lapses), specific sanctions, remediation and support following the disciplinary process, raises questions about applicability of the particular code.
Take-home message: Comprehensive and modern students' codes of conduct are necessary to facilitate professional identity formation, taking into account both the global standards and local cultural contexts.

5GG4 (1279)

Learning effects of interview with senior nurses on professional identity among first-year nursing students

Authors
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Background: "Nursing History" is the core of nursing education and also the necessary learning platform for nurturing nurses. This study is to enable students to get to know the meaning of nursing work as early as possible, and to understand the roles and professional identities of senior nurses in the workplace as well as to comprehend theoretical and clinical mutual proofs through dialogues between senior nurses and students in this class.
Method: With semi-structured questionnaires and in-depth interviews as the research method, it is expected to provide a further understanding of nursing for the first - year nursing students. Nursing is a stressful and challenging profession. How to enhance the students into this career is a very important issue. In addition to provide students with the best learning outcomes through their experience, in the interview students are able to see the importance of the nursing profession and cultivate their interests in the nursing profession by exploring the future career directions through practical field interviews. Students learn knowledge, attitudes and behaviors in this process and affirm their commitment to become a professional.
Results: Through this study, It helps to understand the students' willingness to engage in nursing work and their cognition of the nursing profession. Based on the results of this study, I will provide a reference for further planning nursing courses and construct a training strategy and content.
Conclusion: Students' perceptions of nursing come from experience, media, traditional socio-cultural impressions and nursing education. In addition, experience sharing with senior nursing staff also helps students understand nursing and reduce anxiety of clinical learning as well as enhance nursing professional identity.
Take-home messages:
1. To strengthen the willingness to work in nursing.
2. To let students know what they actually encounter when they enter the workplace.

5GG5 (1369)
Inter-professional clinical simulation education developing professional identity and professionalism in the Japanese medical and nursing students

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Background: In the preceding research, it is reported that professionalism education is effective for forming occupational identity. However, it was unclear that the students' experience and learning through IPE has influenced identity formation and professionalism. In this study, we conducted a multi-occupational team simulation training consisting of undergraduate students of both medical and nursing department, and clarified how professional identity and professionalism attitudes change before and after IPE education.
Study design: Forty 4th grade medical students and forty 2nd grade nursing students were enrolled and divided to educational intervention group and control participants. We use a scale of professional identity including lower four scales, a scale of professionalism including lower five scales and readiness for inter-professional learning scale (RIPLS).
Education contents: Scenario: Acute abdominal pain in the hospitalized patients with Stage IIIa colon cancer. Briefing for 10minutes, physical assessment by nursing students for 8 minutes, transmission of clinical information from nursing to medical students and physical assessment by medical student and discussion for 10 minutes, and 10minutes debriefing.
Outcome of training: Technical outcome; Take an appropriate physical assessment and clarify the sign and symptoms, finally know the cause of abdominal pain. Non-technical outcome; effective communication and ethical attitude.
Results: In medical students, IPE curriculum improved RIPLS (p=0.004), scale of professional identity (p=0.009), establishing a view on medical workers (p=0.014), and pride of what is needed for a medical career (p=0.032). In nursing students, lower scale of professionalism, formation of human qualities was elevated (p=0.015). There were no alteration of scale in control group.
Conclusion: It was suggested that multi-occupational team clinical simulation by medical and nursing students in medical university is useful for establishing professional identity and readiness for profession.
Take-home message: On the job training using simulated clinical training promote the readiness and motivation to learning as an educational model of behavior change.

5GG6 (994)
Exploring professional identification with family medicine among medical students in the Kyrgyz Republic

Authors
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Presenter: Olivia Heller, Geneva University Hospitals, Geneva, Switzerland

Background: As part of a project on medical education reform in the Kyrgyz Republic (MER project) in which the Geneva University Hospitals and the Unit of Development and Research in Medical Education have been providing technical support since 2008, we are conducting a study to examine students' views on Family Medicine (FM) and its dynamics over the course of medical training. This study aims to shed light on the global trend of declining interest and shortage of family doctors both in urban and rural areas through a case study in Kyrgyzstan.
Method: The study consisted in an explanatory sequential mixed-methods design, which involved two consecutive and interrelated phases. The first phase explored students' perception through a quantitative survey at three key moments; (year 1, start of the pre-clinical teaching; year 4, between pre-clinical and clinical teaching; year 6, fully clinical teaching). The second phase used qualitative methods based on focus groups to assist in interpreting the findings of the first phase. The location of the study is the Kyrgyz State Medical Academy (KSMA), the main faculty of medicine in Kyrgyzstan, in Bishkek.
Results: In general, Kyrgyz medical students negatively perceived the discipline and profession of FM and found it unattractive. They identified the context and academic discourse as an influential factor. They described FM as a highly difficult profession, demanding a lot of knowledge without being coupled with correct wages or working conditions, especially in rural areas. First year students were less reluctant to the idea of being trained in family medicine, feeling better informed about the context and the objectives of the medical education reform.
Conclusion: This study hopes to inform interventions in medical education reform to render FM more attractive. Such changes may include redesigning the curriculum, involving medical associations and implementing incentives for FM employment.
Take-home message: The situation in this low and middle-income country echoes the global trend of declining interest and shortage of family doctors, this stems from lack of accurate information about this profession and the genuine working condition which prevail.

5GG7 (3116)
Cross-cultural perspective on role models for medical professional identity development

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Presenter: Juliana Sa, Faculty of Health Sciences, University of Beira Interior, Covilhã, Portugal

Background: The value of role models in professional identity development is well established in the literature. However, there is still a need for a better understanding of factors and characteristics that influence their impact and understanding. Cultural accountability seems to be particularly important in professional identity development. In this way, there should be a deeper understanding of the influence of cultural setting for role models in professional identity development.
Method: A questionnaire was created to identify medical students' role models, their perspective on expected behavior and its change from the first to the last clinical year. Topics related to clinical practice and attitude towards teaching were included. This questionnaire was applied to medical students in two medical schools, in Portugal and Egypt, and results were analyzed.
Results: Two hundred and seven students answered the survey, most of them perceived role models as very important/important for their experience in their medical school (82.1%); students from both countries considered that their main role models were clinical tutors (57%) followed by basic sciences tutors (12.5%) and residents (12%). Results on specific characteristics of role models were similar in both medical students´ groups, with higher agreement on role models' capacity to show clinical reasoning skills, demonstrate clinical competence and having a positive interaction with colleagues and other health professionals.
Conclusion: Although, professional identity development is a context specific process, role modeling seems to be universally important. In this study, we were able to identify common aspects of role models in two different countries. This can be the early approach to find shared perspectives that may contribute to further knowledge and experience on this topic. Those specific aspects that students associated with their role models can be important to find common points to promote faculty development on professionalism in different cultural settings having a common framework.
Take-home message: Promoting cultural accountability in the understanding of student's perspectives on role

models for professional development can help to promote partnered strategies for faculty development.

5GG8 (3068)
Professionalism Narratives of Kuwait's Future Physicians: Impact of the Hidden Curriculum

Authors
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Mohammad Jamal, Faculty of Medicine, Kuwait University, Kuwait

Presenter: Jasmine Eliwa, Faculty of Medicine, Kuwait University, Kuwait City, Kuwait

Background: A physician's professional identity starts to develop during medical school. Medical students in Kuwait University are first exposed to professional values in the formal curriculum before witnessing the professional practices of clinical tutors in clinical settings. About 60% of Kuwait's population are expatriate who form the lower socioeconomic class, thus making it a special environment in terms of professionalisms hidden curriculum studies. This study aims to identify the impact of the hidden curriculum on medical professionalism education.
Method: Data was collected from medical students during October and November 2017. The following methods were utilised: (1) thematic analysis of 249 written narratives obtained via an online survey, (2) thematic analysis of 259 verbal narratives transcribed from focus groups interviews conducted until the point of saturation was reached, and (3) a questionnaire assessing professional attitudes via indicators of professional domains developed by the American College of Physicians and Board of Internal Medicine, distributed to a stratified random sample of 150 preclinical and clinical year students. Themes were categorised according to content and frequency.
Results: Most students (88%) recognise and agree with professional norms, especially principles regarding honesty with patients (79%), reporting medical errors (72%), and improving access to care (67%). Narratives yielded 18 themes, 2-10 subcategories in each, reflecting two main domains: medical-clinical interaction (90%) and teaching-learning environment (10%). Each theme and subcategory consists of professional and unprofessional behaviours that students witnessed. The most frequent themes are manifesting respect in clinical interactions (25%), communication skills (23%), discrimination (21%), respecting patient autonomy (18%), responsibility (7%), relevant reporting (5.5%), and managing conflicts of interest (5%). Other themes included creating a welcoming environment (3%), capitalising on teaching opportunities (2.7%), teamwork (2%), improving access to care (2%), honesty (1.5%), and confidentiality (1%). Expatriate were mostly involved in stories regarding improving access to

care (100%), discrimination (45%), respecting patient privacy (71%), and informed consent (73%), including for clinical teaching purposes.

Conclusion: Medical student narratives deepened our insight into professionalism, serving as a source of medical professionalism education evaluation. Encouraging the strengths and improving the weaknesses within Kuwait's professionalism is warranted.

5GG9 (2042)
Demystifying the Roles of Advanced Practice Nurse (APN) through pre-Master-nursing-Mentorship (MnM) Program

Authors
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Presenter: Jasmine Kang, Tan Tock Seng Hospital, Singapore

Background: Professional socialization, developing professional identity through the learning of norms, attitudes, roles and values of the profession, is a critical aspect of nursing development.

Method: Registered Nurses (RN) pursue a Masters course to become Advanced Practice Nurses (APN). Our APN faculty selects candidates using Multiple Mini Interview method one-year in advance. Some candidates have expressed unpreparedness and uncertainty about their choices. A pre-Master-nursing-Mentorship (MnM) Program was developed to help them understand the APN identity. In the MnM Program, RNs were buddied up with inflight Masters students on their clinical practicum to allow interaction with them and their preceptors (doctors and APNs). Upon completion, RNs used the Rolfe Reflective Model to guide self-reflection. They reflected on the purpose and benefits of the program and key lessons from their buddies and preceptors ("What"), clarified their own capabilities and potential to be an APN ("So what"), and how they would overcome their own limitations ("Now what").

Results: 8 RNs participated in the program from March 2015 - August 2017. Their reflective journals were analyzed and themes that emerged are broadly summarized: (1) understanding the APN role, (2) resilience needed for the journey, (3) mastery of advanced clinical knowledge/skills, and (4) importance of near-peer and peer support. Comments included: "I felt that it (MnM) has given me a head start to the Masters course…" and "It (MnM) acts as a prelude to my Masters study." All RNs subsequently enrolled in the Masters course.

A big part of professional socialization is personal socialization where the "newcomer" identifies, interacts and learns from the existing members in the social environment. Peer support and learning has a profound impact on self-development.

Conclusion: The MnM Program is a useful platform to facilitate professional socialization. Our Program was useful in providing insight to the RNs as we encouraged them to be active engineers of their own career choice. The faculty played a supportive role by engaging the stakeholders and planning the program.

Take-home message: Professional socialization programs similar to MnM can be useful in helping nurses build professional identity and direct career plans.

5GG10 (1153)
Being and becoming: Emergency physicians' conceptualisations of their roles and professional identities

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Presenter: Yu-Che Chang, Chang Gung Medical Education Research Center; Chang Gung Memorial Hospital, Linkou; Chang Gung University College of Medicine, Taoyuan City, Taiwan

Background: Emergency physicians (EPs) work in highly-stressed environments and face high levels of burnout. Coping well with these stresses can aid in the development of a sustainable professional identity (PI). However, there is a paucity of research exploring EP's PI. Our study aimed to investigate how members of the emergency medicine (EM) profession conceptualise their roles and PI, and the factors that influenced this.

Method: A semi-structured interview study with 25 EPs (6 senior residents ,19 attending physicians) was undertaken across four branches of a large hospital group in Taiwan. Interviews were recorded, transcribed, and analysed thematically.

Results: We will report our latest findings. So far, EPs consider personal traits, such as having a trustworthy character, as suitable for EM practice, to enable them to work well in teams. However, indecisiveness and sluggishness are deemed as unsuitable; hindering the EPs' ability to make decisions quickly and prioritise their work. EPs identify unique strengths in their multidisciplinary approach towards medicine, acute thinking processes and multitasking skills. They highlight how facing uncertainty and risks are characteristics of EM and therefore their ability to stabilise patients amidst these facilitates PI. PI is further enhanced through their societal role –being seen as society's 'last line of safety net' and the hospital's 'first line of contact'. Family and organisational support also contributes to EP's PI.

Conclusion: Facilitating an appropriate professional identity of EM depends on having better coping ability, quality of life, practical wisdom and professional recognition from the institution and public. The barriers included cost saving strategy of health insurance,

overcrowded working environment, facing medical disputes, lack of respect, and so on.

EM has acquired unique clinical capabilities that differentiate it from other specialties. EP's role and PI could be conceptualized through investigating their personal and professional characters whereby the facilitated and threated factors could be identified accordingly. Future research on the intervention for strengthening EP's PI is needed.

Take-home message: EP's PI is influenced by personal, professional, and institutional factors. The professionalisation of EPs' roles has led to a multifaceted development of their PI along multiple growth pathways.

5GG11 (3160)

Teaching Pre-Clinical Medical Students How to Think Like Doctors: A Novel Model For Early Learners to Understand Cognitive-Based Clinical Reasoning

Authors

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Presenter: Sandro Cinti, University of Michigan Medical School, Ann Arbor, USA

Background: Although clinical reasoning (CR) has been traditionally acquired informally during clinical rotations, with greater understanding of cognitive principles underlying CR, there is now intentional effort to teach this skill to undergraduate medical learners. However, current models cognitive-based CR models are complex and difficult for medical students to understand and apply.

Method: Based on adult learning theory, we developed a visual model of clinical reasoning focused on early learners that provides visual clarity for underlying cognitive principles. Rooted in the work of Gruppen, Norman, Mamede and Croskerry, it visually represents dual-processing and "integrative" models, as well as concepts such as hypothesis testing and application of evidence based medicine to the CR process. This model was introduced in a required CR course for pre-clinical medical students at our institution. It was developed due to poor student feedback involving CR models from published literature initially used in the course.

Results: Our clinical reasoning model has received terrific feedback from both students and faculty. Faculty report it is easy to teach and use during case-based instruction. Pre-clinical students overwhelmingly report the model is easy to learn, process and apply to patient cases and provides scaffolding to help understand "foundational science" content from other courses. Students that have finished the clinical wards report they frequently used the model as an anchor to process patients' case information.

Our CR course, centered around this model, is currently in its third year, has received the second highest student evaluation rating for the past two years (average 4.7/5) and was awarded our institution-wide Provost Teaching Innovation Prize.

Conclusion: Clinical reasoning is essential for safe and effective practice of clinical medicine. However, understanding CR is often abstract and difficult for early learners. Our CR model is rooted in cognitive theory, provides educators a tool to introduce complex CR process and allows early learners a visual method to recall and apply this important skill during clinical care.

Take-home message: Clinical reasoning is an important yet complex process. Our novel model allows pre-clinical medical students an easily accessible method to learn and apply this skill.

5GG12 (540)

Coinvestigating e-professionalism and online identity with medical students via the Social Media Mentor Club

Authors

Catherine M. Hennessy
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Presenter: Catherine Hennessy, Brighton Sussex Medical School, Brighton, UK

Background: E-professionalism is more complex than applying the usual standards of professionalism to one's online activity. Professional use of social media is encouraged within medicine for networking and collaboration however the public nature and audience collapse that social media provides means that medical students have to consider how they portray themselves. Guidelines on how to use social media professionally are provided by UK governing bodies. Creating effective ways for medical students to use these guidelines for developing their online identity and awareness of e-professionalism are needed, hence the Social Media Mentor Club (SMMC) was formed.

Method: Eleven Year 1 and 2 medical students at Brighton and Sussex Medical School (BSMS) signed up to the SMMC which met weekly for 6 weeks. Club members gave written consent for their social media profiles to be searched by other club members and for their social media behaviour to be judged against the guidelines provided by UK governing bodies. Memo notes and reflective pieces on what club members were learning about managing their online identity throughout the club term were collected by the researcher. End-interviews were conducted on members to evaluate the usefulness of the club and to gather suggestions for developing methods of educating students on professional social media use. Ethical approval was granted by the Research Governance and Ethics Committee at BSMS.

Results: Thematic document analysis revealed that club members valued the peer-judging exercise as an active approach to learning about how one's online identity maybe perceived by the public. Members reported that the current guidelines are predominantly cautionary in

nature rather than advising students on how to engage with social media professionally.

Conclusion: The SMMC recommend that all medical students conduct a similar peer-judging exercise as part of the professionalism component of the medical curriculum. Members concluded that perceptions of professionalism on social media vary hugely between individuals and that there is a need to develop more practical guidance on how to use social media professionally.

Take-home message: Medical students have called for more proactive guidance on developing their online identity.

5HH: Posters: Trainee Wellbeing and the Doctor in Difficulty

Location: Hall 4.u, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

5HH1 (1374)
Burnout during residency: A comparison of burnout prevalence among Anaesthesiology residents and attendings in a tertiary hospital, and factors associated with burnout

Authors
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Beatrice Lim, Tan Tock Seng Hospital, Singapore
Caroline Ong, Tan Tock Seng Hospital, Singapore

Presenter: Wee Jiayan, Tan Tock Seng Hospital, Singapore

Background: Burnout is a syndrome of mental and physical exhaustion related to work. Maslach characterised burnout as a triad of emotional exhaustion, depersonalization and reduced personal accomplishment. It is associated with negative consequences such as increased risk of medical errors, and detrimental effects on patient safety and personal well-being.
The prevalence of burnout among US residents has been estimated to be in the range of 27-75% (depending on specialty). Local data revealed burnout rates as high as 70-80% in internal medicine residents.
Anaesthesiologists face numerous stressors at work; yet currently there is no data on the prevalence of burnout among Anaesthesiologists in Singapore.
Method: We sought to assess the prevalence of burnout and risk factors associated with burnout among all residents and attendings in our department, using anonymised self-administered surveys that included the Maslach Burnout Inventory (MBI-HSS) and 10-item Big Five Inventory (BFI-10). The latter assesses personality traits, such as neuroticism, as possible factors contributing to burnout.
Prevalence of burnout among residents and attendings was calculated. Correlation analysis was performed for factors associated with burnout.
Results: Out of 93 residents and attendings surveyed, 68 responded. Of the respondents, 36 (52.9%) were residents and 32 (47.1%) were attendings. 24 (35.2%) were male and 44 (64.7%) were female. 38 (55.8%) respondents were found to have a high degree of burnout. High burnout risk was defined as having a high Emotional Exhaustion, high Depersonalization or low Personal Accomplishment score on the MBI.
Conclusion: Our study found that burnout rate amongst our residents and attendings is significant (55.8%) and comparable to international rates. Risk factors identified in this study should be addressed to minimise the risk of burnout. A high prevalence of burnout is a significant cause for concern as it can lead to poorer patient outcome and undermine a physician's well being. Understanding the risk factors associated with burnout will enable us to develop and implement strategies to prevent and treat burnout.

5HH2 (2224)
Black clouds for young doctors in emergency department: Myth or reality?

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Presenter: Süleyman Yıldız, Dicle University, Diyarbakır, Turkey

Background: Although it is assumed that residents in a specific training program will have comparable experiences, residents commonly perceive that some have consistently more difficult times during the their night shifts. Many young doctors believe in the phenomenon of either being labeled a "black cloud" or "white cloud" while on night shifts. A "white cloud" physician is one who usually gets fewer and uncomplicated cases and a "black cloud" is one who often has more and complicated cases. It is unclear if the designation is only superstitious or if there is some merit. We sought to determine if these perceptions were related to differences in real work load.
Method: The workload of junior doctors who worked over 1 year in emergency department (ED) shifts was retrospectively investigated by analysing quantitative (number of patients visited during a shift) and qualitative (corresponding workload according to the severity of the diseases) parameters. We also looked for potential associations between work load and the following factors: doctors' personal characteristics, self-evaluation of their degree of fortune and outside evaluation by senior physicians.
Results: Some residents did have a black cloud; they slept less, perceived that they worked harder than average, and had a reputation for having difficult night shift experiences. Residents with a black cloud function differently from their colleagues; for example, some may be inefficient, while others may create extra work for themselves.
Conclusion: We believe that residency program directors must recognize these functional differences. All in all, it is clear that evidence for black clouds really exist in the ED. The phenomenon is rather rare and difficult to recognise, as the self- and outside perception of black clouds seems to be misleading.

5HH3 (344)
Burnout in Residents and Program Directors: A Study on Prevalence, Factors and Interventions in a Tertiary Hospital in Singapore

Authors
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Presenter: Sabrina Lau, Tan Tock Seng Hospital, Singapore

Background: Physician burnout is on the rise, with higher rates reported in residents and early-career physicians (Dyrbye, 2014). Burnout has been linked with negative outcomes including medical errors, depression and suicide. Since the inception of the Residency Program in Singapore, faculty have been concerned about an apparent rising trend of residents demonstrating signs of fatigue and burnout. This study aims to find out the prevalence of burnout among residents and program directors (PDs), identify associated factors and propose interventions to reduce clinically-significant burnout.
Method: We surveyed 174 residents from three Medical and three Surgical Residency Programs within the National Healthcare Group (NHG), as well as 27 PDs and associate PDs. Burnout was measured via the Maslach Burnout Inventory (MBI), and categorized into three subscales – Emotional Exhaustion (EE), Depersonalization (DP) and Personal Accomplishment (PA). Clinically-significant burnout was defined as a high EE or DP score (Shanafelt, 2002). Factors associated with burnout were derived from subgroup analysis on 70 Internal Medicine (IM) residents and the NHG Resident Wellness Workgroup discussion platforms.
Results: Burnout rates ranged from 46.7% to 64.3% in residents – highest in IM (64.3%) and Family Medicine (61.8%). While the difference in clinically-significant burnout between medical and surgical specialties was not great, 58.0% of medical residents reported low PA compared with 34.7% of surgical residents. PDs had the lowest burnout rates (40.7%) and reported the highest PA (33.3% high PA). Factors associated with burnout include exams, administrative tasks and inadequate breaks – although reported duty hours were within guidelines. Utilisation of institution-based support systems is poor (3.1% of IM residents).
Conclusion: Burnout rates in residents are high. Major factors include exams, administrative tasks and perceived inadequate breaks. PDs and surgical residents had the highest personal fulfilment. Greater awareness is needed on the availability of support systems and promotion of mindfulness. Future studies should look into interventions to reduce burnout, and employ methods to monitor burnout trends through residency.
Take-home message: Burnout rates in residents are high. PDs have the highest PA scores – mentorship and teaching may be a protective factor for burnout.

5HH4 (1371)
Variation in themes affecting junior doctor morale: survey results from a large UK teaching hospital

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Presenter: Raunak Singh, University Hospitals of Leicester NHS Trust, Leicester, UK

Background: Junior doctor morale is crucial for the recruitment, retention, professional development and experience of both doctors in training and locally employed doctors. Health Education England (HEE) recently identified three themes affecting morale: support, autonomy and value. We aimed to identify overall responses to these themes and differences between strata of junior doctors at University Hospitals of Leicester NHS Trust.
Method: In November 2017, a structured survey, modelled on the HEE themes, was distributed to 943 junior doctors within a large UK teaching hospital. Respondents used an ordinal scale of zero (low) to ten (high) to rate: overall morale, how valued and supported they felt at work, and how much autonomy they were given. Data were analysed using non-parametric independent sampling and correlation analyses.
Results: 402 (42.6%) doctors in training and locally employed doctors responded, representing a spectrum of specialties. Median (interquartile range) for all respondents: overall morale 6(5-8), valued 6(4-8), supported 7(6-9) and autonomous 7(6-8), with respondents feeling more supported overall (n=402, χ2=85.6, p<0.0001). Feeling supported correlated with feeling better valued (r=0.617, p<0.0001) and more autonomous (r=0.591, p<0.0001). Those who expressed higher autonomy felt more valued (r=0.609, p<0.0001). Speciality trainees felt more supported (n=176, χ2=7.2, p=0.03) than core-level trainees (n=82) or foundation doctors (n=141). Those who had worked in the Trust for longer than 4 years felt more autonomous (n=46, χ2=10.9, p=0.01). There was a tendency for locally employed doctors to rate all themes higher, although this was not statistically significant.
Discussion & Conclusion: A complex relationship exists between how supported, autonomous and valued our junior doctors feel, suggesting that morale is multi-faceted and not restricted to one domain. More senior trainees felt better supported. Longer duration of employment within the Trust is associated with a higher level of autonomy. Tendency for locally employed doctors to rate higher across all themes perhaps reflects current local initiatives to improve their working experience.

We identified variations between strata of junior doctors in terms of how valued, supported and autonomous they felt, offering scope for opportunities to focus interventions to improve their morale.

5HH5 (3642)
Mistreatment of medical trainees: A self-reported cross-sectional observational survey

Authors
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Presenter: Nicole Naccache, Saint-Joseph University, Beirut, Lebanon

Background: Medical trainee mistreatment encompasses a wide range of behaviors including verbal, physical, and academic abuse as well as discrimination, bullying and harassment. Such conducts tend to cause emotional and health problems, and impair trainees' performance and capacity to provide optimal patient care.
Method: After Ethical Review Committee approval, a descriptive cross-sectional survey was conducted at Hôtel-Dieu de France University Hospital. A self-constructed questionnaire was conceived to identify the prevalence, risk factors, types and sources of trainees' mistreatment, and its potential consequences on victims' education and health. The study population included a 737 medical students (from third to seventh year) and residents.
Results: 259 trainees completed the questionnaire (35%). Overall, 1041 incidents perceived as mistreatments were reported. Most common type of encountered mistreatment was verbal abuse such as being spoken to in a bossy/aggressive manner (60.1%). Medical consultants were the most common source of mistreatment (30.4% of all unwanted behaviors). Consultants and senior residents shared most of the academic abuse, while senior resident were most likely to cause discrimination and sexual harassment. Female sex was significantly associated with sexual harassment (P<0.001). Out of 81% of participants who reported having experienced at least one episode of mistreatment, 32% chose not to report the incident, 52.9% had informed a friend or colleague, and only a minority notified a third party in charge of trainee affairs. The highest ranking barrier to taking action was thinking nothing would change (31.3%), while fear of reprisal accounted for 14.1%. Mistreated trainees felt decreased eagerness to work and lack of concentration (65%), unmanageable stress (60%), or considered dropping out of medical school (30%).
Conclusion: This study highlights mistreatment as a serious and potentially damaging, yet under-recognized subject, faced by a large proportion of medical trainees. Trainees should be familiar with appropriate procedures for reporting future incidents. Resulting findings will hopefully guide new strategies to reduce levels of mistreatment in our institution.
Take-home message: Medical trainee mistreatment is a worldwide phenomenon. Medical schools need to address this issue and new interventions are required urgently to tackle the problem.

5HH6 (366)
Allowing 'anticipated failure' in clinical training. Results from a critical narrative review

Authors
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Presenter: Jennifer Klasen, Kantonsspital Frauenfeld, Switzerland

Background: Educational domains such as pedagogy or psychology have embraced the philosophy that failure is valuable for learning. Consequently, supervisors sometimes let learners fail. During clinical training, however, this practice is not explicitly embraced because of negative implications for patients. Yet, anecdotally, clinical supervisors describe situations where they allow trainees to fail, having judged it sufficiently safe for patient care and valuable for trainee learning. Preparatory to empirical investigation of this phenomenon, we sought to understand what is currently known in the medical education literature about the supervisory practice of letting trainees fail during clinical activities.
Method: We conducted a critical narrative review with a PubMed search of literature published from 2000 to 2018, using the search terms 'medical errors', 'residency', 'internship', 'supervision' and 'feedback'. We forward-searched included articles and hand searched reference lists, which captured some relevant general education articles. Seventy-six articles were selected for analysis, including empirical and theoretical works.
Results: We found no articles that directly explored the question of supervisors allowing clinical failures as an educational strategy. A number of papers addressed related issues, such as how residents learn from errors (Fischer, 2006) (Bradley, 2013), the ongoing impact of such events and the importance of failure for developing recovery strategies (Kroll, 2008) (Scott, 2009), all which are relevant to inform future research into this practice. As well, insights from general education regarding the value of failure can guide our inquiry into the adaptation of this practice to clinical training environments (Goldstein, 2002) (Edmondson, 2011).
Supervisors anecdotally report allowing trainees to fail when they judge it to be clinically safe and educationally valuable, but there is no literature regarding the nature or extent of this practice. This review will inform empirical study of how, why and when clinical supervisors allow trainees to fail for educational purposes.
Conclusion: Using failure purposefully for learning could be a powerful educational tool for clinical supervisors, but must be handled with care. Future research needs to explore why, when and how supervisors allow failure, its pedagogical benefits/drawbacks, and its impacts on resident learning.

5HH7 (891)
Trainers' perceptions of trainees in difficulty: a survey

Authors
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Presenter: Minna Kaila, University of Helsinki Faculty of Medicine & AMEF (Association for Medical Education in Finland), Helsinki, Finland

Background: Every now and then the trainers in specialist training face trainees in difficulties. We explored trainers' perceptions concerning these difficulties with a web-based survey.
Method: We conducted a survey to members of AMEF (Association of Medical Education in Finland, n=198 at the time) and enriched the respondent population by direct targeting of general practice and occupational health trainers in the Helsinki University hospital catchment area as well as the whole country. The survey consisted of statements concerning hypothetical difficulties and open ended questions, inviting also comments on solutions. In a short time frame, we received 114 responses.
Results: Overall, a trainee in difficulty seems to be a rarity. The most frequent issue reported was poor time management skills (annual encounter reported by 30%), closely followed by reoccurring minor deviations from agreed practices (annual encounter reported by 20%). Weak collaboration skills and difficulties related to ability to reflect on one's practice were encountered annually by 8-6% of the respondents According to the open-ended answers, the most frequently mentioned strategy to manage trainees in difficulty is discussion with the trainee either privately or in small groups. Enhancing supervision and reflection, feedback, observations and assessment were considered crucial.
Offered solutions included further education and opportunities to learn from adverse events. The trainer could act as a model for different aspects of the work. Efforts of orientation for the novices are important and clarifies practices. Sometimes adjusting trainee's duties and work schedules is necessary.
Discussion: We were surprised by the number and speed of the responses we got. This may be interpreted as a signal of a need for concerted efforts to develop and share better ways of supporting trainees. Their difficulties need to be carefully and consistently addressed bearing in mind that the main aim of any postgraduate program is a competent specialist.
Conclusion: With this explorative survey we describe trainers' perceptions of their trainees' issues and ways they reported dealing with them. The issues they had encountered related to central professional skills. Results call also for other support strategies for trainees in difficulty.

5HH8 (709)
Physician wellness in the Department of Medicine, University of Ottawa: a cross-sectional study of burnout, empathy and resilience in full-time physician faculty

Authors
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Lesley Ananny, University of Ottawa, Ottawa, ON, Canada
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Philip Wells, University of Ottawa, Ottawa, ON, Canada
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Presenter: Edward Spilg, Department of Medicine, University of Ottawa, ON, Canada

Background: The effect of burnout on physician wellness is well established but the complex relationship between physician burnout, empathy, resilience and compassionate care is less understood. The goal of this cross-sectional study is to better understand the relationship between physician burnout, empathy and resilience amongst full-time academic physicians.
Method: 262 full-time staff physicians from an academic Canadian Department of Medicine were invited to complete three scales: Maslach Burnout Inventory (MBI) – Human Services Survey, incorporating three sub-scales, Emotional Exhaustion (EE), Depersonalization (DP) and Personal Accomplishment (PA); Jefferson Scale of Empathy (JSE) which defines empathy as the ability to understand the inner experiences and perspectives of the patient; and Connor-Davidson Resilience Scale (CD-RISC) which is a self-report measure of one's ability to thrive in the face of adversity. 84 (32%) physicians responded and completed the JSE and CD-RISC. 49 (18.7%) completed the MBI.
Results: 19/49 (38.8%) physicians displayed high EE, 12/49 (24.5%) displayed high DP and 4/49 (8.2%) displayed low PA. 24/49 (48.98%) physicians had at least one manifestation of professional burnout (high score on DP and/or EE subscales of the MBI). A Wilcoxon-Mann-Whitney test revealed resilience was lower in those physicians who were burned out (p<0.05). In turn, correlation analyses revealed resilience and empathy were positively correlated (r=.37, p<0.01). A t-test revealed younger physicians (<46-years) reported lower resilience than older physicians (p<0.05).
Discussion: Among survey responders, physician burnout is worryingly high, with those physicians reporting lower levels of resilience. In turn, less resilient physicians displayed lower sores scores of empathy. Given that scores on the JSE have been associated with tangible patient outcomes (Hojat et al, 2017, Acad Med, 92(6), pp743-745), the results of this study have direct implications for patient care. Older physicians report feeling more resilient than their younger counterparts. Further study is required to explore reasons underlying the relationship between age and resilience.
Conclusion: These results highlight the need to better understand whether resilience-building interventions, either at the individual or system level, can affect burnout and empathy, thus improving physician wellness and the delivery of compassionate care.

5HH9 (304)
Supporting Mental Wellbeing of Foundation Year One Doctors - Perspectives of Stakeholders

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Rosie Stenhouse
Janet Skinner

Presenter: Lorraine Close, University of Edinburgh Medical School, Edinburgh, UK

Background: Newly Qualified doctors suffer from higher levels of stress and anxiety than their non-medical colleagues. This has an impact on the onset of burnout symptoms which may result in a reduction in empathy for patients and compromised patient care. In complex NHS organisations supporting FY1 mental wellbeing is a relevant yet challenging issue.
Method: Critical Discourse Analysis was used to explore the discursive practices of stakeholders in FY1 wellbeing through analysis of interviews and how they offer insight into Discourse around FY1 wellbeing. Discourse refers to the way in which 'groups of people' with significant identities behave, and are ideological and therefore linked to power. Stakeholders were interviewed using semi structured individual interviews and results were analysed using Gee's (2010) approach to Critical Discourse Analysis (Gee 2010).
Results: FY1 wellbeing is impacted on by issues at a number of levels that reflect the hierarchical nature of the NHS. These include the day to day role of FY1, the complex team structures and supervisory systems that they work within, the impact of the hidden curriculum and the pervasive culture of being seen to cope and the organisational issues that are influenced by politics, policy and training programmes.
Conclusion: FY1 wellbeing is heavily impacted by socio-cultural and political factors. Power dynamics filter through the organisation. Politics and policy affect the NHS organisation and individual hospital settings which in turn affects the experience of senior medical staff and how teams function in clinical settings. This has subsequent impact on FY1 wellbeing. Interventions could focus on the inclusion of FY1s as valued members of clinical teams and offering meaningful pastoral and peer support that is separate from supervisory processes.
Take-home messages:
1. Supporting FY1 wellbeing is an important issue that affects job satisfaction, patient safety and reduces burnout
2. Focus on resilience may encourage responsibilisation, where individuals are held responsible for issues that are created by organisational culture
3. The power dynamics that exist within an NHS organisation, including the medical hierarchy and the hidden curriculum can have a considerable impact on FY1 wellbeing.

5HH10 (2890)
Perception of occupational stress by postgraduate year one doctors and the implication of resilience training

Authors
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Yu-Pei Fan, MacKay Memorial Hospital, Taipei, Taiwan

Presenter: Jiun-Yi Li, MacKay Memorial Hospital, Taipei, Taiwan

Background: The postgraduate year-one (PGY) doctors face the transition from medical students to clinicians and usually experience high stress from working situation, personal relationship and professional responsibility. We intend to survey the PGY doctor's perception of occupational stress to facilitate the resilience curriculum design during the transition.
Method: One hour of introduction to mindfulness based stress reduction (MBSR) was started in MacKay Memorial Hospital (MMH) to help the PGY doctors more familiar to our clinical situation since 2016. During the lecture, we used 8 questions to assess their recognition and response to stress and coping methods they used to face the stress. The answer to the questions was given anonymously.
Results: We surveyed 50 PGY doctors in 2016 and 68 in 2017. Those graduated from MacKay Memorial College (MMC) were different between 2016 and 2017 (10.4% vs. 28.8%, p = 0.005). Percentage of internship in MMH was also different (19.5% vs. 37.5%, p = 0.014). Most common source of stress was long working time, followed by workload, salary and interpersonal relationship. The degree (0 – 5) was less in 2017 PGY doctors (2.74 vs. 3.35, p = 0.014). Emotional change is their most common response, followed by loss of concentration and body symptoms. They usually chose outdoor activity to cope with stress. Only 22.6% of them think it is effective. Although 63.4% of them did not hear of MBSR, 91.5% are willing to try the technique. They wish the hospital can reduce hidden work and keep balance between work and learning.
Conclusion: The process of health care carries stress, which might lead to depression, job dissatisfaction, disrupted relationship, and psychological distress for healthcare professionals, leading to negative healthcare outcomes. The stress experienced by PGY doctors is mainly from work. Emotional change is the most common response. Their present coping techniques are not effective enough to reduce the stress.
Familiarity to the hospital environment can effectively reduce stress. Resilience training for PGY doctors and protected learning is important.
Take-home message: Resilience training to help PGY doctors reduce occupational stress and transition to hospital life is important.

5HH11 NOT PRESENTED

5HH12 (2797)
Reflections on running resilience training for junior doctors

Authors
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Presenter: Rebecca Unsworth, Chelsea and Westminster Hospital, London, UK

Background: In the first three years of training 70% of doctors experience burnout at least once. In addition, doctors often neglect their own health, with 65% reporting that they felt unable to take time off when ill. The General Medical Council has recognised a need for emotional resilience training.
We describe our experience of delivering resilience training for junior doctors.
Method: We piloted a resilience course for foundation doctors, and then adapted it for general practitioner trainees (GPTs). Both courses explored the physical and emotional challenges doctors encounter and included a presentation from the psychiatry team on mental health concerns in colleagues. A session from a "wellbeing coach" received negative feedback and was not repeated.
Results: Most attendees enjoyed sessions on sleep and how to build resilience. They requested more input from the psychiatry team, and more evidence-based practical tips for improving wellbeing. The foundation doctors enjoyed sessions on the emotional and physical demands of being a doctor, although some GPTs found this section too long.
Attendees suggested potential barriers to attending the course were service provision, unsupportive team members, finding self-reflection embarrassing and resilience training not being a high priority nor part of their curriculum.
Discussion: Is resilience training going to prevent burnout in doctors? Attendees cited elements of the working environment as causes of both physical and emotional challenges. We acknowledge that systemic change is a long process and doctors need to be supported in the short to medium term; perhaps resilience training could provide this.
Conclusion: We suggest a cultural shift in undergraduate and postgraduate medical education, with integration of wellbeing and adaptation to the working environment, in the form of a spiral curriculum where techniques are built upon throughout training, could be beneficial. Teaching adaptive strategies, such as resilience training may help doctors navigate an increasingly challenging work environment. This, as well as addressing elements of the working environment linked with disproportionate physical and emotional challenges, might reduce the rate of burnout in trainees.

5HH13 (798)
Junior Doctors Running Outpatient Clinics After a 24-Hour Shift: Effects on Patient Satisfaction and Prescription Errors

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Swee Leng Kui, National Heart Centre Singapore, Singapore
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Presenter: Siqi Tan, DUKE-NUS School of Medicine, Singapore

Background: Intuitively, sleep deprivation impacts junior doctors' performance and thus patient care. However, the literature is conflicting, with insufficient focus on patient outcomes. We studied if patient outcomes in outpatient clinics were adversely affected when patients consulted a post-call registrar versus a non-post-call registrar.
Method: This prospective, quantitative, post-positivist study was set in a large teaching hospital. Between November 2015 and February 2016, patients from all clinics run by a registrar after a continuous 24-hour shift (post-call) were recruited to the study group. Patients from non-post-call clinics run by the same registrars on a different day were recruited as controls. Outcome measures were patient satisfaction, using a validated 5-item 4-point Likert scale questionnaire, and prescribing error rate, defined as number of errors over number of orders. Between-group differences were analysed using the chi-squared test.
Results: 103 of 106 (97%) patients in 9 post-call clinics and 93 of 105 (90%) patients in 9 non-post-call clinics consented. The questionnaire completion rate was 99% in both groups. 536 prescriptions were ordered in the study group, and 526 in controls. Overall, the percentage of top-box responses (indicating greatest satisfaction) was higher in the study group versus controls (79.3% vs 62.4%, p<0.001). The percentage of top-box responses for each questionnaire item was higher in the study group. There was no significant difference in prescribing error rates between groups (1.31% vs 2.28%, p=0.23).
Discussion: Although unexpected, our findings importantly provide objective evidence that patients may safely consult a post-call registrar in clinic. Any impairment from physical or mental fatigue may possibly be mitigated by an adaptive conscious effort to be more conscientious when tired. The high patient response rate adds validity to our findings. Larger, longer term, multicentre studies will inform of these findings' generalisability to other healthcare settings. Qualitative studies of junior doctors' feelings when fatigued may shed light on the complex interaction of emotional factors that may compensate for tiredness.
Conclusion: Patient satisfaction and prescribing error rates are not detrimentally affected in post-call registrar clinics. The complex relationship between sleep deprivation and doctors' performance remains poorly understood.

5HH14 NOT PRESENTED

5HH15 NOT PRESENTED

5II: Posters: Social Media/Games

Location: Hall 4.u, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

5II1 (1933)
The Reflective Blogger

Authors
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Background: The e-Certificate course in medical education based at Cardiff University is delivered via Blackboard VLE. The learning and teaching module provides an opportunity to explore educational theories and their relationship to practice. There are a variety of formative tasks to engage learners, 2 of which are via the blogs, the remaining tasks are completed on the discussion forums. The Blogs are private from other students but tutors are able to view their activity and comment if requested, the blogs provide an opportunity to gather thoughts and reflections on the module content in one place.
Method: The main aim of this project was to explore engagement with the blogs as a platform to engage in reflective practice. Thematic analyses of the blogs and metrics from the VLE shall be presented.
Results: Nearly half (49%) of the students used the blog (49 out of 100) with a range of between 1-20 posts. Thematic analyses revealed issues about the course assessment specifically, concerns about writing an academic assignment, managing time, personal development plans, complex and challenging teaching events such as managing failing students in their own environment. Of the 2 module tasks, the andragogy blog proved the most successful for stimulating a response (91 posts) compared to the behaviourism task (50 posts). More significantly the personalised reflections blog had 136 posts covering a variety of course and personal experiences.
Students who blog are self-directed and record reflections on a variety of issues which include module tasks as well as their real-world experiences (Grosseck, 2009). Some students have shared many of their blog posts within the discussion forum, supportive of a safe area to explore, draft and reflect before sharing thoughts, demonstrating flexibility of the platform.
Conclusion: There are positive implications for the use of blogs to provide a flexible, self-directed supportive area to formatively record ongoing reflection 'on action' on a post graduate medical education course (Schön, 1987).

5II2 (2414)
Social Media Platform Facilitate Networking and Collaboration Between Domestic and International Emergency Medicine Residents

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Cheng-Heng Liu, National Taiwan University Hospital, Taipei, Taiwan

Presenter: Wei-Chen Chen, Chang Gung Memorial Hospital, Keelung, Taiwan

Background: Shift work and disperse training location hinder emergency medicine (EM) residents networking, collaboration and resources sharing. In small country with small-scale training program, the challenge become more serious.
Method: Emergency Medicine Resident Network (EMRN) was created in December 5, 2015 as a Facebook group based in Taiwan to enhance resources sharing, networking, diversity and collaboration between EM residents. Daily sharing on EM topics by members are the core online activity. Resident lecture competition, interview with EM physicians during medical conferences and outreaching to international EM residents' associations are offline activities to facilitate networking. EMRN is currently operated by three volunteer attending physicians and four residents from three hospitals.
Results: EMRN Facebook group has 2532 members from 28 countries. There are 1617 posts, 2727 comments, and 41950 likes in the past two years. Two online theme sharing activities on topics of advises to young EM attending physicians and advices to first-year EM residents were held in 2016 and 2017. The first Taiwan EM residents lecture competition was hold in the 2017 Taiwan Society of Emergency Medicine (TSEM) Conference and will be held regularly every year. EMRN interview was first hosted during 2016 American College of Emergency Physicians (ACEP) Conference with the President of Emergency Medicine Residents' Association sharing experience on medical education. The second EMRN interviews were hosted during 2017 ACEP Conference and 17 Taiwan and Hong Kong emergency physicians sharing tips on making the best use of international conference. In 2017, the experience of EMRN was shared in the Hong Kong College of Emergency Medicine (HKCEM) Chapter meeting. This event bridged EMRN and HKCEM Young Fellows' Chapter which lead to the first Hong Kong and Taiwan EM Residents Forum in 2018 TSEM Conference.
Conclusion: Networking, collaboration and resources sharing are key elements in residents training. EMRN provide a success model to connect domestic and international residents in the lack of official and financial support via social media platform.

Take-home message: Social media is an easily accessible and efficient platform to establish international networking and collaboration between medical personnel.

5II3 NOT PRESENTED

5II4 (1916)
A Multi-Institutional Study of Facebook as a Teaching Tool in the Undergraduate Medical Curriculum

Authors
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Presenter: Kelly Quesnelle, Western Michigan University Homer Stryker M.D. School of Medicine, Kalamazoo, USA

Background: Social media is not intrinsically designed for education, yet some research exists on integration of social media into medical education. Facebook is the most utilized social media tool of both medical students and educators, but the literature on Facebook in medical education is scant. As such, it is appropriate to ask whether Facebook is an effective tool as part of formal medical curricula or better utilized as an unofficial learning tool.
Method: This study purpose was to compare Facebook data on medical student engagement between a page that was an official part of course content vs. a page supplemental to curricular materials. Two Facebook pages were created for medical education: (1) an official curricular discussion board, (2) a supplemental forum for spaced-recall questions. Pages were administered over 3-6 weeks at two different medical schools. Metric data between the two pages was compared.
Results: Peak hours of Facebook use were highly concordant between institutions (10AM-11PM). Of invited users, the formal course-content page was liked by 77% and page content reached an average of 58% vs. 58% and 48%, respectively, for the supplemental page. Despite differences in overall page likes and reach, only 8-9% of invited users engaged with the pages daily. There was no statistical difference in daily engagement between the two pages. On the individual-post level, the supplemental, spaced-recall page posts were viewed and interacted with significantly more (9%) vs. the class discussion-board posts (3%). This finding prompted a combination and examination of data from both pages by post type: statement vs. question. Question posts garnered double the engagement, likes, and comments vs. statement-making or content-sharing posts.
Conclusion: While a greater proportion of invited users liked and were reached by the formal course-content page, greater post engagement was achieved with the supplemental page. Question-type posts generated the greatest student engagement. It appears the fast-paced, anytime-/anywhere-nature of social media makes for a valuable practice-question forum, which medical students commonly request.

Take-home message: We have demonstrated that question-type posts are most likely to optimize student engagement with Facebook.

5II5 (1467)
Integrating social media interaction with case-based learning in Pediatrics clerkship training: A Way Forward for Medical Education

Authors
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Presenter: Yin-Chih Fu, College of Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan

Background: Case-based learning is frequently used as a method in clinical education, which provides medical students with real clinical cases, as the vehicle to promote student learning of concepts and principles of patient care as opposed to direct presentation of facts and concepts. This study investigates whether utilizing the social media "LINE", the quick communication among clinical team members can promote together the learning effectiveness and outcome in the clerkship program, in detail.
Method: From 2017 to 2018, in Kaohsiung Medical University Hospital, the Fifth-year medical students of undergraduate medical program were arranged to complete a two-weeks rotating clerkship in Pediatric Cardiology and Pulmonology. In addition to the traditional ward teaching, students signed up "Pediatric CardioPulmonology Team Group" with the local popular social media LINE created by the researcher and composed of one attending physician, senior residents, interns and two clerks. The communicating contents included posing questions about the cases, locating the current articles targeting the caring issues and scheduling the therapeutic plans etc. In the final reports, the students were asked to summarize all the discussed issues presented.
Results: Subsequently, the enrolled students expressed higher satisfaction (near 100 %) with the learning environment, showed more confidence in dealing with numerous domains of patient care, and a stronger sense of patient-centeredness in the routine six-item survey questionnaire. Students' written feedback showed they could get more immediate feedback from the supervisors, enhanced the discussion as more time allowed, and the friendly function of bulletin board also facilitates in time uploading and reading of articles.
Conclusions: The enrolled students were in several ways better prepared than their peers, who also demonstrated richer perspectives on the course of illness, more insight into social determinants of illness and recovery, and increased commitment to patients. The novel trial indicated that integrated social media may offer students in-time learning resources and feedback, and provides more room for developing professional growth.

5II6 (1986)
Educational quizzing with the QuizUp trivia game app

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Presenter: Gavin Dawe, Department of Pharmacology, Yong Loo Lin School of Medicine, National University of Singapore, Singapore

Background: We investigated use of the QuizUp mobile trivia game and social networking app for educational quizzes. In contrast to gamification by use of educational platforms for quizzing, "educification" of the QuizUp trivia game and social network platform used by students for entertainment may eliminate the extraneous cognitive load of learning a new platform and enhance engagement. QuizUp allows for repeated practice of multiple-choice question stimulus-response pairings. The repeated isolated practice of key component knowledge to achieve fluency and automaticity facilitates the development of mastery. QuizUp may help to promote fluency and automaticity as it scores not only accuracy but also speed.
Method: Quizzes were provided on QuizUp for 299 second-year medical, 54 second-year dental, 185 first-year pharmacy, 197 second-year pharmacy, 125 first-year nursing, and 41 Master's nursing students. Quizzes covered 13 topic areas, and each contained a bank of 35 to 100 best answer multiple-choice questions. Participation was estimated from numbers of new followers registering after the announcement of the quizzes to each cohort. Qualitative comments in anonymous end-of-semester student feedback were collated.
Results: Estimated participation rates were medical: 55%, dental: 92%, first-year pharmacy: 90%, second-year pharmacy: 71%, first-year nursing: 40% and Master's nursing: 100%. Qualitative feedback was positive and suggested that QuizUp helped learning, consolidation of understanding and application of knowledge, for example: "very helpful in learning and applying the concept[s]", "promotes further learning", "allowed me to learn and revise", "love the quizzes to help us understand better", "allows us to consolidate our learning" and "very helpful in cementing concepts". Additionally, it was observed that QuizUp enabled interprofessional interaction between students from different classes playing the app with each other.
Conclusion: Presentation of multiple-choice quizzes on the QuizUp platform was well-received by students. Students believed that the quizzes helped them to consolidate and apply their learning. Further research is required to confirm whether the QuizUp quizzes enhance learning outcomes. Educification of gaming platforms used recreationally by students is accepted by students and may encourage student engagement while minimizing the extraneous cognitive load of learning new quizzing platforms.

5II7 NOT PRESENTED

5II8   WITHDRAWN

5II9 (907)
SavingLives!: A game-based mobile application to promote Cardiopulmonary Resuscitation training and competency

Authors
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Dan Norton
Lisa Buckley
Reid Adams
Eric Bauman

Presenter: Eric Bauman, Adtalem Global Education, Madison, WI, USA

Background: Cardiopulmonary Resuscitation (CPR) is a lifesaving skill and the foundation of basic life support (BLS), (Madden, 2005). The skill must be mastered by a broad range of healthcare providers and first responders including police, firefighters, lifeguards, coaches, emergency medical technicians, nurses and physicians. Among the skills tested during CPR/BLS training, effective chest compressions are considered one of the most important factors in achieving the return of spontaneous circulation. However, learners often achieve low scores in BLS chest compression skill demonstration (Ewy, 2007; Kellum, Kennedy, and Ewy, 2006). Although CPR/BLS recognition is a mandatory job requirement for many of these professions, regular deliberate practice is rarely performed, and CPR competency is poorly retained (Handley and Handley, 2003).
Alternative strategies including digital and game-based instruction have become a more prevalent, novel and accessible ways to promote initial training and skill retention. In addition, game-based learning may be ideal for continuing health professions education because it can provide a convenient and cost-effective tool that promotes learning anytime and anywhere (Bauman, 2016; Ricciardi & Paolis, 2014).
A review of the available digital mobile applications and games yielded a paucity of computer based games available to support for BLS education that are consistent with current American Heart Association (AHA) guidelines for proper rate of chest compression, depth of compression and allow for full chest recoil. SavingLives! is a tablet-based application that provides learners with just-in-time feedback in an authentic situated game where the patient status changes based on player performance associated with best practices in CPR.
The next steps are to study the performance of participants who used the game and who have not used the game in a simulated BLS environment to see if there is transfer to knowledge and/or skill.
This sort of access to formative and summative feedback through game-based learning may improve key competencies related to best practices in BLS/CPR.

5II10 (2705)
The hurdles for adopting mobile learning devices in the clinical setting

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Presenter: Daniel Folger, University of Helsinki, Faculty of Medicine, Helsinki, Finland

Background: Since 2013 the University of Helsinki has given new medical students iPads for study and private use. Simultaneously, an action research on mobile learning started. In 2016, the first iPad-cohort commenced clinical studies and we observed a drop in iPad use. The aim of this study was to explore hurdles students encountered with mobile devices in the clinical setting.
Method: The data were collected with online questionnaires among 3rd and 4th year medical students in 2017. The response rate was 72% (N=86) and 90% (N=108) respectively. We examined open-ended question answers on suggestions for developing mobile device usage in clinical context by using qualitative content analysis.
Results: The main categories for development suggestions were related to bed-side teaching and the clinical learning environment. The 3rd year students reported resistance towards usage of iPads at the initiation of clinical studies. Major hurdles identified in bedside teaching were attitudes and the size of the iPad. Teachers forbade using the device on the wards and students were ambiguous about using them with patients. Some students wished for role-models for device use in the clinic. Students desired comprehensive digitalization of the learning environment, e.g. uploading and distributing materials in mobile device-compatible formats before teaching, and tests and quizzes for self-assessment. Teachers and students were concerned about the risk for infection transmission.
Discussion: We recognized similar impediments as previously reported on mobile learning in the clinic. We identified hurdles related to both bedside teaching and the clinical learning environment. Attitudes towards mobile device use in patient contact was a key hurdle, whereas problems in the learning environment centered around practical features.
Conclusion: The clinical context is prone to resistance towards mobile technology in students' learning. Attitudes and the physical format of devices appeared to be the greatest hurdles. The window opportunity for adopting novel technology and practice in learning is the initial phase of the clinical studies. Identifying the hurdles for adopting mobile learning devices in the clinical setting enables us to discover feasible ways of using these devices, for the best of the patients and future doctors.

5II11 (1017)
Developing interactive multimedia e-books for undergraduate medical students in core clinical competencies

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Presenter: Chih-Cheng Hsiao, Kaohsiung Chang Gung Memorial Hospital and Chang Gung University College of Medicine, Chang Gung Medical Education Research Centre, Kaohsiung, Taiwan

Background: Core clinical competencies consisting of basic clinical skills, basic communication skills and basic clinical attitude should be acquired by all undergraduate medical students in Taiwan. Interactive multimedia e-books were designed to help students to improve their learning in core clinical competencies and evaluate the effectiveness.
Method: We used SimMAGIC e-book software, the simple and clear editing layout, customized editing tools and various content editing functions, to create 81 interactive multimedia e-books including fields in physical examination (31), visual image interpretation (6), laboratory examination (8), procedure skills (16), therapeutic skills (14) and others (6) for learning core clinical competence. Learning outcomes were examined by pre-test and post-test. A questionnaire was used to record the students' perceptions, with rating on a 5-point Likert scale.
Results: 62 undergraduate medical students participated in the study and evaluation of e-books. With regards to how effective this e-book learning method was for students, the questionnaire scores ranged between 4 and 5, i.e. agree and strongly agree. The score in teaching material planning was the highest, scoring 4.31 out of 5, followed by self evaluation which was 4.17. Contrarily, the e-book platform had the lowest scoring at 4.08. The average score increased from 74.76± 9.87 in the pre-test to 86.60 ±11.49 in the post-test (p<0.01). Most of the students unanimously considered using e-books were effective in learning core clinical skills.
Our data supported that the interactive multimedia e-book is effective for undergraduate medical students to facilitate learning core clinical competencies. Future work should be done to improve interface function of e-book platform.
The students perceived that the e-book design was informative and useful. Interactive multimedia e-book could be taken into account as an alternative study method in learning core clinical competencies.
Conclusion: Curriculum innovation in the interactive multimedia e-book module for learning core competencies

was moderately effective and well received by the students. Furthermore, it can help undergraduate students approach patients holistically and safely.

5II12 (3660)
Taxonomies: Our superpower?

Authors
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Susan Kennedy, Health Education England, London, UK

Presenter: Richard Price, Health Education England, London, UK

Background: We possess a superpower in our pockets that we use every day without realising it. That superpower is the taxonomy, an information technology that powers the apps on our phones, the websites we browse and supports the decisions we make. Without a taxonomy, we would struggle to find much of the information we take for granted when using search engines and websites. Existing taxonomies are not always designed to support the search and discovery of education and training resources.
Method: We worked with doctors to build a prototype taxonomy to improve the way they find, access and discover learning content across digital systems and services including e-learning and e-portfolios. We took around 2000 terms from a wide range of different taxonomies such as SNOMED and MESH and mapped these words against synonyms to create a learning-specific taxonomy suitable for tagging and indexing educational resources. E-learning resources in a learning management system were tagged with the new taxonomy terms and the search tested with clinicians in a workshop to establish ease of discovery compared to existing search engines.
Results: Initial desk research indicated that existing taxonomies lack relevance when applied in a learning context. When e-learning resources were tagged and indexed against the learning-specific taxonomy, clinicians noted that learning objects were significantly easier to find compared to searching for the same materials using the default learning management system search tool.
Discussion: Existing taxonomies such as SNOMED work well for clinical coding but our research found that clinical codes were not very helpful when applied to learning materials. By building a custom taxonomy, based on crowd-sourced terms, it was possible to significantly improve the discovery of learning materials using search.
Conclusion: Taxonomies are transforming the way we share, search and discover education and training materials, turning information into an everyday superpower!

5II13 (773)
Development of Information Literacy Skills Evaluation in Preclinical Medical Students based on the American Library Association 2015 Framework: A Pilot Study

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Presenter: Werapat Pathanasri, Department of Anatomy, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background: Information literacy (IL) includes recognizing information needed, searching, evaluating and applying the information. Teaching IL in preclinical students should prepare them for application in clinical periods. The recent update of IL framework in Association of College and Research Libraries (ACRL) 2015 calls for a new corresponding evaluation tool. Thus, we develop a feasible and discipline-specific IL evaluation among preclinical medical students.
Method: An evaluation comprised of three performance-based assessments with grading rubrics and twelve multiple-choice questions was developed based on the ACRL 2015 IL framework validated by experts. The evaluation session was held in a standard test center. Difficulty and discrimination indices of the test were analyzed. Differential item functioning, factor analysis, Cronbach's alpha and Spearman-Brown prophecy formula were used to gain further insight for test development. Results from test analysis and participants' feedback were used to subsequently refine the evaluation.
Results: Twenty-seven preclinical medical students participated in the session. The average difficulty and average discrimination indices were 0.83 and 0.29, respectively. Gender and grade point average has no differential effect on the score ($p \geq 0.05$). Exploratory factor analysis revealed two factors with Cronbach's alpha of 0.42 and 0.20, respectively. The multiple-choice questions have to be increased to a total of sixty-two items to obtain reliability of 0.7 based on Spearman-Brown prophecy formula.
Conclusion: This is the first study to match discipline-specific IL competency with ACRL 2015 guideline. The overall difficulty and discrimination index of the multiple-choice questions were in good range. However, the

internal consistency and reliability of the questions set was low due to small number of test questions and little variation in difficulty. Exploratory factor analysis with two extracted factors illustrated different components of the IL concept between the empiric model as compared to the ACRL 2015 framework; however, this difference was potentially due to small sample size.

Take-home messages: Discipline-based IL assessment for preclinical medical students is achievable through multiple-choice questions and performance-based evaluation.

To obtain an acceptable reliability index, the multiple-choice questions should be extended to at least 60 questions based on ACRL 2015 IL framework.

5II14 (913)
Utilization of internet resources and standard textbooks in emergency medicine questions: A comparison study in correction among medical students

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Presenter: Chirakit Hengrasmee, Department of Emergency Medicine Vajira Hospital Navamindradhiraj University, Bangkok, Thailand

Background: The use of technology is increasing rapidly and growing technological influence can be seen in modern medicine. In emergencies, precise diagnosis and timing are keys to correct crises. The decision to make a quick and proper treatment based on the right information contributes to the effectiveness of the practice in emergency medicine worldwide.

To compare the correction and duration of the responses to validated emergency medicine questions among medical students between the use of emergency medicine standard textbooks and internet resources including medical applications.

Method: A randomized investigator-blinded crossover study was conducted among 40 medical student volunteers who have recently completed the 4-week emergency medicine rotation at Faculty of Medicine Vajira Hospital Navamindradhiraj University. All emergency medicine questions were validated by the pilot study group and the difficulty index of 0.2 or less was accepted. The statistical relationship was tested by the Wilcoxon Signed Ranks Test and Spearman's correlation coefficient with statistical significant difference at p value of 0.05 or less.

Results: There was no statistical significant difference when compare between the median of correct answers using standard medical textbooks and the internet resources (p value = 0.116 with interquartile range of 2.5-4.5 and 3.0-5.0 respectively). However, the median of time spent on answering the questions using standard medical textbooks was significantly longer than using internet resources with the median of 4.285 (3.0-6.0) and 3.333 (3.0-4.017) minutes respectively (p-value < 0.001).

Additionally, there was no correlation between the correction ratio (the ratio of correct answers and all answers) and grade point average (GPA) regardless of the methods (correlation coefficient of 0.003, p-value = 0.985 and correlation coefficient of 0.247, p-value = 0.130 in standard textbooks and internet resources respectively).

Conclusion: Utilization of internet resources and medical applications which are up-to-date and referenced, is less time-consuming and able to provide correct answers in emergency medicine equivalently to standard medical textbooks regardless of individual basic medical knowledge.

5II15 (2435)
Cooperative Learning for Health Promotion within Hackathon

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Presenter: Kung-Pei Tang, Department of Education and Humanities in Medicine, School of Medicine, College of Medicine, Taipei Medical University, Taipei, Taiwan

Background: The inter-professional education has received increasing attention in the context of healthcare industry. Hackathon is an activity to induce students from different health care professions to solve problem creatively together. We arranged a Hackathon activity to engage health care professions students to propose local health promotion projects (2017-September-08 to 10). 58 undergraduates and one graduate student at Taipei Medical University participated this activity.

Method: All hackathon participants were randomly divided in 8 groups and assigned to propose a health promotion project according to cases scenarios addressed by mentors. The Positive Social Interdependence Readiness Scale (PSIRS) was employed to investigate students' perception at begin and the end of their teamwork. PSIRS comprises three factors: 1. appreciation of cooperative learning, 2. positive interdependent mindset, 3. collective efficacy. Students' learning achievement were quantified in peer assessment score. Students' project-based learning achievement was quantified in scores of peer assessment.

Results: According to paired T-test, participants' collective efficacy increased significantly. After controlled the variables age, gender and the pretest scores of PSIRS, we found that students' PSIRS posttest scores were positive correlated to their project-based learning achievement scores (β = .21, p = .05).

Conclusion: Students' appreciation of cooperative learning and their attitude toward positive interdependent relationships during teamwork haven't significantly changed because this Hackathon, but they perceived more efficient and robust in teamwork after the intensive cooperative learning. The perception of stronger collective efficacy has been reflected on the assessment scores of their group projects.

Take-home message: The Hackathon activity can enhance students' cooperative learning performance.

5JJ: Posters: Junior Doctor as Teacher/Teacher as Mentor and Role Model

Location: Hall 4.u, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

5JJ1 (1512)
Exploring the Relational Processes that occur within Mentorship in Academic Medicine

Authors
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Background: Good mentorship provides many benefits in academic medicine. It improves career satisfaction, research output, and career development. Mentoring efficacy is strongly influenced by the quality of the relationship between the mentor and mentee. However, we lack a conceptual understanding of how the relationship between mentor and mentee unfolds. Without this understanding, we are severely limited in our ability to devise interventions that support the development of meaningful mentoring relationships.
Method: We explored how mentoring relationships in academic medicine develop through qualitative interviews with mentors and mentees. Iterative data collection and analysis followed Constructivist Grounded Theory principles. Semi-structured interviews were conducted with 16 faculty members and residents across all medical departments to explore their mentoring experiences. Participants represented a mix of mentors and mentees and we sought to sample mentor/mentee pairs where possible. Sensitizing concepts from literature on adult relationships informed our inquiry on possible processes that could be occurring in mentoring relationships. Using constant comparative analysis we approached the data both as individual interviews and as mentee/mentor pairs. All interviews are completed and analysis has moved to the theory-building stage.
Results: Initial results suggest that processes related to developing a professional and personal relationship between mentor and mentee are key to meaningful mentoring relationships. These processes included mentors and mentees understanding each other's values, adjusting to one another's interpersonal style, and perceiving each other's mentoring needs. Comparisons between meaningful mentorship and personal relationships were common. While mentors and mentees cited common factors such as work ethic or feeling valued as important for the development of the relationship, the relative value of each factor varied depending on the relationship.
Conclusion: Initial results emphasize the importance of the professional and personal relationship in mentoring and how mentors and mentees seek to understand each other's values, interpersonal style, and needs to grow the

relationship. Future work should consider whether interventions that facilitate these processes foster effective mentoring relationships in academic medicine.
Take-home message: Mentors and mentees engage in a process of understanding each other's values, interpersonal style, and needs to grow the professional and personal relationships that characterizes mentorship.

5JJ2 (3150)
Mentoring Relationships of Female Doctors in Three Different Countries: Are they Perceived as Friendships?

Authors
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Presenter: Heba Mohtady, Fakeeh College for Medical Sciences, Saudi Arabia; Zagazig University, Egypt, Cairo, Egypt

Background: Female doctors have to overcome various challenges to develop their careers, especially in countries where gender roles are still undergoing a change process. These challenges include work-life balance, gender discrimination and scarcity of training opportunities. Effective mentoring may diminish some of these obstacles and protect against negative influences encountered by female doctors. Therefore, female protégées are often encouraged to take advice from a mentor within the medical field. Nevertheless, perceptions of mentorships may vary with personal factors such as age and gender. This study explores the perceptions of mentoring among female doctors. How do female mentors and protégées perceive informal mentoring with regards to friendship in comparison to male peers?
Method: Perceptions of psychosocial roles were measured in 194 participants (102 females and 92 males) from universities in Egypt, Saudi Arabia, and Pakistan using a questionnaire measuring the perceptions of informal mentoring. This abstract specifically reports on the subscale measuring perceptions of friendship (PF). The influence of Gender (male or female) and Role (mentor or protégée) on PF was investigated in a multiple regression analysis with Gender and Role as predictors of PF, while controlling for Age and Duration as potential confounders. The standardized regression coefficient was used as an indicator of effect size. Using Cohen's classification values 0.1, 0.3 and 0.5, respectively correspond to small, medium and large effects.
Results: PF (5-point scale) was found to be 3.03 for male participants in the role of protégée. For female participants PF increased by 0.26 (regression coefficient(b)=0.26, standard regression coefficient(src)=0.15, p=0.03), a small effect, and for the

role of mentor vs. protégée the increase was 0.49 (b=0.49, src=0.27, p=0.003), a medium effect.

Conclusion: PF of mentors and protégées differ according to gender. A sense of friendship is suggested to form a crucial element of the female informal mentoring relationship. Female mentors usually aspire to provide psychological support based on friendship. The effectiveness and satisfactions of the friendship aspect of mentoring relationships rely on mentors, protégées and other variables including gender.

Women value their friendliness in mentoring relationships more than men.

5JJ3 (2941)
Mentoring medical students – a systematic review of the literature from 2008 to 2018

Authors

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Presenter: Elise P. Skjevik, UiT the Arctic University of Norway, Tromsø, Norway

Background: In the last decade, the establishment of group-mentorship programs for undergraduate medical students has become a significant trend, particularly in European and North American medical schools. Two previous systematic reviews on mentorship programs for medical students limited to publications listed in Medline (1966-2002) and PubMed (2000-2008), identified and described 9 and 14 formal mentorship programs for medical students, respectively. The aim of our study was to identify new publications describing both one-to-one and group mentorship programs.

Method: We searched OVID Medline and Embase databases from January 2008 – January 2018, using a combination of relevant key words and Medical Subject Headings (MeSH). All titles and abstracts were assessed by the first and last author. Additional search strategies included manual review of references identified in the primary search and expert input. We specifically focused on articles that described (1) group mentoring; (2) one-to-one mentoring; or (3) evaluated the mentor program.

Results: The database search identified a total of 494 scientific papers, of which a mere 22 papers describe mentorship programs for undergraduate medical students. Mentorship programs exist in various formats; formal or informal; one-to-one, group-based or as a combination; implemented in the curriculum or occurring serendipitously. The aims of mentorship programs vary from facilitating career-planning, ethical discussions and communication skills training, to enhancing social support and the formation of a professional identity for medical students. Group-mentorship programs vary regarding mentor group size, number of mentors per group,

recruitment of mentors, the duration and frequency of meetings, content emphasis, financial support of the program and coordinated faculty development. Few undergraduate medical schools with existing mentorship programs have published descriptive and evaluative reports about their programs. Available evidence reports a wide variation in format and aims on how mentoring medical students can and should be done.

Conclusion: For medical schools who consider establishing mentorship programs of their own, knowledge of factors associated with experienced success, key challenges and obstacles, are essential. Medical schools with mentorship programs not described in scientific literature are encouraged to publish descriptive and evaluative reports about their programs.

5JJ4 (3207)
The Roles of a Teacher: What does coaching add?

Authors

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Presenter: Brad Barth, University of Kansas Medical Center, Kansas City, USA

Background: Educators need to have a wide variety of skills. Our hypothesis is that they play roles as a teacher, mentor, coach, and supervisor. We recently developed a one-on-one clinician-student "Coach" relationship at our institution and wanted to obtain clarity around this role.

Method: We developed definitions and behavioral descriptors of each role using the literature and a modified Delphi approach. We then surveyed faculty to determine their perception of the roles, as well as their ability to identify which role a behavior best exemplified.

Results: The initial survey and modified Delphi approach had a response rate of 64% . The second survey went to teaching faculty in the Coach position and had a response rate of 84%. Agreement was higher as the definition was more clearly related to the role. (e.g. explaining oncogene function was clearly recognized as teaching, role-playing was clearly recognized as coaching). One area of high agreement between the two populations, and with the literature, surrounded the mentoring role. The faculty that had received training and were in the Coach role were more likely to assign an uncertain or unclear behavior to the coach role, whereas the expert group was more likely to assign an uncertain behavior to the role of mentor. The results of this survey highlight a need for greater collaboration between curriculum architects and operators. There were areas of agreement and disagreement between experts and faculty in the Coaching role. The results of this study will clarify the role of the Coach at our institution as iterations of curriculum reform unfold. More faculty development will be required around the roles of an Educator.

Conclusion: Coaching holds great promise in education, but at this point the definition is not clear. We need to clarify the definitions and provide faculty development for them to improve as coaches.

5JJ5 (995)
Teaching Mentoring for Junior Doctors

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Presenter: Maria Bashyam, London North West University Healthcare NHS Trust, London, UK

Background: New Year 1 Foundation doctors (FY1's) are enthusiastic about teaching but lack experience and guidance (Rodrigues 2010). We have introduced teaching mentoring to develop confidence and ability as a medical educator at a London teaching hospital.
Method: This is an interpretive study designed to explore FY1 doctors' views on the effect of a teaching mentoring scheme on their confidence as a teacher. Ethics approval was granted by our trust. Recruitment was voluntary, FY1's interested in teaching were invited to run small group tutorials for year 6 students in curriculum aligned sessions on acute care management.
Results: Mentors provided guidance to FY1's through a pre-session meeting, observing the teaching session and concluding with a post session debrief incorporating review of student feedback. The effect of this scheme was explored using a pre and post-session questionnaire, observation feedback forms and one to one debrief sessions allied with focus groups and semi structured interviews.
Quantitative and qualitative data will be analysed into themes, facilitating deep and meaningful analysis.
Six FY1's volunteered to participate in the scheme. Initial questionnaire results show maximum improved confidence in self-evaluation and feedback analysis. All participants rated the teaching observation, debrief and overall experience very useful (5/5). Focus group results to follow.
Data analysis will be completed by March 2018.
Conclusion: Teaching mentoring for FY1's helps improve the confidence in preparation, self-evaluation and delivery of teaching. Self evaluation and feedback analysis are essential skills for an educator and clinician. Improving these skills will contribute to continuing professional development and quality of teaching delivered.
FY1's enthusiasm is a helpful source of teaching. Mentoring can promote development of essential teaching skills in this group by increasing the confidence in teaching preparation, delivery, self evaluation and feedback analysis. These are transferable skills across all clinical specialties.

Rodrigues J, Sengupta A, Mitchell A, Ramoutar D, Maxwell S. 2010. Are UK Junior doctors being taught to teach? Med Educ 44-324

5JJ6 (1917)
Understanding the e-mentoring relationship within Medicine: a thematic analysis

Authors
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Presenter: Lalit KR Krishna, Division of Supportive and Palliative Care, National Cancer Centre Singapore, Singapore

Background: E-mentoring has great potential in Medicine, but is reported to be underexplored. There are conflicting views over whether a mentoring relationship can be attained virtually, and the quality of such relationships questioned. This study aims to shine light on the e-mentoring relationship in Medicine, to evaluate current needs and gaps in e-mentoring and how strategies can be developed to facilitate the development of fruitful e-mentoring relationships.
Method: A literature search was done on PubMed, Scopus, ERIC, Google Scholar and Cochrane Database of Systematic Reviews for articles with a focus on e-mentoring in Medicine. Open coding was carried out by the authors and thematic analysis was performed.
Results: 2554 articles resulted from the initial search, 89 full texts were retrieved after review of titles and abstracts, and 14 articles were selected. Data centralized to interpersonal relationship and reflections were extracted and thematic analysis arrived at 7 themes. Themes identified include the pros and cons of e-mentoring, details of the e-mentoring relationship such as the development and the tone, the role of the mentor in initiating and maintaining the relationship, the mentees' benefits from the process, and comparison to face-to-face mentoring.
Our results show that an e-mentoring relationship can develop effectively through online platforms with complexity and depth rivalling that of traditional face-to-face mentoring. Like traditional mentoring, e-mentoring relationships are multi-faceted. It encompasses variations in tone ranging from formal to informal, communication details, purposes, process and progress starting from initiation to the ends or continuation as friendship. These relationships ultimately benefit mentees in personal development, knowledge and social bonding. In view of the geographical and chronological barriers that e-mentoring can overcome, we should focus on developing e-mentoring programs, especially on growing the mentoring relationship.
Conclusion: E-mentoring is not merely another e-learning platform. Forming a quality e-mentoring relationship is possible and brings significant benefits to the mentees. It should be a focus of current and future e-mentoring programmes.

Take-home message: Relationship is an important aspect of e-mentoring that should be explored and enforced. It is complicated and intricate, and can bring substantial benefits to the mentees' learning.

5JJ7 (2279)
Assessing mentoring - a systematic review of mentoring assessment tools between 2000-2015

Authors
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Presenter: Yong Xiang Ng, National University of Singapore, Singapore

Background: Mentoring's success pivots on meeting the particular needs and goals of mentees and mentors. Ensuring that these personalized mentoring relationships comply with prevailing standards of practice and codes of conduct underlines the need for comprehensive methods of evaluating mentoring processes. A dearth of assessment tools and the presence of a wide variety of mentoring practices and settings occasions the need for scrutiny of prevailing methods of assessing mentoring in the extant literature.

Method: Three reviewers carried out independent literature searches using PubMed, Scopus, Embase, ERIC and Cochrane Database of Systematic Reviews for publications on mentoring tools published between 1 January 2000 and 31 December 2015. Acknowledging mentoring's context- specific nature that makes comparisons of mentoring across different settings difficult, the reviewers carried out independent thematic analysis of included articles.

Results: 10,246 abstracts were identified,193 full text articles were retrieved, 34 articles were included and thematically analyzed. Seven themes were identified including the mentoring relationship, the mentoring process, the provision of psychosocial support, enhancing personal development, the nature, form and frequency of communication, career advice and the provision of effective feedback.

The focus of mentoring evaluations revolves around and reemphasize the importance of mentoring relationships and holistic support provided by mentoring processes. They also underline the need for longitudinal and holistic evaluation of the impact of mentoring experiences.

Conclusion: Identification of the key areas of the mentoring process to be evaluated allows for the design of more holistic appraisal tools. The data will also guide mentor training programs, the provision of support for mentees, the mentoring process and mentors. Robust and effective tools for the evaluation of mentoring also allow for the long-term benefits of mentoring programs helping to improve programs and justify funding of these projects. Identification of the key mentoring domains allows for effective and holistic evaluation of mentoring processes that are essential for the development of mentoring programs and their place within personalized medical training in formal medical curricula.

5JJ8 (1962)
Designing a Framework to Match Mentees and Mentors Through Thematic Analysis of Mentoring Programs Between 2000 and 2015

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Background: Individualizing mentoring is necessary to meet the distinct goals, abilities and needs of mentees and mentors. Thus, matching has been acknowledged as key to effective mentoring relationships. However, the matching process remains poorly elucidated. This literature review aims to identify the important factors and processes in matching to lay the foundation for a consistent and reliable approach to matching.

Method: Using "matching', "mentor", "mentoring", "mentorship", "medical students", "medical school" AND "medicine" or their combinations as search terms, this review scrutinized matching medical students to senior clinicians in mentoring programs. PubMed, ERIC, Cochrane Database, OVID and ScienceDirect databases between 2000 and 2015 were searched. Thematic analyses were employed to circumvent inherent differences in practices in different settings and diverse groups of mentors and mentees.

Results: 25605 abstracts were retrieved, 162 full-text articles were reviewed and 34 articles were included. The themes identified were individual expectations and commitment, matching factors and accepting a match. Matching begins with assessing the commitment, expectations and goals of the mentee and the mentor through matching forms. Mentees may be provided with a list of potential mentors with whom they meet to discuss their specific goals. The mentee and a mentor then agree to work together, having established a working relationship. This selection has significant impact upon the mentoring approach and the mentoring environment.

Conclusion: Our results suggest an approach to matching which has effects echoing long into the mentoring relationship. The matching process, mentoring approach and mentoring environment cannot be considered as discrete entities, but rather as intimately entwined processes that must be considered and evaluated holistically and in a longitudinal manner. Thus, whilst matching, mentoring environments and processes are reported separately, how they fit together and interact should be the focus of future research.

Take-home messages:
1. Matching is pivotal to the success of a mentoring relationship
2. Careful consideration needs to be invested in creation of an effective matching process

3. Matching may be considered in 3 phases: collection of individual data of individual expectation and commitment, mentor selection, and continued evaluation of the mentoring process.

5JJ9 (1384)
Mentoring relationships as complex adaptive systems - a study based on the Palliative Medicine Initiative mentoring program

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Background: Mentoring relationships sit at the heart of mentoring's success however its evolving, entwined, adaptable, mentee-, mentor-, organizational-, relational-dependent nature has been difficult to study, compromising the effective design and oversight of mentoring programs. Similarities between mentoring's nature and complex adaptive system (CAS), described as "a collection of individual agents with freedom to act in ways that are not always totally predictable, and whose actions are interconnected so that one agent's actions changes the context for other agents" provides a hope for program designers and curriculum planners.
Method: We studied mentoring relationships within the Palliative Medicine Initiative (PMI), a mentoring program designed to generate research in Palliative Medicine and end-of-life ethics, to evaluate if mentoring's nature is a form of CAS. Purpose designed questionnaires were used in semi-structured face-to-face interviews with all mentees within the PMI program between 2013 and 2015. The 16-transcribed audio-recordings were anonymized and 'member checked' before being thematically analyzed by two independent reviewers.
Results: Seven broad themes were identified: goals, matching, roles of the mentor, characteristics of the mentee and mentor, changing nature of the relationship, organizational impact and environmental influences reaffirmed the features of mentoring's nature. They highlight the evolving nature of mentoring relationship and a variety of influences upon it.
The data suggests that mentoring relationships adapt in a nonlinear manner in response to changes in the mentee's, mentor's, organizational, relational and societal factors. The impact of change within these independent entities is complex as their influence upon the mentoring relationship is interrelated, making responses to change unpredictable. Change and adaptations is followed by self-organization with different factors playing vital roles in sustaining the relationship. It is also evident that wider societal influence also impacts the mentoring relationship, revealing the mentoring relationship as a far larger and complex system.
Conclusion: CAS better describes mentoring relationships and offers greater insights to medical educators designing and overseeing mentoring programs. Further studies are needed to follow mentoring relationships longitudinally and must include holistic appreciation of all parties involved.
Take-home message: Understanding the CAS approach is valuable to mentoring's success.

5JJ10 (2284)
The design of a novel mentoring assessment tool

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Background: Mentoring is a key element of successful professional development and personalized education and pivots upon the effective nurturing of mentoring relationships. Assessing the 'health' of mentoring relationships and providing timely, holistic, individualized and appropriate to support mentoring relationships in need can be difficult in changing conditions.
A tool that could assess the needs of mentoring relationships and guide effective support would be a boon for mentors and program administrators overseeing the various relationships within the program. This review seeks to evaluate prevailing tools that assess mentoring and propose the framework for a novel mentoring relationship assessment tool.
Method: Three reviewers carried out independent literature searches focused upon articles discussing and detailing aspects of assessments of mentoring relationships published between 1 January 2000 and 31 December 2015. PubMed, Scopus, Embase, ERIC and Cochrane Database of Systematic Reviews databases were used.
Results: 10,246 abstracts were identified, 193 full-text articles were reviewed, and 34 articles were included. There were 33 mentoring tools found. Three key domains assessed were 1) Research/clinical work, 2) Career guidance and 3) Psychosocial support. The aspects evaluated in the 632 questions found focused upon the management of expectations and goals, the quality of communications within the mentoring pair, the provision of psychosocial support, career guidance, research/ clinical support provided and general mentoring experiences. These tools allow for early recognition of issues in the mentoring relationship, identify specific areas for attention and facilitate better oversight of the mentoring process. However significant gaps specifically in terms of the provision of feedback and the quality of interactions within mentoring relationships require further attention to empower both the mentor and mentee to make changes that will enhance the relationship.
Conclusion: Periodic evaluation of the mentoring process is crucial to allow mentee and mentor the opportunity to develop the mentoring relationship in meaningful ways. This also gives opportunity for stakeholders to have effective oversight of mentoring programs.

5JJ11 (495)
Medical Student Perceptions About Negative Attributes of Potential Role Models

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Background: The influence of role modelling on medical student professional development has increasingly drawn the attention of medical educators. Although a relatively large number of studies have investigated the positive attributes of clinical trainers who could act as role models to students, the identification and description of negative characteristics of potential models has been less explored.
Method: Students (N=301; Years 2-5) from a six-year undergraduate program in a single institution answered to a questionnaire on role models characteristics. This included an item asking them to describe openly up to five negative attributes. Two investigators working independently codified the descriptions using a qualitative research technique for content analysis. Codified descriptions were then analyzed quantitatively.
Results: Answers on negative attributes were obtained from 291 students (96.6%) who described a median of four characteristics each and produced 898 descriptions. This allowed the identification of more than 30 different negative attributes, which were coded in five different categories: "Personal aspects" (37.2% of the 898 descriptions), "Patient management and professionalism" (27.1%), "Communication and relationship with patients" (25.3%), "Teamwork and inter-professional relationships" (8.0%) and "Teaching and relationships with students" (2.4%).
Students have defined not only attributes opposing known positive characteristics, which could suggest a response bias, but also a wide range of negative characteristics. This included many attributes already known and others not yet described. Negative attributes encompassed chiefly characteristics involved in patient care and personal qualities, with a much lesser contribution of teaching flaws. Besides the well-known categories of role model attributes ("Patient care", "Teaching" and "Personal"), students were able to identify negative characteristics pertaining to other categories ("Teamwork and inter-professional relationships"). These findings indicate that students have a clear perception of undesirable characteristics of clinical trainers, which therefore they would possibly not attempt to imitate.
Conclusion: Students appear to be able to discriminate between good and bad role modelling. Students perception on negative attributes seems to be more varied than that regarding positive characteristics. Institutional initiatives for improving role modelling should consider not only fostering model positive attributes but also inhibiting the expression of negative characteristics.

5JJ12 (2093)
Perception of final year medical students on role model and anti-role model characteristics

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Background: Professional behaviors are parts of our ultimate outcomes required in medical trainees. As explained in an educational theory of apprenticeship, most students learn to behave professionally and vice versa from their teachers. Although students have long exposure to the same clinical environment, individual students may perceive how their teachers being a role model or anti-role model (negative role model) differently.
Method: The objective of this study was to determine the perception of final year medical students on the positive and negative role models in clinical teachers. Twenty-eight final year medical learners at Suratthani Medical Educational Center were invited to rank their perception on positive and negative professional behaviors and 5 students were randomly selected for an in-depth interview during October - November 2017. Descriptive statistics were used.
Results: Top three positive professional behaviors that students ranked the first were 'altruism,' 'good teaching and mentoring skills,' and 'excellent professional knowledge and skills' (28.6%, 28.6%, and 17.8% of all students respectively). The least favorable positive role model characteristic was 'leadership and collegiality' (21.42%). Top three negative professional behaviors that students ranked the most dislike were 'disrespecting others,' 'being rude to others,' and 'irresponsible to patient care,' (46.4%, 25%, and 14.3% of all students respectively), while 'dress improperly' was reported as the least important negative behavior (75%). According to the in-depth interview, most of the participants affirmed that role model can be strongly inspiring person to their future success, and all of them reported that they would imitate positive behaviors from their teachers, while one student was critically aware that negative behaviors can be

different in each individual teacher, given that he/she would not emulate such negativity.

Conclusion: The majority of favorable role model and detestable anti-role model characteristics were related to non-clinical skills of medical profession, in particular interpersonal skills. Moreover, learners were highly concerned about a good student-teacher relationship as an important factor on their successful clinical education.

Take-home message: Medical teachers need to be a highly clinical competent physician as well as a good professional role model.

5JJ13 (805)
Evaluating a Resident-as-Teachers workshop – the added value of student perspectives

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Background: The role of residents as teachers (RaT) is crucial. RaT programs are established worldwide but residents still report feeling ill prepared to teach medical students effectively in a clinical examination course (CEC).
Method: An innovative RaT workshop was implemented to prepare residents to teach. A retrospective pre-post questionnaire was distributed to workshop participants ('trained residents'). Non-workshop participants also teaching in the CEC were considered the control group ('untrained residents'). All residents who had taught in the CEC were asked to fill out a second questionnaire about self-reported perceptions of their teaching. Medical students' perceptions were obtained using a post-course questionnaire, distinguishing between trained versus untrained resident tutors.
Results: Residents reported high satisfaction with the workshop; significant differences in their knowledge and perception were shown before and after the workshop. They also reported a change in their teaching behavior after conducting several CEC. There was no significant difference between trained and untrained residents in their self-perception as a teacher. In contrast, students blinded to the status of their residents evaluated trained resident teachers higher for the overall rating of the course, rating of the tutors, and residents' knowledge and enthusiasm.

Overall, residents were satisfied: attending a RaT workshop addressed their needs and they reported an increase in their teaching ability. However, those who did not attend the workshop also felt comfortable in teaching. As these findings just rely on self-report and could lead to the misinterpretation that the designed workshop did not show a significant difference between the groups, asking the students as recipients of resident teaching adds important information because they report a higher satisfaction with trained tutors.
Conclusion: Workshop evaluation on RaT should aim to explore more than just participants' self-report. Within a

questionnaire study with little budget, the added perspective of students helps to get additional information in advancing a workshop.

5JJ14 (2727)
Peer teaching within the North West Foundation school, introducing PiPs - the Peer Teachers in Practice network

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Background: Peer teaching, if planned with a robust strategy, can be an effective way to introduce essential teaching skills and may contribute significantly to postgraduate medical education. Peer teaching activities are currently varied across the North West England Patch. Some teaching centres are facilitating strong engagement with foundation doctors in peer teaching with input to curriculum planning as well as providing regular sessions for them to teach with support for development of skills. Other centres are yet to develop such programmes for their foundation doctors in training.
Method: Peer Teachers in Practice (PiPs) was initially planned as a one off training day to support aspiring foundation peer teaching leads. This was with the aim of; providing a tool kit for designing and developing peer teaching programmes (including programme design, ensuring project longevity, interactive teaching and presentation skills); providing an opportunity for networking and sharing of ideas from around the region.
Results: The training day was well attended with leads from across the patch. It became evident on the day that there was an appetite for sustaining an ongoing network for leads across the region. Following on from the event foundation leads have had assistance to set up new programmes and an online network has been created. It is hoped that an annual PiPs day will provide training and networking opportunities for new aspiring foundation leads each year.

Foundation doctors frequently engage in informal teaching activities but training in this early stage is not always provided. Peer teaching programmes should be planned with support from admin and senior clinical staff. We provided a training day and opportunity for leads to share experience and good practice with the aim of supporting the development of programmes within an acceptable framework.
Conclusion: Peer teaching is a high impact, low resource driven activity that can be effective in supporting postgraduate medical education as well as fostering essential skills in teaching. Facilitation of the development of peer teaching programmes at all teaching centres is essential.

5JJ15 (3213)
The 'Diabetes Acute Care Hour' near peer teaching improves junior doctors' confidence, prescribing skills and inpatient diabetes care

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Background: Prescription of medicines relating to diabetes management is one of the highest risk tasks a newly qualified doctor is expected to complete regularly without supervision. General Medical Council studies highlight anxiety experienced by Junior Doctors and lack of practical prescribing teaching. Our aim was to evaluate if a near-peer lead teaching session could increase junior doctors' confidence, prescribing skills and positively impact inpatient diabetes care.

Method: In two large central Glasgow teaching hospitals, three cohorts of doctors at the early, middle and late stages of first year post-graduate training were invited to attend a Diabetes Acute Care Hour delivered by near-peers. Participants completed a confidence rating and prescribing skills assessment (PSA) in acute diabetes care before and after the session. 8065 medical and surgical inpatients were evaluated using a series of audits before and after the session.

Results: Analysis (n=126) showed improvement in all cohorts confidence scores (early: 54% to 63.8%, p<0.001; middle: 55.7% to 74.1%, p<0.001; late: 62.91% to 76.15% p< 0.001) and mean PSA (early: 45.6% to 68.1%, p<0.001; middle: 56.5% to 76.5%, p<0.001 late: 73.77% to 79.57% p=0.027). All cohorts demonstrated a reduction in diabetes inpatient management errors following the session with statistically significant reductions in the middle and late cohorts (early: 53% reduction p=0.12; middle: 73% reduction p<0.012; late: 57.5% reduction p<0.03)

Discussion & Conclusions: Junior doctors' confidence and prescribing skills improved. A significant reduction in errors in diabetes management was demonstrated in patients cared for by the cohorts who received the session during the middle and late stages of their first year. This teaching model may need to be adapted for early trainees to enable them to reach level 4 of the Kirkpatrick model. It is postulated the accumulation of practical knowledge allows this near-peer session to be more useful to trainees with some clinical experience.

Take-home messages: Near-peer teachers are familiar with the pressure, practicalities and problems of junior colleagues. This promotes an enjoyable and effective educational environment.
This study demonstrates the 'Diabetes Acute Care Hour' improves junior doctors' confidence, prescribing skills and importantly leads to a significant improvement in inpatient care.

5JJ16 (2069)
From Teaching to Designing – Making Residents as Teachers powerful -- Clinical ultrasound education through boot camps developed by emergency residents in Taiwan

Authors

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Background: Recently, Residents as Teachers (RasT) programs are important issues in medical education. We expect our junior educators to learn how to teach students. Therefore most of junior educators may focus on practice of teaching skills. But these junior educators could have better opportunities than senior educators to develop courses suitable for learners. We would share a successful clinical ultrasound boot camps designed and developed by emergency residents.

Method: A group of emergency residents in our hospital had received ultrasound faculty training and teaching experiences. They found the clinical need for interns/postgraduate doctors. They started to set up boot camps for clinical ultrasound education. The One-Day Camps are structured by mini-lectures and many hands-on practices in the morning and ultrasound-based simulation challenges in the afternoon. During this period about 1 year, residents organized 12 times ultrasound boot camps. Totally 144 leaners participated this camps. There are also 48 medical students to be standardized patients for scanning and scenarios. After course, we used questionnaires for evaluating the boot camps.

Results: Surveys including teaching skills and design of the camps showed high satisfaction. The most important is that most of learners feedbacks mentioned "That is the course I really need ".

Discussion & Conclusion: Through this experience, we noticed the RasT programs not only focus on teaching skills but also learn to design courses based on learner-level. Actually, with this opportunity, we could train and observe educators about leadership and role modeling. Besides, we could provide different RasT programs between junior and senior residents. Therefore, it is critical to let your residents attempt to design courses based on learner's need.

Take-home messages: Skilled teaching training would be helpful for junior educators. But more importantly, designing and developing courses by residents would be effective for learners and educators simultaneously. Therefore, From Teaching to Designing – Making Residents as Teachers more powerful.

5KK: Posters: The Student/The Student as Teacher

Location: Hall 4.u, CCB
Date: Monday 27th August
Time: 1600-1730 hrs

5KK1 (1102)
Medical student perception in different types of formative evaluation score feedback

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Presenter: Chadakan Yan, Medical Education Center Chiangrai Prachanukroh Hospital, Chiangrai, Thailand

Background: Students' examination score will be ranked and shown in public. This has been used as one of the methods to give feedback on clinical knowledge in Thailand which increases stress among medical students. This study aims to assess the student perception of different methods of giving formative evaluation score feedback.
Method: In 2017, seventy clinical-year medical students completed an online anonymous survey about three scoring feedback methods including Confidential-individual score (A), Confidential-individual score with class-ranking (B) and Non-confidential score (C) feedback. Feedback stress and motivation were identified using Likert scales. Additionally, Focus-group interview was performed in ten medical students to identify perception, self-esteem, stress, and motivation of medical students toward each method.
Results: The percentage of students who prefer feedback A, B, C method was 15.7%, 77.1%, and 7.2%, respectively. Student characteristic including age, gender, GPA was not significantly different between groups. Average GPA (2.50-3.00) students tend to have higher stress from feedback than others, but they also have higher learning motivation. While below average GPA students (<2.50) were likely to have less stress and motivation. Focus group interview showed that learning goals and score expectation has correlated with their stress. Moreover, they preferred to know their individual overall performance and pitfalls rather than the scores.
The confidential-individual score with class-ranking feedback was favored because the students preferred to keep their score secret, but still want to compare their learning performance with their colleagues. Increase in learning motivation is potential benefits from this type of feedback, especially in average GPA students. We should pay more attention to below average GPA students who have less learning motivation from all feedback methods. Individual feedback and reflection, not only scores, might be an effective way to improve their learning outcome.

Conclusion: The Confidential-individual score with class-ranking feedback should be done to reflect clinical knowledge. Furthermore, giving feedback needs instructor-student interaction. Feedback on student performance is more important than examination score. The instructors need to adjust their teaching to support and enhance student learning.
Take-home message: Learning-performance feedback is important to medical students. Teacher-student participation is a key to success.

5KK2 (65)
Attitude of health care staff to medical students

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Presenter: Savanya Nganvivattavorn, Vachira Phuket Hospital, Phuket Town, Thailand

Background: Vachira medical education centre is a part of Vachira Phuket hospital where's established since 2008 for training medical students of 4th-6th year from Walailak University. The feedback from hospital staff is an evaluation from medical stedent's work.
Method: Data was collected from questionnaire provided by in hospital staff in main departments as obstetric and gynecologic, surgery, pediatric, internal medicine and other with using accidental sampling. Comparative analysis with Social Sciences (SPSS) version 20.0 and performed using chi-square. The p-value was less than 0.05.
Results: Regarding the statistically of correlation between age group and working period with Pros and Cons of medical student in Vachira Phuket hospital found that the age group 31-40 year old and working period 6-10 years in hospital agreed that medical students having advantages more than disadvantages significantly. And most of them satisfied the work's of medical student from Vachira Phuket hospital.
Conclusion: The hospital staff who ever work with medical students satisfied in result of working because medical student encouraged the knowledge and relationship during working time. Responsibility, Punctuality, good communication skill, focusing on patient and long life learning should be standardization for all medical students.

5KK3 (2657)
Alcohol and Social Integration in Medical School

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Presenter: Rafa Abushaala, University of Glasgow, UK

Background: Drinking alcohol has been found to be commonplace amongst medical students across the globe, similar to the general student population. Quantitative studies have previously measured the rates of drinking in students, however very few have taken a qualitative approach to gain a better understanding of why alcohol has been found to feature so prominently in the lives of medical students. This study aims to qualitatively analyse students' experiences and opinions on the effects of alcohol on social integration in medical school.
Method: Qualitative data was collected from four focus groups with 26 medical students and four interviews with individuals of interest including university staff and alumni. Data was analysed thematically to explore whether there were repeated patterns of perception within the data on the relationship between alcohol and social integration.
Results: Thematic analysis yielded four key themes relating to social integration/isolation: Socialisation, Drinking Culture, Social Pressure and Change. Alcohol facilitated socialisation in medical school and is the central focus of many social programmes. Although the drinking culture at medical school is embraced by some students, others are isolated by it including younger/older students, religious students and those who are recovering from alcoholism. Niche groups are often formed as a result of this social exclusion.
Alcohol is a main driving force for social integration/isolation at medical school. In addition to the existing education about negative health consequences of drinking alcohol, education about the social consequences of the medical school "drinking culture" is warranted, as is further research to determine whether our findings are generalisable to other medical schools, other student bodies, and society at large.
Conclusion: We need to understand the pressures and socialisation processes of students to understand drinking behaviour. Only then can we begin to create opportunities for change in relation to alcohol-driven social integration and isolation.

5KK4 (3232)
Exploring UK medical students exposure to, and opinions about, the pharmaceutical industry with the PharmAwareness Student Survey (PASS)

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Background: The most recent systematic review on medical students and their exposure to the pharmaceutical industry was published in 2011. It demonstrated variability in acceptance of food or education from pharmaceutical representatives amongst students. However, in the field of medical education there is no published data from the UK (UK).
Method: A 30-item survey was distributed in paper and online form across all UK medical schools with assistance from local student representatives and social media. Responses were collected for 12 weeks. White space responses were analysed using a thematic qualitative analysis. Subgroup analysis using respondent demographics was also conducted.
Results: 1445 valid responses were collected from 27 universities during the study period with responses 38% male: female 62%. 49% of respondents had accepted a free lunch whilst 43% had attended a free educational event hosted by a pharmaceutical company. 93% of students were unaware of any local or national policy directing them how to interact with pharmaceutical companies. A large proportion of students thought it was appropriate for them to interact with pharmaceutical representatives whilst also demonstrating a perceived immunity to prescribing influence with 12% of students agreeing their peers prescribing could be influenced by pharmaceutical representatives but disagreeing their own practices would. Free-text answers highlighted a number of themes around vulnerability of students to influence and the lack of education on the issue.
Conclusion: Our project demonstrates UK students opinions regarding a group of individuals where summarised evidence shows that quality of prescribing is negatively affected by interacting with them. The issue of perceived immunity matches that found in similar studies. The lack of education and official policy in UK medical schools could direct advances in education around this topic. A significant proportion of medical students come into contact with pharmaceutical representatives during their time in medical school. Whilst some students think it is appropriate for them to interact with reps, others believe information from pharmaceutical representatives is inaccurate.
Take-home message: There is a perceived lack of education in uk medical school curricula on using evidence based medicine to evaluate information presented by pharmaceutical representatives.

5KK5 (2494)
Can Ginkgo Prevent Alzheimer's Disease? - Preparing Students for Caring Patients using Alternative Medicine in the Early Stage of Medical Education: A Study of Course Design

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Presenter: Wen-yuan Hsieh, College of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan

Background: In an era of globalization, future doctors should be culturally competent in caring for patients with diverse backgrounds. Taiwanese students were found least prepared for patients who hold different health beliefs or use complementary and alternative medicine (CAM). This pilot study investigated whether the integration of CAM into a Medical English course in the early stage of medical curriculum can raise students' cultural awareness.
Method: The course included lectures focusing on medical language and related Task-based learning (TBL) or hybridized PBL activities to allow students to use the language in meaningful contexts. A two-hour TBL on CAM was designed. 150 second–year medical students participated. Each group (4 students) researched on one of the ten folk remedies randomly assigned before class. In class, each group was reassigned a new topic and discussed their first impressions. The impression group briefly presented their reaction to the topic and then the research group presented findings on mechanism of such belief/remedy and formulated possible responses to people using/believing it. Students also reflected and wrote up one other belief and responses to patients. Presentations and writing were collected, coded, and analyzed with the Grounded Theory.
Results: Qualitative analysis revealed four reoccurring themes: 1. First impression were commonly expressed with the word "ridiculous", and still relied on using evidence-based medicine in confronting folk remedies; 2. Noticed possible cultural, traditional, religious and gender difference. 3.Generated reflection on personal experience and bias; 4. Lack of communicating skills to respond to patients using CAM.
Conclusion: The activity provides students with opportunities to reflect upon bias through articulating their first impression and the need to understand some knowledge of CAM. The findings showed that integration of CAM appropriately in a general course could enhance students' awareness of different health beliefs. Students relying on using scientific evidence in persuading patients implied that more cultural competence training is needed in the later years.

Take-home message: Bringing CAM early on and integrating it into different stage of medical education may provide benefits to students' professional development and better prepare them for patients with diverse health beliefs.

5KK6 (3022)
The Role of Information Processing and Test Taking Strategies on Medical Student Academic Achievement

Authors
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Akef Obeidat, Alfaisal University, Riyadh, Saudi Arabia

Presenter: Sara Ahmed, Alfaisal University, Riyadh, Saudi Arabia

Background: Having good study skills and test taking strategies is a cornerstone for academic success. This study's purpose is to identify the various skills that students manifest in their studying habits, along with their behaviors and attitudes, that correlate with academic performance levels.
Method: A validated online survey was administered to medical students from years 1 to 5. Answers were chosen from a 5-point Likert-scale (1 = not at all typical of me, 5 = very typical of me) on topics of study and examination skills. 18 Questions were split into sub-categories of information processing, understanding main concepts when studying, and strategies during test taking. Additionally, each participant was required to provide their gender, current GPA, and high-school education system they graduated from.
Results: A total of 109 responses were collected. Students generally are well versed (defined as either 4 or 5 on the Likert-scale) in most sub-categories of information processing (M: 75%, F: 76%) and understanding of main concepts when studying (M: 83%, F: 88%). However, test-taking strategy variables scored the lowest on average (M: 62%, F: 60%). Those who scored high on this sub-category, had a higher GPA (3.66) compared to those who did not (3.51).
Discussion & Conclusion: Appropriate study skills, including adequate information processing, the selection of relevant information, and understanding key concepts, are abilities that many medical students exhibit. However, some students cannot undertake or display these skills, especially test-taking strategies, which can explain students facing difficulty deciphering objectives of some exam questions. The lack of this skill may be due to straightforward tests in high school causing inability to understand complex questions and their requirements. Although many study skills are learned over time and through experience, they can also be taught through short courses and programs after deficiencies are identified. Educational interventions can help such students overcome these barriers. Students at our institution could

benefit from improved test taking strategies as those who are good at it perform well academically.

5KK7 NOT PRESENTED

5KK8 (2439)
Measurement of Grit and Correlation to Student Academic Performance in Japanese Medical School

Authors
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Hiroki Okada, Kagawa University, Kagawa, Japan

Presenter: Katsumi Nishiya, Kansai Medical University, Osaka, Japan

Background: When students enter Japanese medical school, their scholastic aptitude is high; however, there are increasing examples of reduced desire to learn and motivation after admission and of facing difficulties with learning, such as repeated academic years and poor performance in national medical exams. Duckworth et al. noted that for student to achieve their goals, "grit" in the form of consistency between strong efforts to achieve goals and an interest in the subject matter are more important than inherent talent. This study quantitatively measures the grit of students by using a grit scale and statistically analyzes the correlation to student academic performance in Japanese medical school.
Method: Grit was measured by using short grit scale (Grit-S) in all students from the first year to the sixth year in 2017 at Kansai Medical University. Grit-S was measured on a five-point scale, with eight items relating to consistency between strong efforts to achieve goals and an interest in the subject matter. Results were obtained by calculating the averages of these eight items. In addition, the correlation of grit was statistically analyzed for the students with the top 20 and bottom 20 academic performance in each academic year.
Results: The average grit score of students across all academic year was 3.23. The average grit score for each academic year was 3.20 (1st), 3.25 (2nd), 3.31 (3rd), 3.17 (4th), 3.26 (5th), and 3.21 (6th), successively. The average grit score of the students with the top 20 for each academic year was seen to be higher than the students with bottom 20, though there was no significant difference. The lowest grit score, 2.93, was seen among fourth-year students with the bottom 20.
Conclusion: The results suggest that grit influences academic performance in medical students. In particular, grit may influence the learning of medical students in their fourth years. It may be related that this academic year is centered on classroom lectures in our school. Future studies should consider grit and various other factors, along with elements that improve grit.
Take-home message: Grit influences academic performance in medical students.

5KK9 (1807)
The Role of Peer-reflection in Improving Students' Achievement in UKMPPD (National Examination of Medical Students)

Authors
Muchtar Hanaf, Universitas Sebelas Maret, Surakarta, Indonesia
Amandha Boy Timor Randita, Universitas Sebelas Maret, Surakarta, Indonesia

Presenter: Muchtar Hanafi, Universitas Sebelas Maret, Surakarta, Indonesia

Background: Faculty of medicine plays an important role to support students' success in passing exit exam (UKMPPD). Students who failed three times were grouped into special retaker class guided by a mentor. Peer-reflection is the method that aims to evaluate students learning process. We aimed to analyze the impact of peer-reflection to change their learning attitude and improve national exam score.
Method: Nine students participated in special retaker class for three months. They took two try-outs and one exit exam. Between the try-outs, there were peer-reflections that argued about the characters, strengths and weaknesses of individuals, and the suggestions. Between try out 2 and exit exam, self-reflection was conducted which contained their responses about the peer input. Then, try-out results were compared. We analyzed the reflection documents by content analysis and descriptive analysis for the progress of exam score.
Results: Students were more objective in self-assessment. They understood the strengths and weaknesses of their way of learning, and then implemented the peer advices. Peer-reflection method provided a sense of shared destiny, a feeling of same purpose, then developed ways of learning that promoted them to be higher motivated. Finally, 6 of 9 students passed the exam. Peer-reflection method made the students support each other and express the desire to have the same ideals namely graduation. There were non-academic problems that the lecturer never knew about. Therefore, suggestions given by peer would be memorable and be powerfully changed motivation.
Conclusion: Peer-reflection explored non-academic problems that determined the pattern and the way of how students learned. Learning is obtained from both lecturers and from peers. Suggestions from peers are more objective to judge the ability of individuals since peers often interact together. UKMPPD needs to be investigated with a comprehensive approach so that exit exam looks not only at the achievements of final competencies but also individual processes of dealing with and preparing a national examination.

5KK10 (3618)
Multiple strategy peer-taught evidence-based medicine course in a poor resource setting

Authors
Tarek Turk
Ammar Sabouni
Yamama Bdaiwi
Saad Janoudi
Lubaba Namous
Mahmoud Alkhatib

Presenter: Tarek Turk, International Federation for Medical Students' Associations, Damascus, Syria

Background: Teaching Evidence Based Medicine (EBM) is becoming a priority in the healthcare process. For young healthcare professionals, it has been proved that integrating multiple strategies in teaching EBM yields better results than a single, short-duration strategy. However, there is a lack of evidence on applying EBM educational interventions in developing countries and poor-resource settings.
Method: We aimed, through this project, to evaluate the effectiveness of a multiple strategy peer-taught online course in improving EBM awareness and skills among undergraduate and young postgraduate students in two poor-resource settings, Syria and Egypt. We conducted a prospective study with pre- and post- course assessment of 84 medical students in three universities, using the Berlin questionnaire and a set of self-reported questions which studied the students' EBM knowledge, attitude and competencies. The educational intervention was a peer-taught online course consisting of six sessions (90 min each) presented over six weeks, and integrated with assignments, group discussions, and two workshops.
Results: The mean score of pre- and post-course Berlin tests was 3.5 (95% CI: 2.94-4.06) and 5.5 (95% CI: 4.74-6.26) respectively, increasing by 2 marks (95% CI: 1.112-2.888; p-value <0.001), which indicates a statistically significant increase in students' EBM knowledge and skill, similar to a previous expert-taught face to face contact course. Self-reported confidences also increased significantly. However, our course did not have a major effect on students' attitudes toward EBM (1.9-10.8%; p-value: 0.12-0.99).
Conclusion: In order to build reliable Evidence-Based Medicine practitioners, multiple strategy peer-taught online courses are an effective approach and a comparable alternative to face to face expert-taught courses. We recommend university role models and EBM experts implement and further assess this choice to provide high quality online courses and higher EBM awareness among medical students and young postgraduates. Integrating such type of activities in the educational process of under- and post-graduate students may increase their involvement, and enhance the outcomes of their training.
Take-home message: In developing countries and poor-resource settings, multiple strategy peer-taught online courses may be an effective alternative to face-to-face expert-taught courses, especially in the short term.

5KK11 (3104)
Medical Students for Haiti: Evolving Practices in Near-Peer Education

Authors
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Meghana Eswarappa, Icahn School of Medicine at Mount Sinai, New York, USA
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Kieley O'Connor-Chapman, Icahn School of Medicine at Mount Sinai, New York, USA
Randy Sorge MD, Icahn School of Medicine at Mount Sinai, New York, USA
Dinali Fernando MD, Icahn School of Medicine at Mount Sinai, New York, USA

Presenter: Alison Celello, Icahn School of Medicine at Mount Sinai, New York, USA

Background: Medical Students for Haiti (MS4H) at the Icahn School of Medicine at Mount Sinai is a student-run organization that conducts an annual four-day, near-peer first responder course at the Université Quisqueya (UniQ) in Port-au-Prince, Haiti. This program was established in 2013 to address a UniQ-identified curricular gap after the 2010 earthquake.
Method: MS4H trainers complete an 8-week preparatory course, learning first responder skills from Mount Sinai emergency medicine residents and becoming American Heart Association-certified CPR trainers. Trainers then instruct "near-peer" medical students at UniQ through lectures and skills sessions. Pre- and post-tests are administered to ensure adequate comprehension. Curricular modifications are made annually based on data analysis and UniQ feedback, and have included creation of a printed coursebook, implementation of a disaster triage simulation, and ongoing development of a Haitian Creole CPR training video to be made publicly available online. In 2015, a "train-the-trainers" program was established to empower UniQ students to teach their peers and communities.
Results: To date, 248 UniQ students have completed the course, including 24 students additionally trained as trainers. Post-test results have shown statistically significant improvement over pre-tests annually; in 2017, the 76 students who completed the course scored an average of 42% on the pre-test and 83% on the post-test (p<0.01). A one-year retention test was also conducted for students from the 2016 course. Of the 60 original participants, 11 (18%) completed the retention test, with a statistically significant difference between pre-course (48.2%) and 1-year retention (59.5%) scores (p<0.02). To date, MS4H-trained UniQ trainers have held CPR instructional courses for over 20 peers and over 140 community members.
Conclusion: This data indicates that MS4H and UniQ students have built an effective course that promotes immediate and long-term retention of knowledge as well as sustainability via the train-the-trainers initiative. This represents a successful near-peer approach to increase

and sustain the capacity of Haitian medical students in emergency first response.

Take-home message: The near-peer teaching model empowers students to take an active role in medical education and provides a sustainable tool for educational capacity-building.

5KK12 (2149)
The Impact of Medical Students as Teachers on Underclass Students

Authors
Holly Berkley, Uniformed Services University, Bethesda, USA
Morgan Harvey, Uniformed Services University, Bethesda, USA

Presenter: Holly Berkley and Morgan Harvey, Uniformed Services University, Bethesda, USA

Background: The Medical Education Elective at the Uniformed Services University (USU) was created and implemented by two fourth year medical students, who recognized both a lack of education on teaching for students as well as isolation of the medical school classes at USU. The Medical Education Elective was established to help senior students build a foundation of medical education knowledge before they embark on careers that require participation in education at all levels of training. Furthermore, the structure of USU prevents natural integration between the classes, as most students complete clinical rotations at sites across the US. It was hypothesized that by integrating senior students into the underclass curricula as teachers, peer mentorship would be fostered, strengthening underclass students' academic experience.
Method: The Medical Education Elective is currently being piloted over 4 one-month rotations, each completed by 3-5 senior medical students. The students participate in weekly faculty discussions focused on medical education theory and methodology. Students employ the skills they learn in courses across the underclass curriculum such as integrated clinical skills, reflective practice, and military emergency medicine. Students also independently conduct teaching sessions through office hours and brown-bag lunches. The impact of the course on the underclass students was evaluated with an online survey completed by the underclass students after each teaching activity.
Results: Pilot data after one month (n=25) showed that 100% of underclass students responded "Yes" to the question "Did having an MS4 student teacher contribute positively to your learning experience?". Likert scale responses of "very frequently" in response to questions regarding the utilization of effective teaching techniques range from 84-96%. Target sample size is 123 (to be achieved by 01 MAY 2018).
Conclusion: Medical education courses not only offer an opportunity for senior students to cultivate educational theoretical knowledge and teaching skills, but also contribute positively to the learning experiences of the underclass students.
Take-home message: As medical education curricula develop in medical schools world-wide, we can be assured

that this investment has benefits not only for student teachers, but for student-bodies as a whole.

5KK13 (3630)
Impact on students of a PASREV course initially designed for professionals. Implications for medical education

Authors
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Isabel Brito, Department of Medical Education of Faculty of Medicine of the University of Lisbon, Lisbon, Portugal
Miguel Miranda, Department of Medical Education of Faculty of Medicine of the University of Lisbon, Lisbon, Portugal
Madalena Patrício, Department of Medical Education of Faculty of Medicine of the University of Lisbon, Lisbon, Portugal

Presenter: Manuel Lucas, Department of Medical Education of Faculty of Medicine of the University of Lisbon, Portugal

Background: The PASREV (Practical Skills for Reviewing Evidence in Health Professions Education) courses, implemented at AMEE 2016/2017 conferences, were initially designed for healthcare/academic professionals interested in designing, implementing and reporting as well as reviewing/managing a systematic review in health professions education. In 2017, the PASREV counted on the participation of three Portuguese medical students who despite having no background on systematic reviews were highly motivated to learn more on the topic. The aim of this study is to identify the PASREV impact on students.
Method: All 12 participants were asked to fill an anonymous questionnaire after the course (course relevance, practical utility, educational approach, supportive material, opportunity for discussion, facilitators' performance, major strengths/weaknesses and suggestions). In addition students' views were identified 6 months after the course/follow-up-review.
Results: Hot review: Students and teachers' results were very good and similar, although students tend to be more critical, attributing lower scores in all parameters except in terms of 'interactivity'. The three most valued elements were 'step by step teaching', 'facilitators' quality' and 'practical work' while 'more pre-course materials, sharing the slides used in the course', 'more practical work', including time to analyse a real review' and 'less time per session' were the main suggestions for improvement. The course was seen as very useful for beginners namely to get the basic information on how to implement or review a Systematic Review. Follow-up review: Students said that attending the course together with professionals facilitated their learning and group work. Course assignment: the three students were the only participants submitting an assignment namely by registering topics for two systematic reviews.
Conclusion: PASREV appears to be highly valued by teachers and students. The fact that these were more critical, may be due to the design of the course initially foreseen for professionals or because students are usually more exigent when evaluating courses. PASREV can also be offered to students once course structure and

interaction with teachers were well received by them. Moreover, the 3 students were the only participants to submit a Systematic Review as course assignment.

5KK14 (729)
Our student-centered Basic Life Support (BLS) education is improved by referring to computer-based parameters

Authors
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Tetsuya Urano, School of Medicine, Tokai University, Isehara, Japan

Presenter: Kagemasa Kajiwara, Division of Basic Molecular Science and Molecular Medicine, School of Medicine, Tokai University, Isehara, Kanagawa, Japan

Background: In 2007, we established a new student-centered BLS training method, termed "Roofing Tiles Method for Undergraduates," in which clinical clerkship students who recently acquired BLS skills (CC-students) instructed first-year students (1st-students) directly. Under our "Teaching is Learning" policy, we obtained both skill acquisition in 1st-students and improved skills in CC-students.

Method: For efficient monitoring of improvements in our education system, we applied computer-based evaluation by measuring the quality of BLS training (Resusci Anne QCPR, Laerdal) during instruction of 1st-students by CC-students. However, as CC-students are not professionals, they could not make good use of the evaluation method. We therefore investigated usage suitable for them. Since the CC-students could review BLS performance by referring to computer parameters such as compression rate and depth, CC-students provided technical guidance to 1st-students more efficiently and closely than in their previous training. Therefore, improvement in our BLS training method by referring each computer parameter was shown.

Results: CC-students could not understand the computer-estimated evaluation in detail. However, CC-students could understand each key parameter of BLS skill sufficiently during their review, and could clarify the weak points of 1st-students during instruction, suggesting their instruction became more confident and more efficient than that based only on their judgment.

Conclusion: Our student-centered BLS training with computer-based parameters resulted in equivalent proficiency to our instructor-led training. Since BLS skill level of CC-students is the most important factor in the training, referring to the computer parameters was more effective for the BLS skill of CC-students. Our "Roofing Tiles Method for Undergraduates" can be upgraded by computer-based BLS parameters and applied to various

skill-up programs in clinical clerkship. We wish to acknowledge the Support Center for Medical Research and Education, Tokai University, for help with instruction.

SESSION 6: Plenary

Tuesday 28th August

0830-0945 hrs

6: Plenary: Got Resilience? Promoting Resilience, Wellbeing, & Vitality in Healthcare Professions Education & Organizations: An Integrative Approach

Location: Event Hall
Date: Tuesday 28th August
Time: 0830-0945 hrs

Hedy S Wald
Brown University; Boston Children's Hospital – Harvard Medical School, USA

Summary: Resilience. Wellbeing. Vitality. Topic du jour. And with good reason. Healthcare practitioners, educators, and trainees in the global community are at risk for stress and burnout impacting wellbeing and optimal patient care. Educators and organizations are thus challenged with implementing programs and policies to cultivate resilience-promoting environments for stress reduction/management, empathy preservation, and improved wellbeing. What then are best practices throughout the healthcare professional lifecycle for crafting a pre-emptive approach to promoting emotional and moral resilience for wellbeing? What adaptive individual and healthy workplace factors can help maintain quality of care and caring, patient safety and satisfaction, and educator/practitioner engagement, fulfillment, and retention? Flourishing? This plenary will discuss "**integrative resilience**" incorporating interventions at both individual and healthcare systems levels to foster resilience of both, ideally promoting enlightened leadership for surviving and thriving in a challenging healthcare environment.

Biography: Hedy S. Wald, PhD is Clinical Professor of Family Medicine; Warren Alpert Medical School of Brown University and Director of Resident Resilience/Wellbeing-Residency Programs in Child Neurology and Neurodevelopmental Disabilities; Boston Children's Hospital-Harvard Medical School. Dr. Wald has been recognized with Dean's Excellence in Teaching Awards, served as a Fulbright Scholar in medical education for Ben Gurion University of Health Sciences, Israel, and is a Gold Humanism Foundation Harvard-Macy Scholar. Dr. Wald has been a Visiting Professor at over 50 healthcare professions schools world-wide, presenting on promoting resilience and wellbeing in healthcare professions education and practice as well as on reflective writing-enhanced reflection supporting healthy professional identity formation. A mother of 4 and grandmother of 4, she enjoys cycling and creative writing which she publishes in literary and medical journals. *Follow her on Twitter: @hedy_wald "Mind/Body/Spirit of MedEd"*

SESSION 7: SIMULTANEOUS SESSIONS

Tuesday 28th August
1015-1200 hrs

7A: Symposium: Mind-body interventions in Health Professions Education: Challenges, Strategies for Implementations and Lessons Learned

Location: Event Hall
Date: Tuesday 28th August
Time: 1015-1200 hrs

Presenters:
Aviad Haramati, Georgetown University, USA
Raphael Bonvin, University of Fribourg, Switzerland
Craig Hassed, Monash University, Australia
Diethard Tauschel, Witten/Herdecke University, Germany
Tania Guillaume, University of Fribourg, Switzerland
Hedy Wald, Brown University; Boston Children's Hospital-Harvard Medical School, USA

Summary: Reports from many countries suggest that burnout and other mental health issues among physicians and other health professionals is a pervasive problem and a cause for concern. More than half of all physicians in practice in the US, and students and residents in training in the US and Canada, experience burnout, and this can lead to changes in the patient-practitioner relationship and can adversely impact quality of care. Data suggests that this process begins with the decline in empathy and rise in cynicism seen during medical school and post-graduate training. In response, there is increased interest among faculty, administrators and policy makers to develop individual and organizational interventions with medical students, residents and faculty and provide them with tools to address the rise in chronic stress and burnout and suboptimal resiliency. Keys to this work are themes of self-awareness and mindfulness and exploring domains of self-care and finding meaning and purpose in one's work. The ultimate goal is to create a culture of well-being within institutions and foster an environment more conducive to optimal learning.
Goal of Symposium: In this proposed symposium, speakers from various countries (Australia, Netherlands, Sweden, Switzerland and the US) who have implemented mind-body programs will share perspectives on the challenges they faced, the strategies they used to implement the program into the curriculum, the outcomes they obtained, and lessons learned. The symposium will include short (10) minute presentations, enabling at least a 30-minute discussion with audience participants. Discussant Dr. Hedy Wald will provide comments (about 6-8 minutes) on the presentations and tie the lessons to messages of her Plenary (which ideally precedes this symposium) as a springboard to engage audience participation which will follow.

Who should participate in the symposium? This symposium would interest any faculty, student or administrator who is interested in implementing curricular interventions (especially mind-body programs) to reduce stress and foster resilience and well-being.
What will they gain from participating? Learning Objectives: By the end of the session, participants will be able to:

- Describe the rationale for mind-body programs in health professions education as well as challenges and barriers to implementation of a mind-body medicine program into the curriculum
- Understand the strategies that facilitated the successful curricular implementation of mind body medicine programs
- Delineate some of the outcomes that programs have reported in their students and faculty and benefit from the lessons learned

7B: Symposium: Faculty Development for Organizational Change

Location: Montreal, 2nd Floor, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

Organised by AMEE Faculty Development Committee:
Yvonne Steinert, Centre for Medical Education, Faculty of Medicine, McGill University, Canada
Miriam Boillat, Centre for Medical Education, Faculty of Medicine, McGill University, Canada

Summary: Faculty development programs and activities in the health professions have traditionally focused on individual growth and renewal. However, although individual change may result in organizational change, faculty development can also play a direct role in promoting organizational growth and development. The goal of this symposium is to review and discuss how faculty development can function as an instrument of organizational change by exploring a variety of strategies and approaches that can help to achieve this goal. Participants will also be challenged to think about the contexts in which they work and how they can focus directly on their organizations as the "client" in faculty development.

7C: Symposium: Lessons Learned: progressing knowledge by intelligently considering failures

Location: Sydney, 2nd Floor, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

Organised by AMEE Research Committee:
Jennifer Cleland, University of Aberdeen, UK
Lara Varpio, Uniformed Services University of the Health Sciences, USA
Erik Driessen, Maastricht University, Netherlands
Tim Wilkinson, University of Otago, New Zealand

Summary: We've all tried things that didn't work. We've enthusiastically introduced a flipped classroom format that the learners didn't flip over. We've carefully crafted research projects only to realize that the hypothesis or research question was inadequate. We've implemented new assessment strategies that generated lots of data, but left us with little insight into student performance. We've all been there.
However, negative findings are rarely reported in academic journals and there appears to be an implicit rule in medical education that one does not admit "failure". Yet it is often our less successful ventures that lead to in-depth understanding of a phenomenon and/or a way forward. Indeed, sometimes our mistakes are more informative than our successes.
In this symposium we will share stories of mistakes and surprises from across medical education and training contexts, to illustrate how these underpinned learning and progress. We will use interactive presentation software to engage with the audience, to elicit and explore common surprises, failures and experiences. We will discuss our findings in relation to the dominant culture and discourses within medical education and training, and provide guidance on ways for individuals and teams to reposition "failure" as constructive learning.
Who should participate in the symposium? This symposium will be of interest to those involved in designing, delivering and evaluating teaching, and educational innovations.
What will they gain from participating? Participants will see respected academics and global leaders from the AMEE Research Committee admit mistakes. This positive role modelling will be used within the session to encourage audience engagement. However, our ultimate aim is to help individuals and teams work more openly, to reflect on and accept that there is often a lot to be learned when things don't go to plan. We will provide guidance for organisational change and faculty development to help achieve this goal.

7D: Symposium: Diagnostic error: from clinical reasoning to patient outcome

Location: Singapore, 2nd Floor, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

Organised by Global Alliance for Medical Education:
Mark Graber, Society to Improve Diagnosis in Medicine, USA
Marie-Claude Audetat, Medical Education Research Group, University of Geneva, Switzerland
Hardeep Singh, Center for Innovations in Quality, Effectiveness and Safety, VA Medical Center and Department of Medicine, Section of Health Services Research, Baylor College of Medicine, USA
Laura Zwaan, Institute for Medical Education Research, Erasmus Medical Center Rotterdam, Netherlands
Wolf Hautz, Department of Emergency Medicine, Inselspital University Hospital, Berne, Switzerland

Summary: Most people will experience a diagnostic error in their lifetime, sometimes with devastating consequences. This is the conclusion from a recent report from the National Academy of Sciences in the US. This shows the impact of diagnostic error on society. Diagnostic errors are a complex error type, for example because diagnostic errors often do not result from a single source but from the interaction of physicians, their patients and the context. The field of medical education has in the past extensively explored the cognitive sources of error within a single physicians mind, while the patient safety movement was heavily investigating enabling factors in the health care system. Meanwhile, clinical medicine has identified several diseases, chief complaints and groups of patients likely to be misdiagnosed. However, these lines of inquiry have remained somewhat isolated from each other and strategies to introduce diagnostic error, error prevention and error communication at all levels of medical education remain the exception rather than the norm. The symposium brings together researchers from diverse backgrounds, all with a unique perspective on the multiple facets of diagnostic error, in an attempt to broaden the debate on clinical reasoning and diagnostic error within medical education and to ultimately strengthen the quality of our and our learners diagnoses.
Who should participate in the symposium? Everyone with an interest in clinical reasoning, the teaching and assessment of the diagnostic process as well as colleagues with an interest in patient safety.
What will they gain from participating? We will provide participants with different perspectives on diagnostic error through an interactive discussion. Participants will learn how diagnostic error and the diagnostic process are conceptualized in different fields such as medical education, human factors research and automated diagnostic decision support among others. The symposium is specifically intended to widen the perspective on diagnostic error from a focus on clinical reasoning to a more holistic perspective. Furthermore, participants will be introduced to the development of a consensus curriculum on diagnostic error for health professionals at the postgraduate level, an initiative currently underway in the United States.

7E: Research Papers: Workplace-Based Assessment & Diagnosis

Location: Delhi, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

7E1 (73)

Does Incorporating a Measure of Clinical Workload Improve Workplace-Based Assessment Scores? Insights for Measurement Precision and Longitudinal Score Growth

Authors

Yoon Soo Park, University of Illinois at Chicago, Chicago, USA
Patricia J. Hicks, University of Pennsylvania, Philadelphia, USA
Carol Carraccio, American Board of Pediatrics, Chapel Hill, USA
Melissa Margolis, National Board of Medical Examiners, Philadelphia, USA
Alan Schwartz, University of Illinois at Chicago, Chicago, USA
Pediatrics Milestones Assessment Collaborative (PMAC) M2 Study Group, National Board of Medical Examiners, Philadelphia, USA

Presenter: Yoon Soo Park, University of Illinois at Chicago, USA

Introduction: Appropriate management of clinical workload is critical for safe medical care (1). In clinical practice settings, a practitioner's workload can be influenced by perceived or experienced factors such as supervision level, number of providers per patient, experience of providers, and patient acuity and complexity. Workplace-based assessments (WBAs) that measure the skills of trainees in the authentic clinical environment provide valuable insights into trainee performance, but performance may require considering the context of the trainee's workload during the observation period (2). This study investigates the impact of incorporating observer-reported workload into the calculation of WBA scores by: (1) examining psychometric characteristics of WBA scores after adjusting for workload and (2) comparing changes in performance over time using adjusted and non-adjusted scores.

Methods: As part of a larger collaborative research project, multisource feedback (MSF) instruments were used to collect WBA data from first-year Pediatrics residents at 10 residency training programs. Observers completed items in eight subcompetencies associated with Pediatrics Milestones (PC-1, PC2, PC-5, ICS-1, ICS-4, PBLI-5, PROF-2, PPD-1). An additional item completed by faculty and resident observers assessed workload using a sliding scale ranging from low to high; all item scores were rescaled to a 1-5 scale to facilitate analysis and interpretation. Workload-adjusted WBA scores were calculated at the item level and aggregated for analysis at the competency level; workload-adjusted WBA scores were calculated by taking the difference between WBA and workload scores (= WBA Score – Workload Score). Mixed-effects regression models were used to estimate variance components and calculate reliability. Projections

in reliability and the standard error of measurement (SEM) were calculated using generalizability theory. Longitudinal growth curve analyses examined patterns of score change over time, comparing workload-unadjusted and workload-adjusted scores.

Results: Data were collected from 252 first-year residents during rotations that took place between July 2016 and May 2017. On average, residents were assessed 5.32 times (SD=3.79) by different raters during the data collection period; workload scores were provided by a total of 330 observers (faculty: n = 173, peer resident: n = 157). Adjusting for workload led to better trainee discrimination (greater trainee variability) and higher reliability (workload-unadjusted: Φ-coefficient=.60; workload-adjusted: Φ-coefficient=.65).Workload-adjusted scores resulted in a 28% reduction in the SEM when compared to workload-unadjusted scores. Longitudinal analysis showed an increase in scores over time, with a significant interaction between workload and time (month of training), $p = .034$; workload also increased significantly over time, $p = .001$ (July-September: Mean=3.58, SD=.77; October-December: Mean=3.91, SD=.83; January-May: Mean=3.83, SD=.76). Workload-unadjusted scores showed steady linear improvement throughout the data collection period, while workload-adjusted scores improved modestly during the initial months of training and began improving rapidly just after the six-month training mark (January 2017).

Discussion: This study contributes to the growing literature on the benefits of adjusting for workload when measuring resident competencies using WBA. Adjusting for workload yielded better discrimination of learner performance and higher reliability, thereby reducing measurement error by 28%. Workload-adjusted scores had greater variability of trainee performance at all levels of performance, which may prove beneficial in identifying low-performing residents. Compared to workload-adjusted scores from faculty, scores from residents only had modest improvements in reliability, perhaps indicating that these two observer groups have different perceptions of workload.

Conclusions: Incorporating a measure of observer-reported workload can improve the measurement properties and the ability to interpret workplace-based assessment scores.

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7E2 (233)

Development and validation of an EPA framework for palliative care competencies within medical undergraduate curricula

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Background: The need for palliative care is increasing due to the aging population and the growing number of people with chronic diseases. Physicians working in almost all care settings will regularly be confronted with the challenges of providing palliative care and as a consequence training in palliative care should be included in undergraduate medical curricula. However, teaching tends to be fragmented, ad hoc and lacks co-ordination and focuses more on the acquisition of knowledge and skills than attitudes (Lloyd-Williams & Macleod, 2004). The goal of this study is to develop and validate an EPA framework of palliative care competencies within undergraduate medical programs.

Methods: This Delphi-study started with a review of the literature. Two palliative care competency profiles appeared to be suitable for the Dutch situation: an educational framework developed in the Netherlands (VU, 2016) and the EAPC competencies described in a white paper by the European Association for Palliative Care (EAPC, 2013). These two documents were combined by experts in education and palliative care, resulting in one EPA list. To validate this list, a Delphi study was conducted. The Delphi study included five different groups of stakeholders: Palliative care experts, healthcare professionals, nurses, curriculum coordinators and junior doctors. They scored the required level each EPA and items on a 6 point Likert scale (1= not applicable; 2= basic knowledge, skills, or attitudes; 3= integration of knowledge, skills, and attitudes; 4= simulated professional situation; 5= in professional setting with guidance; 6= in professional setting with little guidance).

Results: The EPA list that was developed based on the two earlier mentioned frameworks resulted in 6 EPA's domains, being communication, relief of suffering, end-of-life care, advance care planning, working in a multidisciplinary team and personal development. The number of items per EPA domain varied between 3 and 10, resulting in a list of 46 items. The list of 6 domains and 46 items was validated in a Delphi study. After two rounds, the shift in ratings was minimal. The response rate was 46%. No items were omitted because all experts were of the opinion that all items were applicable. Consensus was reached on 8 out of 46 items (17%) on a level of 75% and on 37 out of 46 items (80%) on a 50% consensus level. Curriculum coordinators achieved consensus on 24 out of 46 (52%) items on a level of 75% and on 21 out of 46 items on a 50% (46%) consensus level.

Discussion: The EPA framework for palliative care competencies as developed resulted in six domains that all were considered as highly relevant. The Delphi study showed that all EPAs were considered relevant. Consensus was achieved for a limited number of items when taking into account all the different experts. Consensus among curriculum coordinators was higher. The final EPA list that will be used as a basis for training of palliative care EPAs in Dutch undergraduate medical curricula.

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7E3 (113)
Statistical Approaches to Improving the Quality of Observational Assessment Instrument Data

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Introduction: Assessment of medical and other healthcare trainee performance based on observation in the workplace provides evidence about critical skills and competencies that can both improve the specificity of formative feedback and provide support for progression decisions. Despite the value of observational assessment data, little research has investigated systematic methods for improving the quality of the instruments that are used for data collection. Multiple-choice tests commonly use item analysis procedures to provide statistical data about individual test items; these data inform decisions about item revision or deletion in order to improve the quality of test forms. Observational assessment items and instruments would benefit from use of similar item analysis approaches to inform instrument revisions (Baldwin, Fowles, & Livingston, 2008); unfortunately, we know of no research documenting that practice. The present study addresses this gap by: 1) producing and using statistical item performance data to inform review of and decisions about keeping, revising, or deleting observational assessment instrument items; and then 2) collecting data using an instrument that was revised based on the review of statistical information and comparing

overall instrument performance between the initial and revised versions.

Methods: As part of a larger collaborative research project, observational assessment instruments were developed to assess the performance of first-year pediatrics residents. Items were field tested and several statistical indices were used for analysis: scale use (proportion of responses at each scale point), within-competency item correlations, and correlations between items and an overall global score. Items identified as problematic based on these indices either were kept, revised, or deleted. Data then were collected using the revised instrument, and the same analytic procedures were used to investigate whether there was improvement in item and instrument performance following the revisions. Generalizability analysis allowed for further evaluation of the extent to which revisions led to changes in instrument reliability.

Results: For the pilot data set, statistical indices flagged eight of 40 items for review: three were deleted and five were substantially revised based on issues relating to scale use, wording, differences in item applicability across residency programs, and inability of the item to assess observable behaviors rather than inferences about trainee performance. Item performance for the revised instruments was substantially improved; all items were significantly correlated with other within-competency items and with scores on the global item from the same instrument. Results of the generalizability analysis indicate that the instrument revisions improved the precision of the resulting composite score; the generalizability coefficient increased from 0.69 for the initial data collection to 0.75 for the revised instrument.

Discussion & Conclusions: The results of this study suggest that straightforward methods of statistically evaluating the quality of observational assessment items can result in substantial improvements in item and instrument performance. Collecting data about the performance of medical/healthcare trainees in the authentic clinical environment provides critical evidence for the competency of these trainees to perform activities that are relevant to the requirements for independent practice. Despite the importance of collecting this type of observational performance data, little research has investigated methods for improving the quality of the instruments that are used for data collection. The present research indicates that simple statistical approaches can be readily used to evaluate item performance and to improve the overall quality of observational assessment instruments.

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7E4 (31)
Emergency department to inpatient handoff: does language affect medical students' sense of uncertainty?

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Introduction: Communication and handoff failures are common causes of 'sentinel events' in hospital. Cognitive errors have been shown to be an important source of diagnostic error in almost 75% of cases [1]. Human quest for certainty can increase likelihood of premature closure in decision-making, the most common phenomenon in misdiagnosis. This phenomenon may be particularly prevalent in settings like the emergency department (ED) where pressures on time drive the need to rapidly reduce the uncertainty in a clinical presentation to form a working diagnosis. The downstream impact of such diagnostic errors, thought to be around 15-30% in the ED [2], is particularly great if this initial diagnosis is accepted when the patient is admitted, with anchoring and confirmation biases taking hold in interpretations of the illness narrative—subconsciously seeking signs that confirm the 'diagnosis' and refuting those that do not fit. How a message is tailored, and subsequently encoded by the recipient, can affect human response to a given message, though there is little research on whether language choice in handoff communications affects sense of uncertainty in physicians, particularly in clinical settings. This study aimed to determine whether variations in language to describe the presumed diagnosis in a clinical handoff scenario would lead to higher levels of anxiety due to uncertainty and greater uncertainty about the clinical diagnosis.

Methods: This was a randomized experimental design in a large medical school in the United States. Medical students with direct clinical experience within the hospital setting (year 2 onwards) received four hypothetical clinical handoff scripts from emergency department (ED) to inpatient ward. Students were randomized to receive one of four language variations to describe the presumed diagnosis: the control language arm used the word 'diagnosis'; the experimental arms replaced this word with either 'hypothesis', 'probability of 60%', or 'working diagnosis' with a short differential. Outcome measures were anxiety due to uncertainty, and clinical uncertainty about the ED provider's presumed diagnosis.

Results: Of the 114 participants who started the survey, 88 completed all the items and were included in the analyses. Anxiety due to uncertainty was significantly higher in subjects receiving the 'hypothesis' language arm than those receiving the control 'diagnosis' language (20 vs 15.5, p<0.005). There was a trend for higher anxiety due to uncertainty in subjects who received the probability language (18 vs 15.5, p=0.16) and the 'working diagnosis' language (17 vs 15.5, p=0.57). There was no difference in items assessing clinical uncertainty after each scenario.

Discussion and Conclusion: The word 'hypothesis' resulted in higher anxiety due to uncertainty, compared to the word 'diagnosis' for identical clinical scenarios, reflecting a difference in awareness of uncertainty. This is the first study to show that the word 'diagnosis', often used while still in the clinical reasoning process, may have unintended correlations with certainty, increasing risk of premature closure and diagnostic error. This lends support to careful

consideration of the language used in healthcare settings, especially in handoff scenarios as standardized protocols are developed. Future research is needed to understand more fully what factors and processes affect anxiety to uncertainty in healthcare professionals and how language choice may affect medical decision-making and diagnostic error.

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7E5 (197)
Categorization of GP trainee's patient mix in an educationally relevant manner: a prototype approach

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Introduction: Trainees learn from their patient encounters, thus an adequate patient mix is of vital importance in postgraduate medical education. However, a monitoring system that provides both reliable, and educationally relevant information on the patient mix is still lacking. Electronic patient records (EPR's) are interesting candidates for such a monitoring system, though not designed for educational purposes. The classification of EPR data (ICPC codes) into educational relevant categories could be a solution for this problem. The Dutch GP specialty curriculum is build around 10 EPA-based themes that cover the entire content of the training. This makes these themes suited to function as educational relevant themes. In this study we aimed at classifying ICPC codes into these themes with a classification method based on the prototype theory. This theory states that a category exists of objects organized around a set of exemplars or prototypes. Category membership is a matter of degree rather than a dichotomous separation between members and non-members.

Method: For the themes Chronic Care (CC) and Psychic Conditions (PC) we developed two rating scales. Both scales existed of ICPC codes from the ICPC-1 system. To downsize the number of included codes, a two-step selection was performed for CC. First, all codes with no obvious relation to chronic care were removed and second, all codes with a prevalence below 5 per 1,000 patient years were removed. For the smaller theme PC, only the second step was performed. Raters were experienced GP's, who rated each ICPC code on its prototypicality for GP care in the context of either CC of PC. Raters scored ICPC codes on a scale from 1 to 9, where 1 represented 'not at all typical' and 9 'very much typical' for care provided by the GP.

Results: In total 94 rating scales were completed, 31 for CC and 63 for PC. ICPC codes varied from being highly typical (8.44 for CC and 7.87 for PC) to moderately typical (3.24 for CC and 3.45 for PC) in both categories. As expected from the prototype theory, inter-rater variability was low for the codes with a high degree of membership, and high for codes with a low degree of membership. We found a fair correlation ($r=0.27$) for CC and a moderate correlation ($r=0.46$) for PC between prototypically and prevalence.

Discussion & Conclusion: Our findings confirm that the membership of ICPC codes to educational relevant categories is a matter of degree, with some codes being more typical than others. Therefore, the prototype theory seems suitable for this classification task. These results can be used to develop a monitoring system that can generate reliable and educationally relevant information on GP's trainee patient mix, which in turn can be used to tailor the patient mix of trainees to both individual and curricular learning goals. This study is an important first step in developing such a monitoring system.

7F: Research Papers: Shame, Bravery, Confidence & Trust

Location: Helvetia 1, 1st Floor, Swissotel
Date: Tuesday 28th August
Time: 1015-1200 hrs

7F1 (91)
A qualitative exploration of the factors shaping medical residents' experiences of shame

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Introduction: Shame is a powerful emotion that occurs in response to negative events such as making mistakes or experiencing mistreatment. Shame in medical residents can be debilitating and can lead to significant negative outcomes including social isolation, impaired belonging, disengagement, impaired physical wellness, unprofessional behavior, and impaired empathy.[1] Given the powerful nature of shame and its related outcomes, we seek to understand the factors that shape residents' shame experiences. Tracy and Robins's model of self-conscious emotions provides the theoretical foundation for this study and outlines the appraisals and attributions that give rise to shame.[2] Specifically, this study asks: What factors, both intrinsic to the learner (e.g. his/her thought processes, appraisals, and attributions) and extrinsic to the learner (e.g. from the learning environment), shape the way he/she experiences shame?
Methods: We used hermeneutic phenomenology to explore the shame experiences of internal medicine residents within the context of the learning environment. We recruited twelve participants from an internal medicine residency at a large teaching hospital in the United States. Data collection began with participants writing about an experience during medical training in which they felt "flawed, deficient, or unworthy," characteristics of shame described in the psychology literature. This was followed by a semi-structured interview, informed by Tracy and Robins's model, that explored participants' shame experience(s) including the factors that contributed to and influenced those experiences. In accordance with the hermeneutic method, we iteratively analyzed the data and created rich descriptions of participants' shame experiences.
Results: Participants' shame experiences were triggered by events related to patient care, academic performance, and personal goals. Factors both intrinsic and extrinsic to participants contributed to and/or amplified their shame

reactions. Intrinsic factors included frequent comparisons to others, perfectionism, excessive focus on performance, fear of judgment, impaired belonging, and self-assessing through a skewed frame of reference. Extrinsic factors included supervisors, public exposure, being in a transition period, and the culture of medicine.
Discussion: Our study shines a light on shame in medical residents, illuminating intrinsic and environmental factors that may influence how they experience shame. Our data point to numerous "risk factors" that may increase a learner's tendency to experience shame in the clinical learning environment, such as perfectionism and excessive focus on performance. For example, a learner who has linked his self-worth to objective measures of performance may be more susceptible to damaging shame reactions upon performance failures or when objective measures no longer exist. Other factors in our study appeared to amplify existing shame, including supervisors and public exposure. These so-called shame amplifiers, often extrinsic to the learner, represent worthwhile topics for faculty development training and efforts to create psychologically safe learning environments. This study is the beginning of a larger program of research investigating the concepts of shame risk factors and amplifiers and the educational interventions that might be used to address them.
Conclusion: The current study advances our understanding about the influences that shape medical residents' experiences with shame, a powerful and often hidden emotion. This understanding can be used to inform future research and training to address and mitigate the negative effects of shame in medical education.

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7F2 (174)
A quest for bravery: An ethnographic account of patient safety culture in postgraduate medical training

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Introduction: Patient safety is a topic of importance and debate both in the context of postgraduate medical education and health care. The training of residents regarding patient safety used to be situated in a long

socialization process within the clinical workplace. In recent years a more 'standardized' or system approach to medical training has been foregrounded (e.g. competency based education and entrustable professional activities). Sociologists have pointed out the side effects of a systematic approach to patient safety teaching and practice, elucidating how the intended use of these system solutions may conflict with residents' needs (Szymczak & Bosk 2012). As patient safety practices are typically learned in the clinical workplace, the central question of this paper is: How is patient safety taught and 'done' in the training of medical residents, and what does this teach us about how patient safety is enacted in medical care delivery?
Method: This study builds on one year of non-participant observations including informal interviews. Observations took place in the context of anesthesiology and emergency medicine departments in one academic hospital in the Netherlands. Data collection and analyses was an iterative process. Field notes where taken and worked up into detailed descriptions within 24 hours. The data analysis was informed by Habermas's concepts of system and lifeworld (Habermas, 1987). System exists of e.g. administrative responsibilities while Lifeworld is built on shared meanings and understandings, and for everyday encounters between people. This method of analyzing data enabled us to account for the discoveries in the empirical materials and permitted us to give theoretically based situational generalizations of our findings.
Results: The role of patient safety systems and how residents value it changes throughout post graduate medical training. This process can be divided into three stages: 1) Coming to grips, 2) To follow or not to follow, and 3) Mastering. 1) Coming to grips, this is in the beginning of residency training where the focus is more on getting a handle on daily practice. Here we see a distinction between residents solely trusting on systems or residents trusting on hierarchically, non-threatening colleagues (nurses) in their judgment. During this stage patient safety is still an abstract concept. 2) To follow or not to follow, in which the resident makes decisions when to uphold safety systems, for example a protocol, and when to deviate from this. In this stage patient safety becomes a normative concept. 3) Mastering where the resident is able to make decisions in light of the uncertainties surrounding daily practice, here patient safety becomes an embodied practice.
Conclusion & Discussion: Systems surrounding patient safety have different meanings throughout residency training. Residents stop trusting solely on safety systems and start making decisions also involving a lifeworld approach (i.e. through socialization). Systems can be a lifeline in the beginning of residency training. Later on these systems can become a hindrance forcing residents to create workarounds in order to ensure safe patient practice. However, as residents mature and start to oversee the complexity and uncertainty surrounding they are able to use safety systems as a constructive tool in their daily practice. There is a need for supervisors to be more explicit about their lifeworld and system considerations in teaching residents about patient safety. Doing so will enable residents to become braver in navigate uncertainties surrounding patient safety.

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7F3 (126)
Exploring the concept of confidence during surgical residency training

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Introduction: Much recent work in medical education has focused on the topic of competence, and much effort has been expended on designing frameworks and tools to objectively assess the abilities of surgical graduates. We suggest that this focus on competence may overlook another important concept: surgical confidence. Most existing work on confidence is based on surveys and questionnaire data, and approaches the topic from the perspective of a "confidence crisis". Few studies have considered the phenomenon of confidence in surgical training in depth. Thus, our research goal was to explore what confidence means within surgical education and investigate how residents have experienced confidence during their surgical training.
Methods: We used methods of qualitative interpretative inquiry to explore the experiences of confidence among general surgery residents. General surgery residents from the University of Alberta were invited to participate. However, residents in their first year, final year, and research years were excluded. Seven PGY2-4 residents volunteered to participate (4 female; 3 male). Participants were sent a pre-interview activity ('fill-in-the-blank' diagram) one week prior to their interview. Interview questions were open-ended, grouped into specific domains, and included discussion of the pre-interview activity. All interviews were audio-recorded and transcribed verbatim. Each resident received a post-interview research brief that included a summary of his/her interview responses. Interview transcripts were coded and analyzed using inductive strategies to determine common categories, topics, and recurring themes.
Results: Five major themes arose to describe residents' understanding of confidence. First, participants described confidence as an internal, subjective feeling of being able to accomplish a task/set of tasks expected of oneself. This faith in one's abilities is based upon feelings of familiarity and comfort. Second, confidence was described as context- and task-specific and thus varying throughout residency. One participant stated that confidence "looks like a mountain range going up, with multiple ups and downs, but the overall trend is upwards". Third, residents described confidence as "knowing how to handle a

situation", "knowing the right answer", and "being able to rise up and overcome challenges". Fourth, confidence was described as being associated with perception. It affected a person's demeanour and how they appeared to others, being felt inwardly but expressed outwardly. Finally, participants stated that confidence was clearly distinct from competence but also described the relationship between the two concepts. As one participant explained, "confidence is feeling like I can handle it, while competence is whether I actually can handle it." Residents stated that confidence represented their internal beliefs, whereas competence represented external opinions of their abilities. Participants felt that more confident residents were perceived as more competent, were provided more opportunities during training, and earned more trust from staff surgeons.

Discussion: This study showed that "surgical confidence" is a multidimensional concept characterizing a subjective, internal feeling that one can accomplish a specific surgical task. According to participants, confidence is important during residency for overcoming challenges and developing competence, making clinical decisions and caring for patients, and also necessary for progressing through residency and becoming an independent surgeon.

Conclusion: Understanding the concept of surgical confidence is important, as it directly impacts how residents progress and improve throughout residency and ultimately become a confident, independent surgeon. More research needs to be done on the factors that affect the development of confidence during surgical training, and on the interplay between surgical confidence and competence.

7F4 (78)
Mutual trust in workplace-based medical training programs

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Introduction: Trust plays an important role in workplace-based post-graduate medical education programs (PGME-programs). Trainers have to trust their trainee in order to gradually increase the independence of the trainee while in the same time taking into account the safety of the patients. Trainees have to trust their trainer in order to experience a safe learning environment in which trainees can receive feedback, learn from experiences in the workplace, and perform their work properly. Unlike the development of trust from trainers in their trainee(1), only little is known about the development of trust from trainees in their trainer. Additionally, it remains unclear how the trust of trainers in their trainee interacts with the development of trust of trainees in their trainer. As we expected the development of trust to be an interactive process, we aimed to gain insight in the development of mutual trust between trainees and their trainer.

Methods: For this study we adopted the grounded theory methodology. Fifteen trainers and 34 trainees from the General Practice training program from the University of Amsterdam, a workplace-based PGME-program, participated in the study. After performing two focus group discussions with trainers and four focus group discussions with trainees, to share and explore the experiences and knowledge about the trust-relationship between trainers and trainees, data-saturation was reached. The focus group discussions were audio-recorded and transcribed verbatim. The verbatim transcripts were analyzed to identify emerging themes, the themes were divided into categories that informed us about the development of mutual trust.

Results: The process of trust development starts with the first impression. Trainers and trainees find it difficult to describe this process, but they refer to it as a "feeling", "click", or "gut-feeling". The first impression has a strong influence, trust-relationships that arises from the first impression are difficult to adjust. During the training period, the trust between trainers and trainees becomes more concrete. Trainers increasingly entrust trainees with performing patient care independently, taking into account the performance of the trainee in working and learning, the context in which the work is performed, and the safety of the patients. Trainees trust trainers for creating a safe learning environment, in which they feel supported by their trainer. This process is also influenced by the personal relation between trainees and their trainer. The development of mutual trust is importantly influenced by the self-confidence of the trainee.

Discussion and conclusion: Trust development between trainers and trainees is an interactive process, in which both have different goals and different means to get there. The results of this study confirm earlier results about trust of trainers in their trainee, but it also provides the new insight that trust development is a mutual process that differs between trainers and trainees. Trust development is a process that differs from person to person, and is influenced by previous experiences. Giving words to this process may be a challenge, causing participants to be able to only limitedly explain the development of trust in the training situation in focus groups. This study does, however, show that it is important for both trainers and trainees in a workplace-based PGME-program, to develop trust in each other. Since trust is an important factor in both learning and assessment of trainees, paying extra attention to the trust-relationship in a PGME-program may improve the learning outcomes for trainees.

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7F5 (208)

Not just trust: Factors influencing learners' technical skill attempts on real patients

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Introduction: As part of their training, physicians need to learn how to conduct technical skills on patients. Previous literature has revealed that this learning is complex, with many opportunities not converted into attempts by learners. This study sought to explore and understand this phenomenon better.

Methods: A multi-phased qualitative study including ethnographic observations, interviews, and focus groups was conducted to explore the factors that influence technical skill learning. Set in a tertiary paediatric emergency department (PED), staff physician preceptors, residents, nurses, and respiratory therapists were observed in technical skill provision and teaching over a three month period. A constant-comparison methodology was used to analyze the data and develop a constructivist grounded theory.

Results: We conducted 419 hours of observation, 18 interviews and 4 focus groups. We observed 287 technical skills, of which 27.5% were attempted by residents. Thematic analysis identified 14 factors, grouped into three categories, which influenced whether residents attempted technical skills on real patients. Learner factors included resident initiative, perceived need for skill acquisition, and competing priorities. Teacher factors consisted of competing priorities, interest in teaching, perceived need for residents to acquire skills, attributions about learners, assessment of competency, and trust. Environmental factors were competition from other learners, judgment that the patient was appropriate, buy-in from team members, consent from patient or caregivers, and physical environment constraints.

Discussion & Conclusions: Our findings expand upon a previous model of the factors that influence technical skill learning on real patients. Bannister et al. identified an interplay of priorities, attribution and technical skill opportunities in the NICU setting.1 The PED setting and the expanded methodology of this study offered insight into additional factors that influence whether residents are able to attempt technical skills on real patients. Our findings suggest that neither the presence of a learner in a clinical environment nor the trust of the supervisor are sufficient for an opportunity to practice technical skills on live patients to convert into an attempt. In fact, substantial opportunities for procedural learning may never convert into learner attempts. In our study, almost 80 percent of observed procedures were carried out without trainee involvement, even though the paediatric emergency department, an official teaching site, was saturated with learners.

We characterize this phenomenon as a pool of opportunities to conduct technical skills on live patients that shrinks to a much smaller pool of technical skill attempts. The pool of procedural opportunities is determined by the clinical needs of the cohort of patients present in a clinical teaching environment at a given time. In essence, this pool of opportunities is a given size that cannot be increased. The pool, however, can shrink due to learner, teacher and environmental factors, reducing the number of technical skills learners ultimately attempt.

This study presents a caution for medical educators that, in addition to acknowledging that attempts at clinical tasks or technical skills do not automatically convert into learning, they must also be aware that opportunities in the clinical workplace do not automatically convert into learner attempts. Understanding and addressing the teacher, learner and environmental factors that shrink the pool of opportunities to a smaller pool of attempts are important initial steps in developing improvements to work-based clinical learning.

References: *Bannister SL, Hilliard RI, Regehr G, Lingard L. Technical skills in paediatrics: a qualitative study of acquisition, attitudes and assumptions in the neonatal intensive care unit. Med Educ 2003;37(12):1082-90.*

7G: Short Communications: Adaptive Curriculum 1

Location: Helvetia 2, 1st Floor, Swissotel
Date: Tuesday 28th August
Time: 1015-1200 hrs

7G1 (2024)
Vanderbilt Immersion Phase: An adaptive post-clerkship curriculum that uses clinical context to build upon prior learning

Authors
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Presenter: William Cutrer, Vanderbilt University School of Medicine, Nashville, USA

Background: In Educating Physicians[1], Cooke et al emphasize the importance of individualized pathways towards the attainment of standardized outcomes, an approach we implemented with the revision of our curriculum. We extended our post-clerkship phase to from one to two years to foster the graduation of more self-directed, critical thinking, expert workplace learners.
Method: Learners progress through the Immersion Phase (IP) on individualized paths as the curriculum adapts based on their competency attainment and interests.
Key IP goals include deepening foundational science knowledge, solidifying clinical skills, and ensuring readiness for internship. Students devise individualized plans under faculty guidance and informed by evidence of prior performance. They choose among a broad menu of courses designed with overall- and activity-specific learning objectives, multiple educational activities, and a multimodal competency-based assessment plan (including milestones, Entrustable Professional Activities) enables students to meet all competency and framework requirements in personalized contexts.
Results: No two students completed identical paths. Quantitative review of course evaluation data and qualitative review of student focus group responses supported three key curricular themes – the ability to tailor courses to personal interests, increased confidence in preparation for residency, and integration of foundational sciences in a meaningful clinical context. Each student in the inaugural class adapted their schedules to accomplish their career goals while achieving prescribed competency requirements. Curriculum leaders share structure and processes used during the implementation to balance students' achievement of all competency and framework requirements with meaningful individualization. Student narratives describe opportunities the IP afforded and validate the feasibility and value of the 2-year post-clerkship structure.
Conclusion: Curriculum reform at one institution focused significant efforts on improving the rigor and value of post-clerkship experiences by enhancing adaptability and individualization based upon personal aspirations and competency needs.

[1]Cooke, M., Irby, D. M., & O'Brien, B. C. (2010). *Educating physicians: a call for reform of medical school and residency (Vol. 16).* John Wiley & Sons.

7G2 (120)
The Training of Medical Students' Spatial Abilities – Use of Anatomy Computer-Assisted Learning Platform

Authors
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Presenter: Bruno Guimarães, Faculty of Medicine, University of Porto, Portugal

Background: The current medical education satus quo imposes a challenge to traditional anatomy learning methods, contributing to the introduction of new pedagogical approaches, as Computer-assisted Learning (CAL). These platforms provide insight into students' learning profiles that enhance Anatomy knowledge acquisition. To understand the influence of anatomy CAL on spatial abilities, a study was conducted.
Method: Medical students attending Musculoskeletal (MA) and Cardiovascular Anatomy (CA) courses were allocated to one of three groups (MA Group, CA Group, MA + CA Group). Students' pre-training and post-training spatial abilities were assessed through Mental Rotation Test (MRT) (score range between 0-24).
Results: After CAL training sessions, students' spatial abilities performance improved ($9,72 \pm 4,79$ vs. $17,05 \pm 4,57$, $p < 0.001$). The improvement in spatial abilities score between sessions (Delta MRT) showed correlation with Musculoskeletal Anatomy training sessions in MA Group ($r = 0.333$, $p < 0.001$) and MA + CA Group ($r = 0.342$, $p < 0.001$), and showed correlation with Cardiovascular Anatomy training sessions in CA Group ($r = 0.461$, $p = 0.001$) and MA + CA Group ($r = 0.324$, $p = 0.001$). Multiple linear regression models were used, considering as dependent variable the Delta MRT. They revealed an association between Delta MRT and the amount of CAL training and the baseline spatial abilities performance.
Discussion: The results suggest that CAL training in anatomy has positive dose-dependent effect on spatial ability performance. The inclusion of this learning methodology into anatomy curriculum can not only offer innovative and effective alternatives to traditional anatomy training, but also improve students' core characteristics for medical training.
The introduction of CAL platform into medical education allows the collection and analysis of students' profiles, having the potential to act on its vital characteristics and make medical education more proficient.
Conclusion: In a world of exponentially growing knowledge and evolution of technology, the importance of students' characterization became paramount for efficient teaching. In this context CAL shows to be a

promising tool to achieve that goal, personalizing the learning strategies accordingly to students' profiles.

7G3 (2369)
Novel Learning Strategies for Students in the Basic Sciences

Authors
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Presenter: Aaron Brown, American University of the Caribbean, San Antonio, Texas, USA

Background: Lectures still form the basis of medical student learning, despite advances in educational technology. The value of asynchronous audio experience to enhance learning has been well documented yet underutilized. Research has demonstrated that it is at least equal to classroom-based education in improving knowledge. With this background, we proposed that students who use audio lectures to supplement didactic lectures will have a significant increase in performance on MCQ assessments compared to students who study using written class required material.

Method: Second year medical students were randomly assigned to preview four consecutive class lectures: a. using traditional slides and written handouts; or b. using previously recorded audio lectures through the mobile app LectureKeepr (LK) which was developed by one of the authors (AB). Controls on the app allow students to replay, pause, skip back 5 seconds and play the lecture material. Analytics programmed into LK reported the precise timestamp that students identified lecture material to return to using a novel "SkipBack" feature. Students' knowledge was assessed using standardized exam questions before and after the intervention. Pre and post-test items consisted of challenging NBME-style questions. Attitudes were assessed with Likert-scales and free text.

Results: Sixty seven students completed the protocol. Paired t-tests revealed that students assigned to the intervention group demonstrated a higher mean score on the post-test compared to students who studied using traditional means (Traditional: 65.83% ± 7.64; LectureKeeper 81.03% ± 4.31; P = .05). Eighty-three percent (83%) of students stated that LK was a valuable tool to enhance learning.

Discussion: LectureKeeper allows students to adapt their learning environment (content, setting, time) and content needs. This method is not applicable to every student but our research shows that for most students who previously were unaware of the benefits or lacked the capabilities to do so, audio learning can enhance their educational performance.

Conclusion: This study showed that there is a potential to enhance learning in studies by priming them for upcoming lectures using an audio based mobile application.

7G4 (1904)
Preparing Medical Students for Future Learning using 'New' Basic Sciences Integrated Instruction

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Nicole N. Woods, University of Toronto, Toronto, Canada

Presenter: Maria Mylopoulos, WIlson Centre/University of Toronto, Canada

Background: Instruction that deliberately integrates basic science biomedical knowledge with clinical features has been shown to lead to better diagnostic performance and preparation for future learning (PFL), a key capability of adaptive expertise. In addition to traditional biomedical knowledge, it has been suggested that integration of 'new' forms of basic science (e.g. behavioural, social and health system processes) is necessary for effective care. This study compared the effect of integrated instruction using 'new' basic sciences (NBS) to clinical-features only instruction (CF) on diagnostic performance and a PFL assessment (PFLA).

Method: 33 first-year medical students were randomly assigned to the NBS or CF instructional method to learn medical psychiatry disorders. Initial Assessment (IA) consisted of diagnosing 14 clinical vignettes. In a second learning phase (PFL) all students learned how to evaluate integrated health care needs using the same 4-part framework. In the PFLA, students were asked to 1) prioritize the most important variables in addressing patients' health needs and 2) rate (0-3) clinical significance of independent variables from the framework.

Results: There was no difference between the NBS and CO groups on memory retention for both Initial ($t(30)=0.567$, $p= 0.575$) or PFL instruction ($t(30)= 1.203$, $p= 0.238$). The two groups (NBS: (M= 20.13, SD= 3.96); CO: (M= 20.86, SD= 2.85)) also had comparable performance on Initial Assessment at diagnosing clinical vignettes ($t(28)= .573$, $p= 0.571$). For PFLA, the NBS group outperformed the CO group in evaluating integrated health care needs using the framework they learned. In rating the clinical significance of independent variables from this framework, the NBS group (M= 131.76, SD= 8.97) scored significantly higher than the CO group (M= 122.4, SD= 10.63), $t(30)= 2.70$, $p= 0.011$. A higher score indicates better performance and consistency with expert ratings whereas a lower score indicates deviance from expert ratings.

Conclusion: Our data suggest that using an expanded definition of basic sciences for integrated instruction supports the development of PFL. This work has implications for designing effective instruction that supports development of adaptive expertise.

7G5 (2808)
Relational learning and a novel learning engagement system leads to better outcomes

Authors
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Ryan Palmer, American University of the Caribbean, USA
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Presenter: Lance Miller, Inquizica, Philadelphia, USA

Background: Adaptive learning improves creative problem-solving skills, fosters metacognition, and teaches students to become independent learners. However, adoption of adaptive learning techniques remains low among medical students, because: 1) concepts are often presented in isolation rather than in relational units that build upon each other; and 2) adaptive learning strategies must be explicitly supported, as most students do not have direct experience with them and do not implement them on their own.
Method: First, we explicitly taught relational learning to students in small group sessions. We provided clinical scenarios and taught students how to identify the relationship between clinical features and basic mechanisms, using widely respected educational resources they could access independently. We measured each student's ability to identify relevant material, generate their own hypothetical test questions, and then provided hands-on exercises with feedback. We also used a novel learning engagement system (Inquizica) to push formative assessments to student's smartphones to promote rapid engagement, with appropriate spacing and interleaving, and with analytics so students could track their performance.
Results: Participation was significantly higher when strategies were presented early on in the semester as part of the instructional experience, rather than later in the semester to students who were struggling (30% v. >70%). Students showed higher rates of subsequent independent use of educational resources, improved performance on formative assessments, and improved accuracy of self-identified knowledge gaps. Student satisfaction was also high, with comments like "This approach taught me how to think," and "I wished I learned this approach on Day One."
Discussion: Students valued our relational learning approach and the adaptive learning strategies, and together these elements led to greater content knowledge and test performance. These strategies required time and training, suggesting schools should consider including this as an explicit part of the medical school curriculum.
Conclusion: Our relational learning approach, coupled with technology-driven adaptive learning strategies led to higher satisfaction, content knowledge, and test performance.
Take-home message: : This pilot study illustrates the value of explicitly teaching students how to use a relational learning approach, coupled with technology that makes adaptive learning strategies easy to implement.

7G6 (3692)
Healthcare Communication: Developing Educators for Change

Authors
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Presenter: Fernanda Patrícia Soares Souto Novaes, FAIMER, IMIP, UNIVASF, INSS, Petrolina, Brazil

Background: Guidelines value training physicians capable of building relationships with patients, dealing with emotions, and teamwork. Medical educators, however, know little about new concepts in medical education and replicate the models they have received. The elective "Communication in Healthcare" course is an intervention that introduces active methods into a traditional Brazilian medical school. The increased number of participants posed difficulties to work with active methodologies.
Method: The course promotes supervised student-teaching practices, working with active methods communication skills adapted to local needs and carrying out OSCEs with few resources. The educational model is a hybrid, combining face-to-face and online, using flipped classroom and the following Doc.ComBrasil modules: Building a Relationship, Obtaining and Sharing Information, Dealing with Emotions, Sexuality, Bad News, End of Life, Boundaries and Professional Teams. Students take part in seminars, such as Project-Based Learning (PjBL). The challenge of working with active methodologies in large groups was solved by subdividing into small groups, in accordance with the concept of Team Based Learning (TBL). We exchanged traditional chairs for cushions and mats in a thematic room. We used collective embrace, affectivity dynamics, and feedback.
Results: 1-The process was entitled Reflection-Based Learning (RBL), inspired by qualitative research, meaningful, collaborative learning, and art, in order to consolidate medical identity. The educational choreography includes 10 steps: 1-Class Project, 2-Discussion Circle, 3-Reflection, 4-Categorization, 5-Articles, 6-Integrative Dynamics, 7-DocCom.Brasil, 8-Student Videos, 9- Dramatization, 10-Conclusion with Art.
2. Kirkpatrick's program evaluation revealed good results at level 1, satisfaction, demonstrated by the increased number of participants over 6 terms: 4, 17, 20, 24, 48, and 52. The presence of Medicine, Pharmacy, Psychology and Nursing students reinforced interprofessionalism and medical course accreditation criteria. The educational experience received a Brazilian Medical Education Prize.
Conclusion: Teaching practices prepared students for educational change in healthcare and developed future facilitators. Student collaboration makes it possible to conduct OSCE with few resources. RBL transforms each class into a publishable experience. s: This is an innovative, easily replicable educational process that guarantees

space for speech, creativity, and humanism in medical
education.

7H: Point of View 1

Location: Kairo 1, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

7H1 (3486)
Hybrid clinical simulation: Inclusion of immersive technology to develop skills on undergraduate medical students

Authors
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José Luis Cerano Fuentes, Universidad Vasco de Quiroga, Morelia, Mexico

Presenter: Mildred Vanessa López Cabrera, Tecnologico de Monterrey, School of Medicine and Health Sciences, Monterrey, Mexico

Background: Clinical simulation provides the opportunity for the student to promote solutions in a safe environment through the reasoning of clinical cases to obtain the best option for care, integrating it with the concept of mastery learning where the student must repeat the task until he demonstrates his mastery. This tool has gained attention for practice and evaluation of technical procedures, as well as team training to improve performance in complex environments (Rosen, 2008). However, simulation as it is conceived is limited to a physical space and the acquisition of equipment that requires high investment and maintenance costs. New technologies that provide immersive learning models have grown exponentially, such as: the use of apps, augmented reality and virtual reality. The integration of augmented reality and virtual reality in medicine is a growing trend that is being used to complement practical training or skill development laboratories, including facilitating self-directed learning and remote diagnosis (Maani, 2011). This technology includes the use of three-dimensional graphics, immersive scenarios, patient avatars, and spaces for performance evaluation. Some models are focused on exposure therapy of patients with claustrophobia, post-traumatic stress disorder, pain management, surgical planning, cognitive training for patients with autism, etc. (Newbutt et al., 2016). However, its focus has been mainly on the development of therapeutic skills and training for medical specialties, there is a gap for training on basic skills part of the undergraduate curriculum, such as emergency management and clinical competencies. The benefits of these innovative systems lay on decentralization and access to state-of-the-art technology, graphics and videos that are very close to reality, that are produced and available without considering geographical or economic conditions, providing the opportunity to learn the best medicine, from the best clinical environments, and from the best doctors (Wiechmann, Kwan, Bokarius, and Toohey, 2015).

7H2 (340)
Achieving mastery in simulation before transitioning to real-life practice: are there drawbacks?

Authors
Bettina Willi, Hospital for Sick Children, Canada
Briseida Mema, University of Toronto, Canada
Anne Kawamura, University of Toronto, Canada

Presenter: Bettina Willi, Hospital for Sick Children, Toronto, Canada

Background: In the era of Competency Based Medical Education (CBME), certain training programs require their trainees to achieve a minimum passing score in a simulation context before being allowed transition to real life. This mastery model for simulation training is advocated to be effective.
However, what is the feasibility of this approach for a training program? We examined our Pediatric Intensive Care needs and calculated that each trainee would need at least 30 hours of simulation for procedural skills training alone before being allowed to participate in real –life supervised practice. Furthermore, Boot camps, a solution used by many training programs to manage these training requirements, do not allow for learning using deliberate practice. Months would go by until a learner achieves the predetermined proficiency in simulation.
Enforcing strict rules would impede learners from participation in real-life clinical context. Yet this may result in missed opportunities where trainees can participate and learn under supervision which is effective for the development of expertise for the following reasons. Learning is situated (Lave and Wenger) and trainees should participate in different learning contexts. Correlation of performance in simulation and real life is non-linear as performance is context related. Greeno's study of transfer argues that transfer of skills depends on whether learners see similarities across different situations. Involving learners in real-life helps them see the similarities and differences between simulation and practice and primes them for better use of simulation practice subsequently. Adaptive expertise requires learners to problem solve different type of non-routine situations such as those faced in real-life rather than the routine simulation practice.
Should programs, while striving to provide as much simulation training as possible, expose the training of learners to supervisors and encourage learners to take advantage of all opportunities with appropriate supervision and feedback.

7H3 (1239)
A problem with problem-based learning

Authors
Martin Veysey, Hull York Medical School, Hull, UK
Marie Cohen, Hull York Medical School, Hull, UK

Presenter: Martin Veysey, Hull York Medical School, Hull, UK

Background: If "assessment drives learning" then a problem with problem-based learning (PBL) is assessment. PBL has been an adopted pedagogy in health professional education, based on the principle that it promotes not only cognitive outcomes, but also metacognitive. All of which are critical for healthcare professionals. Whilst assessment is not the only factor influencing learning in a PBL course, it can undermine the benefits of it, with students focusing on examinations, rather than the problems. This is especially true with written assessments of knowledge that focus on what you know, rather than what you know or don't know and how you go about gaining new information.

But if this is true, what is the solution? There are three potential approaches. Firstly, we could change our examinations. Open book, or certainty-based, assessments enable formal examinations to be authentic, not only to the style of teaching, but also future workplaces. Who expects their doctor to guess which of drug they should prescribe? Secondly, we could adopt programmatic assessment, using portfolios of aggregated assessment data, with an emphasis on the overall performance of students. And finally, we could focus our assessments away from the acquisition of knowledge, much of which may be redundant soon, and focus them on self-regulatory or self-authorship capacity. Self-regulation can be measured in kindergarten students, but these techniques have not yet been embraced in undergraduate education. Which approach to follow needs to be a subject of debate, but ultimately we need to move away from knowledge-based tests that artificially reassure us that students will make good clinicians. Whatever happens, if we are to avoid a slow and painful drift away from the ideals of PBL, and its demise, we need to adapt and refocus our assessments to ensure the benefits of PBL are retained for health professional education.

7H4 (2902)
What condition do you think medicine's curiosity muscle is in?

Authors
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Sinead Murphy, Department of Paediatrics, School of Medicine, University College Dublin, Dublin, Ireland

Presenter: Jennifer Yates, Department of Paediatrics, School of Medicine, University College Dublin, Ireland

Background: Curiosity is an enrapturing and maddening concept, it is the eternal itch that needs to be scratched. There is and has been general concern amongst medical educators that the curiosity of medical students and modern medical professionals is diminishing. In fact, modern medical professionals have been likened to providers rather than doctors due to the increasing use of check lists and algorithmic medicine (1). It has been hypothesised that the diminishing curiosity levels may be due to the increasing pace of the medical world and the need for efficiency (2) and that current medical education and its' assessments are contributing to diminishing curiosity due to it's primary focus on learning facts and acquiring practical skills which causes students to focus on finding the right answers, but does not adequately equip them to formulate their own questions once working as a physician. Factors suggested as being detrimental for curiosity include negative feedback and a hostile environment (3.). However, we know that medical students are naturally curious people (4,5) and indeed many medical schools actively recruit inquisitive and curious students who can demonstrate they have a strong desire to learn (6). Sternzus et al measured curiosity levels across 4 years of an undergraduate medical degree. They demonstrated students had high levels of trait curiosity and demonstrated they were higher than the trait curiosity scores of other university/ high school students when compared to previous studies . However, state curiosity was consistently lower and fluctuated from year to year (7). This caused them to question is undergraduate medical education optimally supporting curiosity? It is posseted that curiosity is like a muscle, if you do not use it, you may lose the impetus to ever use it again (8) which then creates the question, what condition to you think medicines curiosity muscle is in?

7H5 (3430)

Can computerized adaptive testing maximize the utility of progress tests?

Authors

Carlos Fernando Collares, Maastricht University and European Board of Medical Assessors, Maastricht, Netherlands

Presenter: Carlos Collares, Maastricht University and European Board of Medical Assessors, Maastricht, Netherlands

Background: Traditional paper-based progress tests have been used successfully for several decades worldwide. However, this assessment tool has a critical short-coming: low reliability for beginners. Formula scoring, in which penalties are given for wrong answers, can slightly increase reliability. However, this increase apparently occurs at the expense of validity. Computerized adaptive testing is a technology in which an algorithm dynamically adjusts the difficulties of the items according to the previous answers. Computerized adaptive testing is known to allow sharp reductions of test length while uniformly maintaining or increasing reliability for all participants. When I developed and implemented the first computerized adaptive progress test (CAPT) in Brazil eight years ago, my motivation was to reconcile validity and reliability for this assessment tool. After moving to Maastricht, I had the honor and the privilege to implement CAPTs in many different countries. Despite the reduction of test length by 50%, reliability estimates have always been excellent, regardless of the academic year of the test takers. Preliminary validity evidence is also very promising. However, if we use the "utility function" to evaluate the quality of CAPTs (Van der Vleuten, 1996), three other characteristics must be taken into account besides validity and reliability: acceptability, costs, and educational impact. Regarding acceptability, students' evaluations have been surprisingly positive. Students say the test resembles a "video game" and that they feel more motivated to study. In terms of costs, increased collaboration between schools has allowed price reductions of roughly 60% in four years. So far, one can infer that CAPTs have high utility value. However, the educational impact of CAPTs in comparison to traditional progress tests is not yet known. How aligned are CAPTs with modern learning theories? Based on current findings and different theoretical frameworks, I propose a collaborative research agenda to investigate the educational impact of CAPTs.

7H6 NOT PRESENTED

7H7 (3288)
Medical Schools Should Organise Regular Short Sabbaticals on the Clinical 'Front Line' for Non-Clinical Educators

Authors
Hamed Khan, St Georges University of London, London, UK

Presenter: Hamed Khan, St Georges, University of London, UK

Background: An essential requirement for prospective medical school applicants is work experience- and rightly so. Medicine is a unique melange of art and science, with unparalleled rewards, and exceptional emotional and physical stress. In addition to scientific acumen, doctors need outstanding communication skills and emotional intelligence to disentangle psychological and social issues from physical pathology.
Reading about this is helpful, but only to a limited extent. Medical schools almost universally require prospective medical students to spend time shadowing doctors on the 'shopfloor', to get a 'real life' feel of what life as a doctor entails.
The value of this is indisputable, and universally recognized by medical schools. So surely we should also enable those who teach our students to benefit from such insight?
The brilliant non-clinical academics who teach our future doctors work relentlessly to enhance their insight and understanding of the clinical 'front line', and their dedication is unparalleled. It is time that medical schools actively facilitated their commitment and efforts by enabling them to gain first-hand experience.
This is why I believe that medical schools should organise regular short 'sabbatical' breaks for their non-clinical educators, to enable them to shadow doctors working on the clinical frontline.
Gaining regular first-hand experience and personified insight into the unique daily complexities and challenges of medicine, would be immeasurably helpful in contextualizing teaching. Such insight, and the ability to draw upon first-hand experiences and anecdotes, would enhance both the quality of teaching and the authority of educators. Doing this regularly would help non-clinical educators keep up-to-date with developments in clinical medicine, and the impact these have on clinicians and their practice.
It will also help develop links between front line clinicians and non-clinical educators, providing both with an insight into the challenges that both face, and help enhance mutual understanding and mutual respect.

7H8 (3620)
Debating the Potential of Competency-Based Medical Education: The Need for Constructive Criticism

Authors
Stanley J. Hamstra

Presenter: Stanley Hamstra, ACGME, Chicago, USA

Background: In a number of recent published reports, there has been sharp criticism of the value proposition for competency-based medical education (CBME). These tend to focus on theoretical concerns as well as the lack of an evidentiary base for making such a large change in medical education. When examined closely, these criticisms highlight differences in local jurisdictional culture and systems for health care delivery and education that create challenges to implementation. Certainly no single approach can be expected to address all the needs of every stakeholder group in every context.
I will argue that such criticism would be more constructive with further framing and deliberation regarding historical and contextual factors that impact not only the need for change, but also specific cultural and structural challenges to implementation.
The historical context for initiating such a large-scale change in medical education is summarized in a series of publications that expressed concerns regarding quality of care and public accountability. These concerns led to a variety of changes in the health care delivery system that consequently affected systems for teaching and assessing learners. In addition to concerns regarding quality of care, the continued attempt to utilize the traditional apprenticeship model within the modified health care system led to variation between learners - not only in exposure to certain disease categories, but also to biases in evaluation of performance based on professional judgment alone.
I will argue that CBME involves an attempt to make explicit that which may be implied. I will make the case that a CBME framework addresses these problems directly, albeit imperfectly, and as such, requires further study, debate and constructive criticism to adapt to the needs of trainees, their teachers, the health care systems in which they learn, and ultimately patients.

7H9 (3444)
Student involvement in the admission process at the University of Copenhagen, Denmark

Authors
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Sara Klingenborg, University of Copenhagen, Copenhagen, Denmark
Mathilde Horn Andersen, University of Copenhagen, Copenhagen, Denmark

Presenter: Annarita Ghosh Andersen, University of Copenhagen, Denmark

Background: Medical schools all over the world have very different approaches to the admission process. At the University of Copenhagen 90 % of the students get accepted based on their grade point average and 10 % are accepted because of their motivational application and CV. The University of Copenhagen encourages student involvement in decisions concerning students made at faculty level. Therefore, it is seen as not only relevant but necessary for students to be involved in the application process.
Students exchange opinions and ideas with academic staff in meetings and workshops concerning the future applications and yearly one student is elected as part of the board, by other students at the association of medical students general election.
The election ensures that all the students backs the one student on the board.
The board consists of one student, one member of the academic staff and one clinician. This means that the qualified applications received are reviewed by both professors and students before a decision is made, ensuring that each applicant receives the optimal attention and judgement.
The applications are judged on 7 merits, which the board of medical studies chooses. The study board is likewise a collaboration between academic staff and elected students.The cooperation between students and staff benefits all; the knowledge from staff in what makes a good academic profile and the recognition from students on motivation and relevance.
Student involvement ensures a fair and relevant discussion of the best applicants. In a world with many different approaches to applications and admissions, the involvement of engaged and motivated students is both beneficial for the individual application process and for sharing knowledge peer-to-peer and between students and academic staff, reinforcing the link between faculty and student body.
Having students as part of the admission ensures a fair and relevant admission process.

7H10 (3077)
We're doing it all wrong! Selection methods must be institution specific!

Authors
Aimee K. Gardner
Brian J. Dunkin

Presenter: Aimee Gardner, Baylor College of Medicine, SurgWise Consulting, Houston, USA

Background: If you were applying for a barista position at Starbucks, you'd complete a different screening assessment than if you were applying for a barista position at Dunkin Donuts. This is because selection scientists know that the competencies required to successfully perform a job – even within the same occupation –is dependent upon the institution's unique culture, demands, and values.
The same is true for postgraduate medical education. Training programs may be held to the same accreditation standards, but the institutional climate can greatly impact the competencies required for success in any given program. For example, programs vary in the extent to which residents and junior consultants are expected to participate in research, teach medical students, and care for patients in rural settings. On a more subtle level, programs also differ in their promotion of diversity and inclusion, focus on innovation, provision of autonomy, and emphasis on other norms and values.
These intangible features make programs unique. As such, these aspects must be taken into consideration when selection systems are developed. Institutional culture is a critical consideration for determining which applicant assessment tools are most relevant and which can optimize information about applicant – program fit. Widespread implementation of "off the shelf" or externally-created screening tools, whether they be personality tests, situational judgment tests, or interest inventories, cannot fulfill this need. They must be considered and investigated through local validation studies to ensure their relevance, effectiveness, and ability to predict performance and retention.
Selection systems must be customized to capture each program's idiosyncratic demands, values, and culture if we care about maximizing the fit between applicant and institution. In today's training environment, one size does not fit all, and neither should our selection approach.

7I: Short Communications: Curriculum: Evaluation

Location: Rio, 2nd Floor, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

7I1 (1752)

Lessons learned from implementing the integrated curriculum for nine years at a medical college in Korea: focused on the perspectives of graduates and faculty members

Authors

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Presenter: Wha Sun Kang, Department of Medical Education, College of Medicine, The Catholic University of Korea, Seoul, South Korea

Background: Catholic Medical College developed vertically integrated curriculum based on the SLICE model (Student-Centered, Longitudinal, Integrated, Competent, and Elective), and have implemented the curriculum since 2009. But little is known about how different students and faculty perceive the effect or outcome of the curriculum. We design this research to identify those perspectives as the first step of curriculum evaluation to promote the good effect and to settle the curriculum successfully through quality improvement.
Method: This research presents the results of a quantitative and qualitative study aimed at elucidating how well the goals of the OMNIBUS OMNIA curriculum, integrated medical curriculum of Catholic Medical College of Korea, were achieved from perspectives of the graduates' and faculty members.
Results: Graduates' and faculty members' satisfaction for overall curriculum was 3.2 and 3.76 out of 5 respectively. Especially graduates' satisfaction for 'the integration and connection of the curriculum' (3.63) was higher than faculty members' satisfaction (3. 06, 19.451. p=.001). From qualitative study of the focus group interviews graduates addressed that they needed more repetitive learning opportunities in the curriculum and complained that frequent assessments hinder consolidating process knowledge. Faculties pointed out the lack of integration and connection of the curriculum and urged for the strong sense of responsibility of professors who is involved with the particular segment of the curriculum.
Conclusion: Graduates presented more positive responses to the integrated curriculum than faculty members.

Graduates' satisfaction of every item was higher compared to that of faculty members. In particular, faculty members appealed for the need of full time instructor to reach the goals of the curriculum. This study demonstrated that the OMNIBUS OMNIA curriculum achieved its goals partially from the perspective of graduates' and faculty members'. In the analysis of survey and interviews graduates and faculty members also identified other strengths and weaknesses for improvement of the curriculum.
Take-home message: : This study provides lessons and impacts of implementation of the integrated medical curriculum. It identifies obstacles of integrated curriculum and encourages medical educators to reform their educational system.

7I2 (3592)

Shifting program evaluation from capturing to understanding: Trying to address the lack of evidence on Curricular reform

Authors

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Presenter: David Rojas, University of Toronto, Canada

Background: The health professions education (HPE) literature reports a lack of evidence regarding the impact of curricular reforms. We suggest this is the consequence of a dearth of program evaluation tools that address the complexity of the educational programs underpinned by the curriculum. State of the art program evaluation practice proposes accounting for complexity by capturing the planned and emergent elements that arise when the program unfolds. However, no framework has been provided to accomplish this.
Method: We developed a program evaluation framework informed by systems engineering principles. We used our framework to evaluate the Pre-Residency Program (PRP) for international medical graduates in Ontario, Canada. Our framework involved multiple data collection methodologies (i.e., document analysis, observations [120 hours], and interviews [n=30]), abductive data analysis, reverse engineering of the data, and data triangulation. We explored the added value of our framework by also using a logic model framework and our collected data to evaluate the PRP program.
Results: Our results showed that our framework was the only one able to capture the elements that emerged when the program unfolded and, through our data analysis, provided some possible mechanisms for the emergent elements. We also found that further study is required to confirm or deny the possible mechanisms suggested by our framework. The logic model framework was limited to determine whether the program had achieved what was planned or not.
Conclusion: We have used state of the art program evaluation approaches and system engineering principles to develop a program evaluation framework that could

help mitigate the curricular reforms' lack of evidence. Our framework studies the planned and emergent elements in a program to understand the effect that the multiple curricula could have on the programs' dynamics. In doing so, we propose a shift in the program evaluation focus from capturing emergent elements, to trying to identify it's possible mechanisms.

Take-home message: The lack of curricular reform evidence can be circumvented by developing program evaluation tools that capture and study the effects that formal and informal curricula have on a program's dynamics, and its educational outcomes.

7I3 (1840)

Evaluating the effectiveness of educational interventions for patient benefit: The development of reporting guidelines

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Background: The UK Commission for Employment and Skills (UKCES) report that the NHS spends over £40billion on training every year. The effectiveness of this varied training is evaluated with different methodologies, using outcome measures that are not always robust, creating diversity in how outcomes are evidenced. Of the wealth of evidence reporting educational, attitudinal, behavioural, and service changes following education, only a fraction can evidence an effect on patients. Following a realist synthesis, we developed reporting guidelines to act as a resource to those aiming to demonstrate patient outcomes from their reporting of educational interventions.

Method: First, we familiarised ourselves with the current evidence (465 published papers were included in a realist review) of educational and training interventions which report patient outcomes (clinical effectiveness, patient experience, patient safety). Second, we consulted the current literature on good practice for reporting evaluations. These two processes produced a preliminary set of items. Third, we used a Delphi method with an interdisciplinary panel of journal editors, academics, and healthcare professionals who report educational interventions.

Results: Among the areas identified for specific guidance are: report how the need was identified that triggered the intervention; describe the educational or training intervention in full (delivery, duration and skills targeted); explain clearly how patient outcomes are defined and

measured; state the direction of effect (patient improvement or deterioration); state controls in appropriate methodologies; discuss reflections of the implementation or research team about how the intervention produced the patient outcome.

Conclusion: The development of this reporting guideline has drawn on multiple sources and in-depth knowledge of the evidence base. Each item of the guideline has been scrutinised by experts to create a resource that has high validity and ease of utility, to improve the evidence base of the educational impacts on patients, as well improving the ability to appraise that evidence base.

Take-home message: : There is great diversity in the quality of reporting patient outcomes, and weaknesses in reporting the effectiveness of interventions. It is intended that clarity and improved quality may be achieved with guidance.

7I4 (3231)

Evaluation of the Effectiveness of Interventions to Improve Quality of Midwifery Education in Ethiopia: a Quasi-Experimental Study Design without a Control Group

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Background: Although Ethiopia rightly increased the number of midwives in the last decade, the rapid scale-up of preservice education posed considerable challenges to assuring quality of education. In response, the Government, with support from development partners, implemented various interventions to improve quality of education.

Method: A pre-post evaluation design without control was employed to assess the impact of various interventions on the quality of midwifery education. Interventions targeted essential elements of preservice education; namely, students, instructors and preceptors, curriculum, educational infrastructure and resources, quality management, and regulation. Pre-test data was collected from 484 graduating students in 25 midwifery schools in 2013, and post-test data were gathered from 486 graduating students in 13 schools in 2016. Improvement in competence was assessed using a 10-station objective structured clinical examination (OSCE), while improvements in the learning environment and experience were evaluated through structured interview with students.

Results: Overall, the perception of students about educational inputs, processes and outputs significantly increased from 2013. Availability of teachers improved markedly, from 43% to 70.6% for classroom instructors and from 28.9% to 55.3% for skills lab assistants. The proportion of students who said skills lab assistants facilitated

learning effectively jumped from 44.6% to 76.1%. Quality of classroom instruction also rose from 56.2% to 67.7%. Similarly, competence score in the objective structured clinical examination increased by 4.8% over three years (pre-test= 51.8 %, pot-test = 56.6%, p < 0.001). However, the number of deliveries attended by students did not improve. The gender gap in performance observed at pre-test (55.6% vs. 49.8%, p < 0.001) also persisted at post-test (60.4% vs. 54.9%, p < 0.001).

Conclusion: The results suggest that the capacity building interventions have resulted in improving quality of education but also highlight additional efforts are needed to achieve the desired impact.

Take-home message: Our paper presents evaluation evidence on effectiveness and challenges of interventions to improving quality of education amidst push for increasing numbers.

7I5 (3461)
Are we doing it right? Evaluating the Behavioural Science programme at a new medical college in Qatar - two years in

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Presenter: Tanya Kane, College of Medicine, Doha, Qatar

Background: In addition to the indigenous population, medical students in Qatar will treat a diverse patient population of expatriates. Balancing societal norms and expectations alongside the knowledge and training that inhabit the highly circumscribed arena of medical practice is challenging for faculty and students alike. We have recognized the need to broaden social and behavioural science (SBS) content and materials to ensure it adequately addresses the cultural and religious specificities of the Arabian Gulf setting.

Method: As part of an integrated curriculum, SBS concepts are embedded in our weekly PBL cases and subsequently revisited in experiential review sessions of primary care clinical placements. Our SBS curriculum focuses first on exploring students' understandings of health and illness within the context of their own culture. This harnesses students' knowledge and experiences that can then be used as a useful platform to explore the psychosocial dimensions of medicine across different cultures. In order to assess our approach, we have conducted a qualitative survey of our first two cohorts to assess student perceptions of SBS content and curricular value.

Results: Most students surveyed regard SBS as an important part of the medical curriculum and acknowledge its capacity to improve health care delivery and cultivate professional ethics. SBS encourages students to question local conceptions of health and illness and in most cases, gradually develop a more culturally-relativist and holistic approach to the practice of medicine. Although feedback indicates that a small number of students initially perceive some SBS content to be at odds with their cultural mores and values, students credit exposure to SBS with broadening their perspectives.

Conclusion: Our students undertake a comprehensive professional undergraduate medical programme in a predominantly conservative Arab-Islamic environment. Although a minority express discomfort with certain topics, over time, concepts covered in SBS are regarded by students as essential preparation for the culturally diverse medical landscape in which they will work.

Take-home message: Start local and go global. Foregrounding Islamic and cultural underpinnings of medicine when teaching in Arab countries is an effective means of introducing SBS in a culturally-sensitive way and a useful launchpad for discussion.

7J: Short Communications: Assessment: Feedback

Location: Shanghai 1, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

7J1 (2335)
How closely does educator behaviour during feedback in contemporary clinical practice align with published recommendations: an observational study of 36 authentic formal feedback episodes across the health professions

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Presenter: Christina Johnson, University of Melbourne and Monash Health, Melbourne, Australia

Background: Formal face-to-face feedback between educators and learners forms an integral part of workplace learning in the health professions. The literature describes features of high quality feedback thought to enhance learner outcomes. Little is known about how closely feedback in contemporary clinical practice aligns with these recommendations.
Method: Health professional educators (senior clinicians) and learners (students, junior clinicians or peers) videorecorded themselves undertaking a formal feedback conversation regarding the learner's performance in routine clinical practice.
The researchers independently reviewed these videos and rated educator behaviour against a modified version of the published Feedback Quality Instrument (FQI) (1 of the 25 educator behaviours was removed as it was not observable). Each item was rated 0=not seen, 1=done somewhat or done only sometimes, 2=done. Total scores could range from 0 – 42. Medians (IQR) were calculated for individual items and total score.
Results: Thirty-six videos involving 67 health professionals were analysed: 34 educators (47% men; 26 doctors, 4 nurses, 4 allied health) and 35 learners (34% men, same disciplines). Two participants were in both categories.
Five researchers independently rated educator behaviour observed in the recorded feedback episodes. A set of 3 FQI items targeting corrective comments were excluded from analysis as they were not universally applicable. FQI total score median (interquartile range IQR) were 21.4/42 (15.9-21.4).
Highest item scores (median >1.5) were for items describing educators asking learners what they wanted to focus on, linking their own comments to specific observed learner actions, explaining their reasoning and clarifying target performance.
Lowest items scores (median <0.5) were for items describing educators creating a safe learning environment (explicitly explaining purpose, process and non-judgemental approach at the start), promoting the value of learner self-assessment, checking learner understanding

of the action plan and discussing opportunities to review performance.
Analysis of 36 authentic feedback episodes revealed variable educator skill in quality feedback.
Conclusion: This observational study highlights the opportunities to assist educators to enhance their feedback skills, focusing on creating conditions for psychological safety, fostering learner involvement and understanding, and seeking opportunities for continuing learners' skill development.

7J2 (898)
Broadening the Scope of Feedback to Promote Its Relevance to Workplace Learning

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Presenter: Renée van der Leeuw, Gerion, Amsterdam, Netherlands

Background: A large and essential part of medical training is situated in the clinical workplace. In this workplace setting, feedback is frequently used as a way to support learning. However, the current use of feedback in medical education has limitations. First, the instrumental way feedback is defined in medical education excludes potential valuable sources of information for learning. Second, how feedback is practiced in clinical training situations, often as a unidirectional conversation or as a 'tick-box' exercise. Finally, a dominant research focus on "what works", rather than "how does it work", narrows its potential. By broadening the scope on feedback, we aim to promote its relevance to workplace learning.
Method: We explored the theoretical background of learning in interaction and current innovative trends regarding feedback in medical education. We started from the perspective of those involved in workplace learning in iteratively constructing a broader scope on feedback.
We present a new, wider perspective in which feedback could be redefined as "performance relevant information" (PRI). PRI can incorporate all information that is deemed relevant to the learner, drawn from interaction in workplace learning and one's interpretation of performance in the clinical workplace. This information can, for example, come from the evaluation of patient outcomes after treatment, observations of role models' performance, evaluations and assessments, exploring feelings of failure or success, and responses of colleagues and peers.
Conclusion: PRI draws attention to learning opportunities that better fit the highly social learning of clinical workplaces and current trends in medical education. It supports a practice of interpretation of individual or team performance in terms of relevance to their learning. This allows for a comprehensive way of viewing and stimulating workplace learning. Moreover, it acknowledges the complexity of the workplace context,

taking into account aspects that are not easily measurable or talked about (e.g., feelings, trust, lying awake at night).

Take-home message: PRI provides an opportunity to create lifelong learning strategies, by focusing on seeking out which information is relevant to you and why.

7J3 (1258)
Developing feedback literacy of learners in the workplace: a tried and tested model

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Background: Healthcare students have reported dissatisfaction with feedback in the workplace setting. Most educators and students see feedback as educator comments on students' performance. With the prevailing view of feedback, it is not surprising that students' active role in feedback tends to be overlooked in developing work-ready learners. Heightening learners' skills in feedback, as seekers, processers and users of performance information may support clinical placement experiences, and transitions to practice.

Method: This study researched a feedback literacy program, developed to augment students' engagement in feedback within their clinical placements at a major hospital. The dialogic feedback model, Feedback Mark 2 (Boud & Molloy, 2013), formed the basis of a multifaceted intervention to support students' engagement in feedback processes. An interprofessional student group (n=105) were involved in the program which included an e-learning module, a face-to-face workshop and reflective journal opportunities. Our research approach included surveys and interviews after students' clinical placements. Thematic analysis of survey and interview data revealed that the literacy program improved students' engagement in feedback processes in the workplace. Students were more likely to approach educators for feedback after tasks, and more likely to ask for feedback on specific aspects of their performance. They reported that prior to the feedback literacy program, they did not see these seeking behaviours as part of their role.

Results: The study findings suggest that a structured and targeted program to support student engagement in feedback processes may be an important part in the transition from classroom to workplace learning. This interprofessional feedback literacy program could be applied in other settings to improve learner engagement in feedback and could also be made available for clinical staff as co-participants.

Conclusion: Developing learners' feedback literacy, an emerging research priority in higher education, has limited attention in health professions education research. Our findings suggest that a targeted program, with follow up

on learner engagement, improve students' active participation in feedback processes. Further research, especially observational studies, is needed to capture how these changes manifest in practice.

7J4 (956)
Mastering feedback for learning

Authors
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Presenter: Jill Benson, ModMed, Adelaide, Australia

Background: Formative assessment and feedback have been found to have a powerful influence on trainee performance. Feedback promotes learning by informing trainees of their progress or lack thereof; advising them about observed learning needs and resources available to facilitate their learning and motivating them to engage in appropriate learning activities. As much as possible feedback should be planned, enlightening, honest, and respectful, focussing on description rather than evaluation and behaviour rather than personality. Feedback is an essential component of any programmatic assessment training programme.

Method/Results: The literature was searched for tools utilised in feedback, desired outcomes and the roles which supervisors play. Despite evidence showing the importance of giving good feedback, many supervisors find it very difficult. To give feedback effectively, a supervisor needs to be aware of their own emotions, the appropriate role to play, tools to use, attitudes they would like to portray, and the desired outcome.

Although there are many different ways to give feedback, there isn't one 'right' way which will fit all scenarios. In the same way a doctor will change their approach during a consult depending on what a patient says, supervisors need to have a repertoire of skills for different situations and to tailor these as needed.

A series of videos was recorded, demonstrating expert supervisors giving feedback to acting trainees. Based on the literature and incorporating these videos, an interactive mastering feedback course was developed for supervisors and medical educators. A sample of this course will be presented.

Conclusion: Becoming an 'expert' in giving feedback will allow supervisors to deliberately use a suite of feedback skills in the variety of contexts in which they will be supervising. As with any new skill, the theory needs to be practised so the supervisor can give feedback efficiently and effectively and the trainee become a safe practitioner and life-long learner.

Take-home message: Supervisors can learn to give effective feedback and use their teaching time efficiently in order to facilitate optimum trainee education.

7J5 (218)
Effectiveness of chart audits with formative feedback to improve the quality of clinical records by ophthalmology residents

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Background: Auditing of medical records has been proposed for teaching and assessing several aspects of professional competence. Obtaining and registering a complete and adequate medical history is a skill that should be taught and can be learned and, therefore, must be evaluated. Providing feedback to residents about how they register medical records should further improve the quality of these records. We implemented and educational strategy consisting of didactic lectures and individualised feedback to residents of an Ophthalmology program; the purpose of this study was to evaluate the effectiveness of clinical record audit with individualised feedback to facilitate learning and improve the quality of medical records.

Method: Quasi-experimental study with historical control group. Participants: 9 ophthalmology residents compared to a historical control group of 9 residents. Thirteen clinical record quality standards were assessed in two groups of nine residents. One group attended a didactic lecture, received chart audit and individualised formative feedback (intervention group); the other group was not exposed to the educational strategy (control group). A total of 180 charts were assessed. Main Outcome Measure: Change in clinical record quality in charts created by residents after educational intervention.

Results: The control group obtained a total average score of 0.79 (95% Confidence Interval (CI) 0.73-0.85) per resident compared to the intervention group, (average = 0.93 (95%CI 0.89-0.97) (p<0.01). A statistically significant difference favoring the group receiving the intervention was found for the following recorded standards: chief complaint, ophthalmological history, uncorrected visual acuity, best corrected visual acuity, and informed consent.

Conclusion: Chart audits have been proposed for teaching and assessing Patient Care and Practice-based Learning and Improvement, and for quality improvement. We believe that the most crucial aspect of the educational intervention was the individualised feedback provided to residents. This is to our knowledge the first study measuring the effect of chart audits with formative feedback in Ophthalmology residents.

Take-home message: Chart audits have been proposed for teaching and assessing Patient Care and Practice-based Learning and Improvement. This study demonstrates that chart audit with formative feedback improved clinical recording by residents.

7J6 (1824)
Listening for Success? Using audio to supplement written feedback in a taught masters programme

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Presenter: Leah Marks, University of Glasgow, UK

Background: Traditionally, feedback in taught MSc programmes has often been in written form, with this being relatively straightforward to both compile and transmit. However, our own experience demonstrated that there were a number of students for whom written feedback was not efficacious and opportunities for improvement in performance were being lost. Several previous studies have suggested that there may be merit in providing the opportunity for students to receive feedback in a variety of mediums, and that some may respond more positively to audio feedback. Most previous work has focused on the undergraduate setting, therefore we investigated the efficacy of audio feedback in a post graduate context.

Method: We provided audio feedback using Camtasia, on a range of written feedback for the MSc Genetic and Genomics/Genetic and Genomic Counselling at the University of Glasgow. Students received between 4-8 minutes of personalised feedback on their work, with a tutor talking through an on-screen word file of their written work, which contained highlighted text pertinent to the points raised. Files were transmitted to students using a combination of Dropbox and our university VLE. We used questionnaires and focus groups to investigate student experience of this feedback, and their receptivity to the feedback comments made.

Results: Students reported receiving audio feedback as an extremely positive experience. Aspects such as tone of voice, the ability to explain points more fully and reduction of the 'overwhelming' impact of receiving 'negative' feedback were cited as important by students . Audio feedback was perceived as more personal than written and helped establish a student/marker relationship conducive to further discussion. Tutors also found the process of providing audio feedback straightforward and in some cases felt that it provided greater clarity in explaining difficult concepts. Thus our experience, in conjunction with previous studies, suggests in It may be worth considering audio feedback in a post graduate context.

Conclusion: Audio feedback was logistically straightforward to deliver and may be useful in a variety of postgraduate settings. In particular, it may help establish a more positive student/tutor relationship, promoting further productive discussion.

7J7 (738)
Balancing Between Saving Lives and Providing Feedback: A Multi-center Survey of Emergency Residents and Attending Physicians

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Presenter: Chung-Hsien Chaou, Chang-Gung Medical Education Research Center (CGMERC), Taoyuan, Taiwan

Background: Feedback is an essential part of clinical teaching and learning, but often perceived as unsatisfactory in busy clinical settings. This study aims to investigate the influence of the clinical environment and the mutual relationship between feedback giving and seeking within emergency departments (EDs)

Method: A multicenter online questionnaire study. Respondents comprised ED residents and clinical teachers from four Taiwanese teaching hospitals, different in geographical location and accreditation levels. The questionnaire was developed via an expert panel, and a pilot study ensured validity. Ninety clinical teachers (75.6% response rate) and 54 residents (87.1% response rate) participated.

Results: The majority of feedback is initiated by attending physicians, about 1-5 times per shift, and usually lasting 1-5 minutes. Feedback satisfaction was significantly lower for attending physicians than for residents (clinical teachers M=13.8 [SD=1.83], residents M=15.3 [SD=2.14], p<0.0001). The most common situation for feedback giving is "When the residents' decision can cause harm to patients" (91.1%). Positive feedback is less frequently provided in clinical settings (31.1%). Both groups of participants admitted hesitating between providing / seeking feedback and completing clinical work. Being busy and the relationship between both sides were reported as the most influential factors of clinical feedback.

Discussion: Feedback provision in a busy clinical setting is often circumstantial and unpredictable, short, and to the point. The clinical teachers, who hold the legal responsibility for the patients, are more stressed under the pressure of their clinical workload. For the learners, seeking feedback is an important part of clinical learning in the context of uncertainty. Cultivating an educational alliance between faculty and learners and the building of close relationships based on good intentions are equally important as the facets of faculty development and efforts to improve coaching and mentoring techniques.

Conclusion: ED clinical feedback provision is often short, circumstantial and initiated by attending physicians. Seeking feedback is an important part of clinical learning in the context of uncertainty. Being busy and the relationship between both sides were important influential factors of clinical feedback.

Take-home message: ED clinical teachers strike balance between saving lives and providing feedback.

7K: Short Communications: Curriculum: Competency Based Medical Education

Location: Shanghai 2, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

7K1 (1464)
Changes in perceived supervision quality after introduction of competency-based orthopedic residency training: a national 6-year follow-up study

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Background: Over the past decade orthopedic training programs in many countries have become competency-based. The potential benefits of these programs need to be balanced against the costs involved and the considerable efforts and time required from faculty and residents. We aimed to evaluate the perceived quality of the learning environment, before and after introduction of competency-based postgraduate orthopedic education (CBPGOE).
Method: From 2009 to 2014, we conducted annual surveys among all Dutch orthopedic residents during annual compulsory courses. The validated Dutch Residency Educational Climate Test (D-RECT, 50 items on 11 subscales) was used to assess the quality of the components of CBPGOE. Scores range from 1 (poor) to 5 (excellent).
Results: Over the 6-year period, 641 responses were obtained (response rate 92%). Scores for 'supervision' (95% CI for difference 0.06 to 0.28, p = 0.002) and 'coaching and assessment' (95% CI 0.11 to 0.35, p < 0.001) improved significantly after introduction of competency-based training. There was no significant change in score on the other subscales of the D-RECT.
Conclusion: Our study provides useful insight in the way orthopedic residents perceive and appreciate the introduction of some of the core components of CBPGOE, including improved perceived "supervision" and "coaching and assessment". Given the importance of supportive supervision and assessment for acquiring clinical competency, this is a reassuring finding.
Take-home message: After the introduction of some of the core components of CBPGOE the perceived quality of 'supervision' and 'coaching and assessment' improved significantly.

7K2 (1222)
Conceptualization of Competency-Based Medical Education, Competency, and Competence within the CPD/CME and Residency Family Medicine Educational Literature: Preliminary Findings

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Presenter: Heather Lochnan, University of Ottawa, Canada

Background: The implementation of a competency-based medical education (CBME) across the continuum (undergraduate, postgraduate to continuing education), has been proposed as the ideal approach to improve quality and patient safety by contributing to the enhancement of physicians' knowledge, skills, attitudes, and behaviors. To promote this new educational framework and accelerate its uptake across CPD, it is important to focus on standardizing its language/vocabulary. Competence, competency and CBME are frequently used in the medical educational literature and lack consistent definitions within both CPD and family medicine (FM). This scoping review is the response to the increasing importance of FM to the effective care of populations and the concomitant movement of its training towards the competency-based framework in Canada and the USA.
Method: The primary objective of this scoping review was to examine the range and extent of how CBME is conceptualized within the CPD FM North American educational literature. Using Arksey and O'Malley six-step framework and following five inclusion criteria 80 articles were included in the dataset for analysis.
Results: Over 66% of all included studies were originated from Canada with the largest percent of studies (46%) categorized as original research articles, 33% as commentary/reflective papers, 14% as regulatory, and the remaining studies (6%) as review articles or editorial opinion. As expected, only 5 articles (6%) provided a referenced definition of CBME in FM residency and CPD/CME educational literature. No variations were found in the definitions of CBME.
Discussion and Conclusions: The finding that more than 75% of the studies were published after 2010 suggests that competency-based education research in FM has been getting more attention in the recent years. The low number of scholarly definitions contained within the literature suggests more attention needs to be paid to conceptual rigor to advance the field. This review is the first to examine how CBME was conceptualized within the American and Canadian FM medical literature.
Take-home message: The construction and dissemination of a shared definition of CBME is essential to its successful implementation. This review has identified a pressing need to clearly conceptualize CBME in the FM CPD context.

7K3 (841)
Using Reflection to be an Effective Communicator

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Background: The CanMEDS Physician Competency Framework is an educational framework identifying and describing seven roles for physicians: Medical Expert, Communicator, Collaborator, Leader, Health Advocate, Scholar, and Professional. The overarching goal of CanMEDS is to improve patient care; a competent physician seamlessly integrates the competencies of all seven CanMEDS Roles. Although CanMEDS has been around for more than a decade, there continues to be a need to augment the teaching and assessment of the Non-Medical Expert Roles during residency.

Method: As part of a larger program of research addressing the academic content underpinning the Non-Medical Expert Roles, we implemented an interactive session for eighteen fourth-year Internal Medicine residents to teach basic social science knowledge that supports the Communicator Role, particularly with respect to communicating across cultural and socio-economic divides. We then explored residents' perceptions about the Communicator Role in light of this new knowledge. Six weeks after the teaching session we asked residents to write an essay about clinical interactions they had recently observed, including discussing how a Non-Medical Expert CanMEDS Role might influence the care of Internal Medicine patients. These essays were analyzed using qualitative description for their understanding of the Communicator Role.

Results: All eighteen residents submitted thoughtful essays based on real-life experiences in professional settings. There was consensus that the main goal of effective communication was to provide compassionate and patient-centered care. Concepts such as cultural competency, humility, respect, social justice and active listening, which had been introduced in the teaching session, were described as essential for effective communication with patients and their families. This was particularly emphasized in terms of communicating with patients from minoritized ethnic and cultural communities. Professionalism and respectfulness were also seen as helpful, particularly for interprofessional communication. Moreover, effective communication was seen necessary for excellent collaboration, advocacy, leadership, and professionalism.

Conclusion: This curricular and assessment intervention enabled residents to understand and frame complex notions of clinical communication. Although this describes one small program, this approach may serve as a model for other specialties struggling with the more effective teaching of Non-Medical Expert Roles.

7K4 NOT PRESENTED

7K5 (863)

What Do Competence, Communication, Collaboration and Scholarship Mean for French Undergraduate Medical Students and Their Teachers?

Authors

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Presenter: Juliette Macabrey, CUMG, Faculty of Medicine Lyon Est, Lyon, France

Background: Following a 2013 decree on French medical studies, Competency-Based Medical Education (CBME) should be integrated into undergraduate studies. Although many countries have already incorporated this paradigm, France is currently reflecting upon moving towards such a change. We were therefore interested in exploring undergraduate students' and teachers' perceptions of the concepts of competence, collaboration, communication and scholarship as described in CanMEDS 2015.

Method: A qualitative study was performed based on literature research and focus groups. At Lyon Est Faculty of Medicine, volunteer students in years 2 to 6 and their professors participated in focus group interviews. One group was set up for each year of study and each competence. All interviews were written down and analyzed by theme.

Results: Thirteen interviews took place with 40 students and 15 teachers between March 24th and July 26th, 2016 in Lyon Est Faculty of Medicine. Attendees felt that "competence" seemed necessary for the proper practice of the profession and that it linked theory to practice, leading to patient and society expectations being met. "Collaboration" appeared as a complex competence as it involved team work. It was linked to "communication" through a dialogue which required time, empathy and goodwill. Finally, "scholarship" was an evolving evidence- and practice-based knowledge. The execution of all these competencies increased health care effectiveness. Definitions and expectations articulated by students and professors were similar to those of CanMEDS. Students and professors seemed to accept and agree with the concept of competence as described by experts. This allows us to consider implementing CBME in French medical studies. Additionally, in order to extend this evolving medical training to postgraduate studies, it seems essential to develop research on competence focusing on the teaching and evaluation of the competencies.

Conclusion: France is currently looking into integrating CBME in undergraduate studies. The concepts of competence, collaboration, communication and scholarship seemed consistent with expectations among students and teachers who collectively provided interesting suggestions of their own. This encourages us to pursue an analysis of the implementation of CBME in France and develop research in this area.

7L: Short Communications: Curriculum: Themes

Location: Shanghai 3, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

7L1 (2038)
Social Medicine: But, should it be a course in medical curriculum?

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Presenter: Teresa Van Deven, Schulich School of Medicine & Dentistry, London, Ontario, Canada

Background: "Social Medicine is asinine. We are here to become medical experts not social workers" (Anonymous, Year 1 medical student).
"This course takes up space in an already cramped curriculum, further sending the mental sanity of medical students down a dark and sad trajectory" (Anonymous, Year 1 medical student).
"Instead of looking at the elderly as old people 'losing their marbles' I was enriched with the elders' stories of travel, of conflicts, of careers and perseverance through wars, of sickness and loss… I will remember these stories when I begin my practice" (Anonymous, Year 1 Medical Student).
Method: In response to a curricular vision of improved social accountability, our Doctor of Medicine program launched a year-long integrated Social Medicine course for Year 1 medical school students in September 2016.
We designed an interactive course to bring those sometimes invisible structural determinants of health to the forefront for our medical students. Our goal was to provide an exploration of structural competency so that students could begin to develop a language around interventions which could ultimately reduce health inequality at the level of neighborhoods, institutions and policies.
Results: Student feedback on this course is polarized; some embrace the opportunities and continue to explore their chosen demographic through service learning or research projects. Others view the course as taking up valuable time within the curriculum where they could be gaining more exposure to medical expert topics.
Based upon student evaluation and feedback, we will disband Social Medicine as a course; social determinants of health will be integrated into other areas of the curriculum; we will retain the Service Learning portion of the course.
Conclusion: By eliminating this as a course, we grapple with the worry that we could be losing the opportunities to provide a forum for our students to develop an understanding of the importance of engaging in their patients' social world. Will we also lose the opportunity to help shape early values of advocacy, empathy, communication and social accountability in our future care givers?

7L2 (2210)
Filling the Gap – Implementation of Global Health Studies within the Education of Future Health Professionals

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Presenter: Judith Mletzko, University of Witten/Herdecke, Witten, Germany

Background: A recent analysis displayed a lack of teaching possibilities within health studies concerning Global Health (GH) (Kaffes, 2016) in German universities. In view of the complex consequences of globalization, education in GH needs to be prioritized.
Being confronted with challenges like growing health inequities, the outbreaks of epidemics and refugee health, students of medicine and psychology started the initiative "Weltgesundheit" (World Health) with the assistance of lecturers to incorporate GH-topics within their education. Mission statement and multimodal teaching concepts were developed and fundraising activities were conducted.
Method/Results: From 2016-2017, three lecture and workshop series were set up with free access for students, staff of all faculties and the public. Additionally, courses were implemented into existing curricula. Experts from universities from all over the world and professionals working for international organisations gave holistic insight into GH-challenges. N=97 students signed up, of which N=80 (82,5%) met the accreditation criteria. N=71 (11,7%) out of N=608 medical students attended the lecture series. On average, 33% of all participants were members of other faculties, allowing an inter-disciplinary approach to the various topics.
Discussion: The student initiative has established a possibility to face GH-relevant topics. The education activities need further implementation into the curricula to reach a higher number of students, as their importance for all health professionals working in both national or international settings needs to be emphasized. Research opportunities must be established to point out its relevance on a scientific level. Preparatory courses especially for students aspiring to work in low-resource settings need to be offered.
Conclusion: The multi-professional student initiative "Weltgesundheit" developed and implemented teaching and learning activities. These met the growing interest of students towards GH-related themes. Thus, a start and

contribution to build core competencies concerning the growing challenges of GH was made. Universities should consider GH as a high priority issue in education and therefore build the necessary institutional structures and actively involve students.

Take-home message: Global Health-related subjects should systematically be integrated into the education of health-care professionals to meet the increasing needs of a globalized world. Student engagement can help fulfil this task.

7L3 (2231)
Implementing a Quality Improvement Module as core curriculum for Year 4 medical students: reviewing the first year of implementation

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Presenter: Ann Wylie, Guy's King's and St Thomas' School of Medical Education, London, UK

Background: In September 2016, King's College London (KCL) introduced a new undergraduate medical curriculum. This included a 'Quality Improvement and Evidence Based Practice Module (30 credits: L6) within the 'Population Science and Quality Improvement (PSQI) theme.

Method: A key aim of the module is to support students to understand QI methodology and develop relevant skills. During year 4, students identify and undertake a Quality Improvement project in small groups within a healthcare setting. The approach taken is based upon the Institute for Health Improvement Quality Improvement Practicum. This has been adapted by KCL faculty for use within the NHS (UK) at undergraduate level. Teaching included online and face-to face provision.

Results: From September 2016 to March 2017, 420 medical students undertook a QI project, working in groups of 2-5. All groups were able to identify a clinical problem, collect baseline data and design at least one PDSA (Plan, Do, Study, Act) cycle. A random sample of 20 projects were analysed
14/20 projects demonstrated intended improvements
2/20 projects completed 2 PDSA cycles and achieved intended targets
1 student group was shortlisted for national Patient Safety awards, one publication and 3 other projects received university funding for national conference presentation. Electronic module evaluation was undertaken (response rate 50%); using a 5-point Likert Scale (1 ranking as "poor").

Routine module evaluation and an educational research study identified a 'patchy' implementation which included early successes and key challenges. Module feedback was positive (allocation and organization 3.5/50. Domains that scored highly were: the opportunity to work with peers (3.9), supervisors (4.1) and clinical teams (3.5). Supervisors and students both reported that more tutorial/supervisory time was needed. The appropriateness of some placements was questioned. Students questioned whether supervisors were sufficiently aware of module requirements.

Conclusion: Despite challenges many QI projects resulted in some improved outcomes for patients. Implementing curricular change on this scale and at this pace would have benefited from more piloting. Lessons learned will inform how to better support the embedding of QI methodology, particularly with faculty.

7L4 (2285)
The Importance of the Approach of Palliative Care in Medical School and its Impact on Academic Practice

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Presenter: Carolina Rodrigues Laranjeira Vilar, Little Prince University, Curitiba, Brazil

Background: Palliative care is the assistance promoted by a multidisciplinary team to relieve patients from suffering and improve quality of life for them and their relatives, in face of a worsening health condition which could interrupt life. This practice began in Brazil during the 1990s in a few organized services, but it became accessible to the general population only in the last decade through the SUS, Brazilian's governmental health system. This theme is recommended by the 2014 National Curriculum Guidelines for all medical courses of Brazil.

Method: During the course "Medical Communications Skills" second year undergraduate students are introduced on palliative care through pre-study, pre-test, case studies, and a realistic simulation using the Spikes protocol (communication of difficult news). This prepared students with experience to better deal with critical events and reduce anxiety, thus improving overall health care assistance for society.
Self-reflection allowed students to understand the importance of the applicability of palliative care, demystifying its association with terminal illnesses in order to guarantee a humanized, ethical care, centered on patients needs and their families.

Results: Palliative care introduction through principles, dimensions (physical, psychological, social and spiritual) and conducts, allowed undergraduates to overcome difficulties found in practice and work with the patients' emotions. Thus, it was possible to demystify palliative care's association with terminal illnesses since it is possible

to apply it to chronic illnesses. In this context, the students understood the importance of its application due to the transition of the epidemiological profile and diseases of the Brazilian population.

Conclusion: The importance of palliative care is recommended to be taught early and by different teaching-learning methodologies in order to provide theoretical and practical support during the undergraduate's academic period. It enables a humanized clinical practice in the future and guarantees the individuality on patient care during the process of becoming ill.

7L5 (2436)
Canadian and US veterinary students' perceptions of companion-animal nutrition information and veterinary nutrition education: a mixed-methods study

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Presenter: May Kamleh, University of Guelph, Canada

Background: Knowledge of nutrition is vital for veterinarians to inform owners about care of pets and management of disease. The aim of this study was to elicit student veterinarians' nutrition-related perceptions and information-seeking behaviours at the time of entering veterinary school and identify more effective ways to deliver nutrition education.

Method: Participants were newly enrolled veterinary students at all Canadian and five randomly selected US veterinary schools (n=352). An online questionnaire tool was designed based on insight gained from focus group discussions (n=19), collecting detailed information on students' attitudes about their own and their pet's nutrition, and importance of veterinary nutrition education.

Results: Perceived veterinary nutrition knowledge was correlated with how "healthy" students viewed themselves (p=0.02). The method of nutrition instruction and perceived barriers to incorporating nutrition education correlated with student confidence (p < 0.0001), but varied among schools. Overall, students thought their curriculum would provide more training in medicine and surgery than nutrition (p= 0.0002). Learning obstacles included seeking credible sources of information and lack of consistency in nutrition training. Students anticipated greater confidence in their ability to counsel patients regarding basic nutrition concepts than in discussing the role of nutrition in disease treatment.

Discussion: This study has elucidated that students' perceptions of companion-animal nutrition were associated with those of their own nutrition and influenced their attitudes regarding nutrition education. The size, location and availability of a veterinary nutritionist amongst faculty were all factors that persuaded students' confidence in the nutrition curricula. Given the readily accessible online nutrition information,

our data supports that students entering veterinary school have their own perceptions on pet nutrition that may impact nutrition education, and suggests this as an important consideration in the design and delivery of a veterinary nutrition curriculum to improve communication challenges with owners.

Conclusion: Education aimed at improving nutrition competencies is vital for veterinary practitioners. Examining nutrition-related perceptions of students entering veterinary school are important aspects to consider in the design and delivery of a veterinary nutrition curriculum, and maybe equally important for students entering other professional health programs such as human medicine.

7L6 (3683)
Developing a toolkit on inclusion of public health in the medical curriculum for medical students

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Rosie James, IFMSA, Galway, Ireland
Sanne de Wit, IFMSA, Amsterdam, The Netherlands

Presenter: Izza Bazigh, IFMSA

Background: Public Health is a crucial component of healthcare professionals' knowledge. On the contrary in many programs and medical curricula public health, health systems and associated subjects are not given enough importance and due attention to cover all the needs of medical students or the future challenges as health professionals. In other cases the methodologies of teaching Public Health are strongly lacking in helping to develop students' interest and application skills. At the International Federation of Medical Students' Associations (IFMSA), students have observed the lack in the depth of knowledge of public health and want to voice their informed opinions to advocate for its apt inclusion in the medical curriculum.

Summary of work: IFMSA is developing a toolkit for medical students and teaching institutes to understand the magnanimity of the issue, assess and grade their curriculum's inclusion of public health, provide and voice their informed needs and input (from more than 500 medical students worldwide). It would educate medical students about the content as well as preferred methodologies for teaching public health and equip them with advocacy skills to enable them to advocate for its inclusion in their respective medical curriculum.

Summary of results: The topic has been added to the three year strategic plan of Standing Committee on Public Health 2018-2022. To ensure the timely development, effective spread and sufficient implementation of the toolkit. It will be released by August 2018.

Discussion & Conclusions The toolkit on public health in medical curriculum is being developed on different

medical student sessions at Regional Meetings and General Assemblies of the Federation. The impact of the toolkit will be evaluated by IFMSA, through a small working group on implementation of the toolkit.

Take-home Messages: Public health including global health is essential for all medical students as future healthcare providers. To take the initiative for its inclusion we need to educate medical students about its importance and represent informed views. Thus IFMSA is, through this toolkit, providing medical students with all the step by step skills to understand, advocate and implement the inclusion of public health in medical curriculum globally.

7M: Short Communications: Continuing Professional Development

Location: Boston 1, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

7M1 (357)
An argument-based approach to validity concerning the assessment of physicians' professional performance: A systematic review of questionnaire-based assessment tools

Authors

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Presenter: Mirja van der Meulen, Maastricht University, Maastricht, Netherlands

Background: Evaluating physicians' professional performance in clinical and teaching practice is highly valued to ensure quality patient care and competent professionals. However, without trustworthy assessment data resulting feedback and/or decisions about physicians' performance will be flawed. Although studies exist that reviewed validity evidence of peer questionnaire-based assessment tools, these studies did not delve into the prioritization of evidence for the different uses of assessment. This is crucial as summative assessments require different support than formative assessments. Examining assessment tools using this argument-based validity approach is vital to support physicians' ongoing pursuit of professional development.
Method: We conducted a systematic search for references to peer questionnaire-based assessment tools published from inception to October 2016 from PubMed, ERIC, PsycINFO and Web of Sciences. Included studies report on validity evidence of tools used for physicians' clinical and teaching performance. Using Kane's framework data extraction was done based on four types of inferences in the validity argument; scoring, generalization, extrapolation and implications2.
Results: 46 articles about clinical performance and 87 articles about teaching performance tools provided different types of validity evidence. Studies mostly gathered generalization and extrapolation evidence, thus evidence on how well an observed score generalizes to the true score and whether the observations made are linked to the real-world activity of interest. Scoring (which requires information about how the data were collected, recorded and scored) and implications evidence (what

consequences or impact the assessment has on the physician, other stakeholders and society) were generally lacking.
Conclusion: According to the argument-based approach not all tools seem to be supportive for their intended use. Tools used for formative purposes provided sufficient evidence, yet for summative purposes gaps remain. Furthermore, evidence concerning implications of the assessment tools is lacking both for formative and summative purposes.
Take-home message: More research is required to provide support for decisions based on these tools, in particular for higher-stakes decisions.

7M2 (3134)
Office emergencies: a novel simulation-based CPD activity

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Presenter: Richard Waldolf, Montfort Hospital, Ottawa, Canada

Background: Transfer of new knowledge into practice is rarely measured or even observed. Furthermore, most learning objectives of accredited CPD activities offered by medical associations are not designed to promote clinical practice behaviour change. Rather, CPD activities typically assess participants' satisfaction and occasionally a change in knowledge, skills or attitudes. Small group CPD have shown greater potential for behaviour change.
Method: The Knowledge Institute at the Montfort Hospital, in collaboration with l'Association des Médecins Francophones du Canada, has developed a four-hour CPD simulation workshop on the management of office emergencies for practicing physicians. This paper presents the educational framework behind this workshop, the evaluation tool and some preliminary results.
This workshop is based on the competency-based learning approach and on simulation best practice guidelines, with pre-post evaluations and a six-month post questionnaire. Before the workshop, participants reflect on their practice and review pertinent pre-course materials. During the workshop, they are placed in small groups and are given the opportunity be the leader of a simulated crisis. A debriefing session then takes place; allowing participants to reflect on their performance as well as identify areas for improvement. Finally, participants complete a self-assessment based on the feedback provided by the instructor and the other participants. They are also given the opportunity to complete an individualized professional development plan.
Results: This workshop allowed participants to become aware of their lack of comfort or competence dealing with critical events in the office setting. Preliminary analysis has showed that the workshop increased participants' awareness of available equipment in their own institutions

and increased their interest in instituting tangible changes in practice.

Discussion & Conclusions: This type of learning activity seems to have decreased participants' anxiety with simulation as a teaching modality. Participants felt that the workshop triggered an interest in instituting tangible changes in their own clinical settings. These are the changes we hope to assess in the coming months.

Take-home message: : This type of experiential learning activity should be more accessible to practicing physicians as it was noted to be both engaging and enriching for participants as compared to traditional CPD activities.

7M3 (2562)
Coping through learning from medical errors: Experiences of adverse events in CPD

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Background: Medical errors occur in healthcare, despite the active prevention through patient safety efforts. The nature of adverse events varies, but they are intense experiences to all involved and critical for learning. Processing these events should be done constructively with colleagues and the healthcare teams involved. The aim of this study was to explore the participants' experiences of and ways of coping with adverse events in a medical error workshop at a continuing professional development (CPD) event.

Method: During the years of 2015-2018, we conducted four workshops on learning from error at the main CPD event in Finland, the Finnish Medical Convention, with over 6 000 participants. In 2018, 49 out of 61 (80%) participants answered a questionnaire concerning their experiences of the errors and ideas of learning from them. The data were analyzed using content analysis.

Results: Two thirds (65%) of participants were female and 33% had specialist training. 43% of our respondents were undergraduate medical students, 31% had less than ten years and 27% more than ten years of working experience. Nearly all reported personal experiences of adverse events, mostly concerning medication issues, cognitive errors and communication relapses. The best way to cope with and learn from events was through reviewing, reflecting the event with colleagues and the work community in a constructive manner.

There was clearly a need for training on learning from adverse events issues according to the active participation in the workshops in CPD. Individuals and working-life communities learned from medical errors through the discussion and open disclosure of the events. Open, psychologically safe environment and collegial support were prerequisites for the learning and recovering.

Processing these events should be done constructively with colleagues and the healthcare teams involved.

Conclusion: Medical errors happen and while trying the best to foster patient safety in health care, it is crucial to develop protocols for dealing with adverse events. Learning from errors should form part of doctors' training throughout their careers, from basic degree to specialist training and continuing professional development (CPD).

7M4 (3655)
Regularly Scheduled Series as Authentic Learning Spaces for Effective Interprofessional CPD

Authors
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Background: IPE for practicing clinicians has been recognized broadly by national and international healthcare and accrediting organizations as an important way of educating HCPs to support team-based practice in the US and globally. While organizations such as WHO, IPEC and Joint Accreditation provide guidance about relevant competency domains, employing effective learning and teaching IPE strategies in AMCs and hospitals where traditional systems and hierarchical structures still dominate, continues to represents a challenge for meaningful delivery of IP Continuing Education (IPCE). IPE at Penn Medicine has been strengthened by achieving Joint Accreditation for IPCE and the application of processes and structures put in place as part of this effort.

Method: One of the areas for development identified was a large block of regularly scheduled series (RSS) such as departmental Grand Rounds, Tumor Boards, MM and Clinical Case Conferences representing close to 5,000 annual sessions organized in 119 series. Over 2 years, we provided intensive training and resource support for developing education planned for the team and by the team.

Results: Over two and a half years our RSS program was transformed from 100% physician-planned and delivered to 64% (76 series) IPCE. The IPCE approach favored case-based formats over lecture-based ones 58% vs 42% and more frequent session schedule such as weekly vs monthly (56% vs 44%). Evaluation outcomes were assessed globally with a single instrument assessing knowledge, skill and attitude changes and satisfaction. In addition, it provided opportunity for reflection about relevance to practice changes, improvements of the team care and patient outcomes. We collected and analyzed 1,500 returned responses representing 26% of the learners.

The changes in practice as referenced through reflective statements were thematically analyzed and provided meaningful results and baseline for future development.

Conclusion: While institutional structures of RSS are ideally positioned as institutional pillars for continuous IPE opportunities, much more intentional support is needed to facilitate true IPCE pedagogical strategies such as practice situated, team-based learning (TBL) that is continuously linked to the departmental and institutional measures of

quality and safety and patient and provider experience of care.

7M5 (672)
"STEP" and "CUS" Keyword-mnemonics-based simulation training enhance "patient-centered communication" skill of nurses in respiratory intensive care units

Authors

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Background: For respiratory intensive care unit (RCU) patients, nurses had more opportunity than doctor to confront the anxiety of family-member by gathering information from their peers/doctors within and changing duty. This study aims to evaluate the effects of "STEP and CUS" Keyword-mnemonics-based simulation on the "patient-centered communication" skill of RCU nurses.
Method: Between 2017, October to 2017 Jan, thirty RCU nurses received "STEP and CUS" Keyword-mnemonics-based crisis resource management (CRM) simulation for the management of acute respiratory distress syndrome patients. STEP is the abbreviation of Status of the patient, Team members, Environment, Progress to the goal" whereas CUS is the abbreviation of a kind of communication skill using I am Concerned; I am Uncomfortable, this is a Safety issue". The CRM simulation (20-minutes) was undergone with one doctor, three nurses, and one respiratory therapist on Siman@3G and standardized patients. Three nurses draw lots to play the leader, monitor and communication. Before and after training, two experienced raters, one senior and one doctor, interview family-member of RCU patients to rate the "patient-centered communication" skill of each enrolled nurses (n=30). The checklist-based assessment of 10 items from critical care family needs inventory (CCFNI) was used for this workplace assessment.
Results: Before training, high CCFNI score was noted in nurses having more than 1-year of clinical-practice (n=16) than those having less than 1-year of clinical-practice (n=14). Nurses with previous CRM training (n=17) had better performance than those without previous training (n=13). RCU nurses that receiving CRM training 6-month before (n=10) had poor performance than those receiving CRM training within 6–month (n=7).
Significantly, nurses who are playing either leader monitor or communication in CRM simulation had similar degree of improvement in their "patient-centered communication" skill at the post-simulation stage assessment by family-member. Post-training questionnaire revealed that most (72%) enrolled nurses are familiar with STEP and CUS Keyword-mnemonics in 3-month follow-up stage. Most (80%) of them reported that they used these STEP and CUS skills during communicate with family-member in post-simulation stage.

Conclusion: STEP and CUS Keyword-mnemonics-based simulation can effectively improved RCU nurse "patient-centered communication" skill.

7M6 (1492)
Early Outcomes of Virtual Environment-Based Provider- and Patient-Facing Education for Disease Management

Authors

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Presenter: Rosalyn Scott, Brandon Associates, Marina del Rey, CA, USA

Background: The US Veterans Health Administration Virtual Medical Center (VMC) is a collaborative care and learning avatar-based virtual environment available anytime and anywhere. The VMC has the potential to improve Veteran healthcare by eliminating barriers to access, cultivating Veteran engagement and providing continuing professional development (CPD) for providers aligned with VA care models. This virtual technology promotes participation from the convenience of home and office, increases the likelihood of Veteran-provider interactions, makes interactive provider education more accessible and could positively impact health outcomes.
Method: Initial projects centered on clinical challenges not fully met by conventional approaches and on strategies synergistic with current clinical care models. The first pilots focused on Veteran-facing and provider-facing education to support the management of diabetes, obesity and sleep disturbances. Strategies included flipped classroom curricula and self-guided activities. Interactive workbooks provided a guide to didactic material, videos and other multi-media resources accessible in the VMC. Group activities included facilitator-led and peer group sessions. Independently-led focus groups assessed impact. Participants expressed strong feelings of empowerment. They felt free to move about and explore the wealth of information and not have to wait to get materials. All had taken time to look at materials outside of their curriculum. This freedom fostered self-learning. Veterans liked that they were with fellow Veterans - this fostered storytelling and experience sharing. They also openly spoke about how hearing ideas and sharing were powerful learning experiences that had more impact than looking just looking at written materials.
Discussion & Conclusion: The VMC provides the opportunity to address important challenges facing the VA healthcare system including CPD for a widely distributed workforce; access to care; empowerment of Veterans to improve their well-being; unequal distribution of expertise; and, conflicting schedules/lifestyles/disabilities affecting travel to traditional care sites. Our focus groups

supported the effectiveness of VMC-based strategies to address these issues.

Take-home message: The VMC challenges us to answer the questions: How can we care for our Veterans without being in the same room? How can we best insure the ongoing professional development of our staff? What works and what is lost?

7N: Short Communications: Diversity

Location: Boston 2, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

7N1 (3376)
Evaluation of a Cultural competence and clinical skills joint session

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Presenter: Suzanne Pitama, University of Otago, Christchurch, New Zealand

Background: Over the last 10 years a change in indigenous health content has been documented, which maps a movement towards a focus on the broader socio-political influences that maintain indigenous health inequities. This content moves the learner from a position of critiquing the indigenous patient/community to the development of a critical lens on policy and procedures that influence systemic and clinician bias. This new learning content has dictated the use of learning methods that encourage critical reflective thinking and skill based (communication and clinical competency). The purpose of this paper is to document the design, implementation and evaluation of an indigenous health curriculum initiative couched within a socio-political context that was a joint collaboration between the disciplines of Indigenous health and clinical skills.
Method: The evaluation included formal anonymous student feedback on the learning session which collected quantitative (likert scale) data, and 2 open ended questions. Marking schedules on student performances were collected from the student, their peers (4), simulated patient and clinical assessor to determine correlations, and focus groups were held with students and clinical assessors/simulated patients.
Results: Overall students rated the session highly with 98% of the students reporting that the use of simulated patients as a teaching method assisted them to apply Indigenous health and Clinical Skills within a clinical context. 95% of students agreed that the scenarios used in the session provided an appropriate clinical context for indigenous health. Students appreciated feedback from the simulated patient, their peers and a clinical assessor. There was high correlation between clinical assessors and peer marking of students, and low correlation between students self reported performance and those of the clinical assessors and their peers. Students identified gaps in their learning that they wanted to continue to work on.

Conclusion: Overall this session provided scenarios that promoted socio-political influences that maintain indigenous health inequities, and allowed students to demonstrate competencies in both cultural and clinical competencies.Students reported an intent for transformative practice to support indigenous health gains.
Take-home message: Health education has the potential to contribute to health equity.

7N2 (2577)
Does a Broadly Sampled Assessment Lead to Smaller Ethnicity-Related Differences in Clinical Grades?

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Background: Previous research has shown that clinical grades can be predicted by students' ethnicity. A broadly sampled assessment involves mixed assessment methods used by multiple assessors across multiple moments. This type of assessment is expected to reduce unwarranted variances, and to therefore mitigate ethnic disparities in clinical ratings.
Method: Students' ethnicity was classified as Turkish/Moroccan/ African, Surinamese/Antillean, Asian, Western, and native Dutch. Our first research question involved the comparison between clinical grades of students with different ethnicities in a global evaluation system, and in a broadly sampled evaluation system. In total, data from 1667 students (74.3% native Dutch) who entered medical training between 2002 and 2004 (global evaluation: 818 students) and between 2008 and 2010 (broadly sampled evaluation: 849 students) were included. The main outcome measure was whether or not a student received ≥3 times a grade of 8 or higher (on a scale from 1-10). Our second research question involved the comparison between clinical grades of students with different ethnicities before and after clinical supervisors were allowed to deviate from the broadly sampled assessment scores. In total, 849 students (72.4% native Dutch) were included. The main outcome measure was the total deviating grade points a student received from supervisors. Both analyses were adjusted for gender, age, immigration status and average bachelor grade.
Results: Clinical grades of students of different ethnicities were more similar in a broadly sampled than in a global evaluation system, even after adjustments. More specifically, when assessed with broad samples, native Dutch students had lower chances, whereas other ethnic student groups had higher chances of receiving ≥3 times a grade of 8 or higher (on a scale from 1-10), as compared to when they were globally assessed. When supervisors were allowed to deviate from broadly sampled scores, ethnicity-related differences in clinical grades were re-introduced.
Conclusion: Besides broad sampling techniques, better structured evaluations could also lead to smaller group

differences. It remains unclear which factor has (primarily) mitigated ethnic disparities in grades.

Take-home message: A broadly sampled assessment of clinical competencies potentially restricts in-group favoritism towards native students.

7N3 (1957)
Emphasising Diversity Amongst Second Year Medical Students as part of their Personal and Professional Development

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Background: Educating medical students to understand the importance of cultural competency is continuously emphasised by the General Medical Council (GMC, 2009; 2013). However, many medical schools experience challenges when delivering diversity training across the medical curriculum.

Method: At Manchester, in line with the intended learning outcomes of 'Dr as Professional', an innovative group session was introduced to Year 2 medical students to highlight diversity amongst peers (n=376). In the sessions students anonymously answered critical questions aimed at drawing out their understanding using Turning Point technologies. After the session students reflected on important issues raised in discussion and on their own experiences for feedback from Tutors for Personal and Professional Development (TPPDs) and as entries in their ePPDportfolios.

Results: Twenty-one group sessions of 24 students were delivered across the Year 2 cohort. Feedback from Group Tutors indicated the sessions were successful in actively engaging students and helping their understanding of diversity. With consent, we randomly selected reflective PPDportfolio entries to investigate student understanding (n=20). Thematic analysis identified 5 key themes which were used on 52 occasions: Bias (28%), Assumptions (19%), Impact of Group session (23%), Taking Responsibility for Own Learning (17%) and Interpreting Interactions (13%). TPPD Tutors also highlighted improved awareness of diversity from previous years in the ePPDportfolios entries. Introducing group sessions enabled students to discuss sensitive issues in a safe environment facilitated by a Tutor. Although there is an increased emphasis on cultural competency teaching with patients, little exists in medical curricula to help students understand diversity amongst colleagues. This study is a first step towards exploring the challenges of supporting students to respect learners from diverse backgrounds and communities. We aim to use this data for further investigation of how this could be enhanced across the medical curriculum and wider Faculty programmes.

Conclusion: Enhancing medical students' understanding of respecting individuals and working effectively within a multi-professional team is important. Medical Schools should be encouraged to provide opportunities for

students to reflect on the importance of diversity amongst colleagues.

'Tomorrows Doctors', General Medical Council (2009;2013). GMC Publications, London.

7N4 (818)
The role of study strategy in motivation and academic performance of ethnic minority and majority students: a structural equation model

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Presenter: Ulviye Isik, VUmc School of Medical Sciences, Amsterdam, Netherlands

Background: Underperformance among ethnic minority students has been reported in several studies. Autonomous motivation (AM; acting out of true interest or personal endorsement) is associated with better learning and academic performance. Controlled motivation (CM) is acting out of pressure or for rewards. This study investigated whether the type of study strategy, namely surface, achieving, or deep (the "desirable" type), was a mediator between AM and academic performance (GPA and clerkship performance), and whether these relations were different for students from different ethnic groups.

Method: Data on ethnic background, motivation, and study strategy was collected cross-sectionally from all medical students of VUmc School of Medical Sciences through an electronic survey in September 2015. Ethnic minority, as per the Dutch Statistics Bureau, means "a person with at least one parent born outside Netherlands" and is classified into: 'Turkish/Moroccan/African', 'Surinamese/Antillean', 'Asian', 'Western', and 'Other'. The response rate was 38.6% (947/ 2451). Structural Equation Modelling (SEM) was performed to test the hypothesized model: a higher AM has a positive association with academic performance through deep and achieving strategy, and has a negative association with performance through surface strategy.

Results: The models with the outcome variables GPA (n= 807; df=1, RMSEA= 0.000, p= 0.56) and clerkship performance (n= 804; df=1, RMSEA= 0.007 ,p= 0.31) had a good fit.

These models showed differences in the relations for the ethnic majority and minority groups.

The ethnic groups were considered separately to gain a better understanding about the needed intervention/support in the curriculum. In this study, AM had a positive association with GPA through achieving strategy for the ethnic majority students only. It might be that the size of the minority groups was too small to detect differences or that other factors mediate these relations in ethnic minority students. Overall students tend

to use achieving strategy more often than the desired deep strategy.

Conclusion: Qualitative research is needed to identify other factors influencing the academic performance of ethnic minority students and what they experience during their education, in order to support their learning in the right manner.

7N5 (1455)
Impact of multi-culturalism on medical education: The Lebanese experience

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Presenter: Elie Nemer, Saint-Joseph University Medical School (USJ), Beirut, Lebanon

Background: Lebanon is a Mediterranean country located at the crossroads of the three continents of the ancient world. Its population is estimated to be around 4.5 million inhabitants. From its beginnings with the Phoenicians more than 7000 years ago, the country has evolved through numerous empires. This has led to the development of a multi-religious, multi-cultural, multi-lingual country that includes approximately 18 different religions, including Christian, Muslim, and Druze, living on 10,452 km2 of land. The Lebanese medical education system is highly regarded in the Middle East, and many students from the region come to Lebanon to study medicine. The aim of this study is to assess whether the multi-cultural, multi-religious dimension impacts on the medical education system.

Method: The descriptive data were collected from the medical schools' institutional website. The analysis was performed by the authors.

Results: Currently, there are seven medical schools in Lebanon, which represent the highest ratio of medical schools to population among countries in the region. Ownership: only one school is public, all of the remaining medical schools are privately owned, with tuition fees. Language of instruction: Although Arabic is the country's official language, medicine is taught in either English (4) or in French (2), with one using both.

Pathways to a medical degree: Lebanon is among the rare countries where we have 2 pathways; indeed students can choose to:

- take a seven-year undergraduate medical degree (MD) as a first tertiary degree directly after secondary school graduation. This "French system" is adopted in 4 schools.
- or first complete a bachelor's degree (three years, usually in the medical sciences) and then apply for a four-year MD program. 3 schools have opted for the "American system"

Conclusion: This study clearly demonstrates the profound impact of the societal structure on the medical education system. In one country, different pathways can both lead to excellence, despite some challenges.

Take-home message: The diversity of medical training programs in Lebanon reflects the "mosaic" of the society. The challenge is to unify medical curricular content and to establish a national numerus clausus.

7N6 (72)
Assessment strategies based on mainstream education – a systematic review of their impacts in nursing programs

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Presenter: Frederic Douville, Université Laval, Quebec City, Canada

Background: Over the last decade, the number of students experiencing disability and/or needing accommodations has increased. University programs in health sciences have to adapt to the growing number of students with disabilities. In order to ensure the success of the largest number of students, many university nursing programs have opted to incorporate mainstream education in their curriculum development. Many studies identified mainstream learning strategies; however, mainstream assessment strategies are not summarized. This systematic review aims to identify the impact of mainstream education assessment strategies in nursing programs.

Method: The databases Education Source, ERIC, Cinahl, Embase, Medline, and PsycINFO were searched until March 2017 for studies evaluating mainstream teaching strategies for nursing students with disabilities. Stufflebeam's CIPP model guided data extraction, which followed the PRISMA statement. The synthesis of extracted evidence is illustrated through descriptive statistics.

Results: Of the 16344 screened titles, 56 studies promoting mainstream education for nursing students were identified. Only 6 studies reported on mainstream assessment strategies. The most frequent assessment strategy was the use of online exams (n=5). However, most studies did not report the information needed to compute their efficacy due to the sample size and to methodological design. No program evaluation of these assessment strategies has addressed context, input and process, but most studies have addressed products (students' satisfaction 50% and effectiveness assessment 83%). Mainstream assessment strategies have increased students' confidence and clinical skills, these strategies appear to be leading to a decrease in the attrition of students in training and an increase in the success of the entrance examination to the profession.

Conclusion: The effectiveness of assessment strategies based on mainstream education is seldom reported in the literature, despite a wide range of studies evaluating learning strategies inspired from mainstream education approach for nursing students. These studies focus mainly on a large diversity of teaching methods to meet the need for student inclusion, but few assessment strategies other than online exams are reported. Mainstream assessment

strategies would benefit from more rigorous evaluation methods to ensure good knowledge translation and appropriate educational decision to improve nursing programs.

7N7 (2693)
"We are all so different that it is just … normal."
Normalization practices in an academic hospital in Netherlands

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Presenter: Hannah Leyerzapf, VU University Medical Center, Amsterdam, Netherlands

Background: To link up with plural society and diverse patient populations, academic hospitals internationally focus on cultural diversity and diversification of the work force. However, although medical student populations are relatively diverse, cultural minority professionals in academic medicine are underrepresented and especially in leading positions. Leading professionals report difficulties with recruitment, selection and retention of minority. Earlier studies show how undergraduate minority students are met with micro-aggressions by majority teachers and students. In particular, minority experience exclusion upon entering the clinic and have difficulty entering postgraduate education. Insight in workplace interactions is lacking yet may explain this status quo.

Method: An ethnographic study on clinical wards in a Dutch academic hospital performed participant observations (approx. 100 hours) and interviews (n= 62) with majority and minority medical, care, supportive and paramedical staff.

Results: Professionals engaged in normalization practices that (re)produced dominant norms of professionals as neutral and professionalism/quality as objective. With this, diversity was rendered irrelevant in a work context and made into being only about 'The Other'. Hence, diversity issues as experiences of exclusion of minority were ignored. Simultaneously, through normalization, an ideal worker norm that constituted being male, from higher socio-economic background, heterosexual and white was (re)produced. Majority and minority professionals disciplined themselves and each other in fitting this ideal worker norm in order to qualify as professional. As a result, seemingly 'same/normal', generally majority, professionals more easily fitted into the image of the ideal worker and were seen as qualified, while others, generally minority, were identified as 'different' and had more difficulty fitting into this image and qualifying.

Discussion and Conclusions: Professionals normalize and legitimize unequal distribution of privilege for majority and disadvantage for minority professionals in the academic hospital. A societal exclusivist ideal of equality-as-sameness supports the normalization of professionals as 'same'/professional or 'different'/unprofessional. Unsettling these normalization practices is thus key in quality improvement of medical education.

Take-home message: For structural inclusion of diversity in academic hospitals in Netherlands and beyond, policy makers, supervisors and students need to critically review and challenge professionalism norms of neutrality and the underlying social hierarchies.

7O: Short Communications: eLearning 1

Location: Boston 3, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

7O1 (2616)
Teaching modes and social-epistemological dimensions in Medical Massive Open Online Courses

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Background: Massive Open Online Courses (MOOCs) are a new way of delivering medical education. They also offer opportunities for including high quality materials in regular classroom teaching. To our knowledge, modes of instruction, interaction, and assessment in medical MOOCs have not been studied in detail before. Furthermore, social and epistemological dimensions have hardly been described for medical MOOCs. To inform decisions about including MOOCs in classroom teaching, insight in teaching modes and social and epistemological dimensions is desired.
Method: An overview of MOOCs on a medical topic has been compiled using the course search engine www.class-central.com. Inclusion criteria for the study were: medical condition in title; English language; course available between September 2017 and February 2018; no course fees; and target group does not exclude students. Data collection consisted of the investigators enrolling in selected MOOCs and analyzing instruction, interaction and assessment modes after thorough examination of all course pages. Materials were categorized in social and epistemological dimensions according to the Teaching Approach Framework.
Results: The overview consisted of 410 medical MOOCs; 35 were included based on the criteria above. Data analysis of 19 MOOCs shows the following modes of instruction: video (100%), readings (95%), slideshows (42%) and illustrations (37%). Games were only used in 16% of the MOOCs. Regarding interaction, 84% of the MOOCs provide a forum. In 47% faculty participate in Q&A forums, but only in 5% staff is active on discussion boards. For assessment, all MOOCs use multiple choice questions, while essays are used in 37%. 74% of the courses offer formal assessment. All MOOCs offer materials with individual-objectivist approach, beside group-objectivist (53%), group-constructivist (53%) and individual-constructivist (32%) approaches.
Conclusion: Medical MOOCs contain a rich variety of teaching modes of which videos, discussion boards and multiple choice questions are used regularly. Prior research has indicated that MOOC teaching approaches focus mostly on objectivist views of knowledge; this study shows that in medical MOOCs constructivist approaches are also well represented. Both findings are of interest when innovating classroom teaching.
Take-home message: Medical MOOCs offer materials and teaching approaches to innovate classroom teaching.

7O2 (3122)
Creating a 4-year Learning Management System for a Geographically Dispersed International Medical School

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Presenter: Joy Checa, American University of the Caribbean School of Medicine, Sint Maarten, Netherlands Antilles

Background: American University of the Caribbean School of Medicine (AUC) is an international medical school with its medical science campus in St. Maarten and clinical sites throughout the USA, Canada, and UK. The geographic distribution of the student body often times has made the medical school feel like two separate programs. To further that divide, the medical and clinical courses were housed on two different learning management systems (LMS), limiting student and faculty access to information and resources.
Method: AUC underwent an extensive review of LMS options to find one that fit the needs of multiple international locations and the identity and feel of the university. Canvas was selected and a year-long process was developed and implemented to move and update courses from multiple LMS into one, along with a revised clinical curriculum.
Due to a hurricane that devastated the island of St. Maarten, the medical sciences portion of the LMS was delayed and will be completed in September of 2018. The clinical sciences portion of the LMS has been created and launched January 1st, 2018. Training of students, faculty and staff across three continents has been completed. Initial feedback from faculty and students is positive. Statistical information on student and faculty access is currently being collected.
Discussion: With increasing integration of medical and clinical sciences, it makes sense to combine those courses and materials into one LMS, especially if the students are

geographically dispersed. With Canvas students can refer to the medical science lectures when they encounter a patient in the hospital with a disease they learned about in their first year. This allows students to build upon their medical science knowledge and integrate clinical presentations and management, further strengthening the academic program and their understanding.

Conclusion: LMS can help students and faculty feel connected although they may be physically in different locations. The benefits of one LMS for all four years of a program are continuity, ease of use, better understanding of expectations, and most importantly the ability to review previous courses and material to strengthen medical knowledge.

7O3 (3388)
Embedded e-learning in the presentation of professional communication skills – system-driven feedback improves students' identification of professional communication skills

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Presenter: Christof Daetwyler, Drexel Medical School, Philadelphia, USA

Background: Peer-learning and learning from senior role models are major sources in the acquisition of professional behaviours (Glynn 2006; Hulsman 2013; Ten Cate 2009; Overeem 2012). However, in order to profit from professional behaviour of others, students must first be able to identify moments in which target behaviour is displayed.

Method: We developed a web-based interactive platform that asks students to identify elements of professional communication and offers immediate feedback on their performance. Second year medical students were shown two videos, in which a doctor displayed certain communication techniques. Their task was to mark segments on a time bar below the video when certain target behaviours occurred (e.g. echoing; mirroring on emotion; explicit structuring of the consultation). Prior to the exercise they had received 3 x 2 hours of lectures on patient-centred communication and seen video with embedded comments explaining when and why a doctor used certain communication skills. Students' marks were registered in a SQL data file, immediate feedback was given showing whether a mark was correct or not. Students had to finish at least two attempts to get credits. We investigated whether the exercise improved students' ability to identify professional communication.

Results: Data from all 171 2nd year students were analysed with a combination of correct responses and unsuccessful attempts. For video 1 percentage of correct hits (± SD) between trial 1/2 was: 68.5(22.2)/82.1(17.6) for explicit structuring, 89.8 (22.0)/97.8(12.1) for summarising,

25.0(63.4)/43.5(60.0) for mirroring. Video 2 corroborated these results, furthermore an example of echoing was added that students found difficult to identify with 36.6(67.5)/68.4(65.8) percent, respectively; paired T-test yielded differences between trial 1 and 2 always $p < 0.01$ except for summarising in video 2 because of a ceiling effect.

Conclusion: After using the web-based training module students are better able to identify professional communication behaviour; this will improve their chances to learn from peers and senior role models. Teachers learn which techniques students find difficult to recognise, enabling them to launch refresher lectures focussing on problem techniques.

Take-home message: Providing system-driven feedback on students' performance improves recognition of professional communication behaviour

7O4 (3498)
Joint Action Between University and Governmental Organisation as Opportunity to Develop Digital Competencies for Health Professionals

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Presenter: Juris Barzdins, Centre for Health Management and Informatics, Faculty of Medicine, University of Latvia, Riga, Latvia

Background: Recently launched course in studies of medicine at the University of Latvia (UoL) introduces students to administrative operational and financial data that are needed to analyse the efficiency of healthcare delivery. For attendees with advanced interest in organisational aspects of health care, the lack of access to real data appears to be an obstacle to develop respective digital competencies.

Method: With the dual aim - to promote the organizational research opportunity during the professional studies in medicine, and to develop a more data-driven healthcare system, in 2016 UoL and the Centre for Disease Prevention and Control initiated a join project "Transparency and health care system data - towards public monitoring for quality and efficiency".

Results: Since the start of the project, the integration of data over last three years to specially designed analytical database has already been realised and the practical task of identification, description and initial validation of performance indicators has begun. As the process for the adaptation of the legal framework is still ongoing, the access to integrated data and, therefore, the involvement of students and health professionals in health services research is still limited.

Discussion: The increasing awareness and understanding from both health professionals and policy-makers on the value of physicians' involvement in health services

performance assessment and research, serves as a solid basis for realization of this important project.

Conclusion: This collaboration represents an innovative approach to partnership between the university and a governmental organization. It also points to the simultaneous need for the development of the digital competences for physicians and to extend the ability to apply these competences to organizational improvements in healthcare.

Take-home message: The professional autonomy of physicians for independent bedside decisions is increasingly linked to the responsibility for the balance of clinical and resource dimensions of the whole organization. This is a profound change in the medical profession, and it demands the integration of targeted training for new competencies into medical curricula.

7O5 (2181)
The patient, the doctor and the computer: Understanding and incorporating computer-related communication skills in medical education

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Presenter: Kirsten G Engel, Copenhagen Academy for Medical Education and Simulation, Copenhagen, Denmark

Background: The widespread implementation of electronic medical records (EHR) poses challenges, as well as opportunities, with respect to the patient-physician relationship. In recent years, there has been a growing focus on computer-related communication skills in medical school; however, additional insight is needed to guide its integration into the curriculum. The perspectives of key stakeholders are vital to decision-making regarding the content, structure and timing of medical education in this area.

Method: This project is a qualitative study involving observation at two hospitals in the Capital Region of Denmark, as well as focus groups. We observed medical students for approximately 20 hours during direct patient interactions within both surgical and medical subspecialties. In addition, four focus groups are being conducted with three distinct populations: patients with chronic diseases, medical students, and experts in education and communication. Observation field notes and focus group transcripts are being analyzed with qualitative techniques for content analysis.

Results: Preliminary results indicate that students frequently choose to separate their computer-related and patient care responsibilities. However, in ambulatory settings these tasks typically coincide, and students face practical and personal challenges in providing patient-centered communication, while fulfilling their documentation obligations. Patients identify several specific strategies which providers use to effectively balance patient communication and computer-related activities. In addition, they highlight improved information

access and technology-facilitated patient engagement as opportunities for physicians to enhance interactions with patients. Patients advocate that medical student education should focus first on teaching patient-centered communication and, thereafter, the integration of computer-related skills. Results from additional focus groups are forthcoming.

Conclusion: Clinical observations and the perspectives of key stakeholders provide valuable guidance regarding the incorporation of computer-related communication skills into the medical school curriculum. Medical students must not only acquire strategies for managing the challenges that are associated with computer use, but also learn to take full advantage of opportunities which technology provides to enhance patient-centered communication.

Take-home message: The widespread presence of computers during patient-physician encounters necessitates thoughtful modifications in medical education to ensure effective coupling of demands for clinical efficiency and patient-centered care.

7O6 (306)
Strengthening medical education with offline, self-directed e-learning in a low-resource setting in Zambia, Africa

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Presenter: Sandra Barteit, Heidelberg University, Institute of Public Health, Heidelberg, Germany

Background: Zambia has an unmet demand for qualified medical personnel, particularly in remote areas. In 2002, Chainama College of Health Sciences (CCHS) introduced the medical licentiate practitioner (MLP) program. MLPs are placed primarily in rural Zambia to provide key clinical responsibilities. The 3-year in-service training largely takes place as on the job training in decentralized teaching hospitals and is challenged by staff shortages and high workload of medical consultants at practicum sites, as well as insufficient learning materials on location. Addressing these challenges, a self-directed e-learning platform was introduced to supplement teaching and learning for MLP students.

Method: The MLP e-learning platform was evaluated. The principal questions to be answered were: how adequate the employed technology is, how students use the e-learning platform, how it enables them to learn, how useful learning materials are and what challenges were encountered.

Results: The e-learning intervention proved feasible, and the evaluation pointed to shortcomings such as quality and quantity of e-learning materials (more interactive materials, more multimedia materials), the involvement of medical teachers in the development of materials, as well as e-learning and tablet training for students and staff. The e-learning platform was actively used, especially as a reference during ward rounds and to prepare for the final exam. Involvement of medical teachers in peer-review and development of e-learning materials remains challenging. Evaluation results confirm a successful implementation of the medical e-learning platform in this resource low-environment by employing readily available open-source software and low-priced but qualitative hardware. Our evaluation findings show that the technological framework (e-learning, tablets) is useful and supportive to students and well received and accepted by students and medical teachers, while also identifying challenges. Students reported using the e-learning platform for their daily medical practice, also in remote areas.

Conclusion: We want to emphasize that medical e-learning needs active local support, active involvement of medical teachers, ICT support and ongoing evaluation. Medical e-learning can be a beneficial and enabling tool, especially for low-resource settings, but requires high upfront investment and ongoing support.

7P: Short Communications: Student Learning Styles & Characteristics

Location: Darwin, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

7P1 (1482)
Students' motivation in the clinical setting

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Presenter: Eliane Ayoub, Saint-Joseph University medical school (USJ), Beirut, Lebanon

Background: Students enter medical school with internally or externally generated motives. The intrinsic motivation relies on three basic psychological needs for autonomy, competence and relatedness. Clinical training plays a major role in shaping students' knowledge and experience.
This study aims to determine factors that motivate students during the clinical clerkship phase.
Method: Medical students in 6th or 7th year were included in a survey regarding students' motivational profile. We evaluated reasons they choose medicine, impact of their preclinical training (from the second till fifth year), the importance of a reflexive approach during their clerkship and teachers' implication in their motivation. The school's Ethics committee approved the study.
Results: Seventy seven medical students (65%) answered to the survey. Statistical analysis was performed using the SPSS software version 22. Quantitative variables were represented by their means, medians and standard deviations. The students indicated their level of agreement with each item according to a 5-point Likert scale. The motivational profile of our students was self-determinated (4,35). The importance of a reflexive approach during their clerkship (4,05) and teachers' implication in their motivation (3,63).
Factors associated with higher intrinsic motivation were: choosing medicine for humanitarian causes, choosing a surgical specialty, importance of early contact with patients, the diversified training ground, and supervision by experts in pedagogical approach.
Students' motivation and involvement in their practice is mainly self-determined. However, it is important to promote motivational dynamics, and according to this study's results, motivation is increased by supporting a reflexive approach in clinical situations.
Conclusion: Students' motivation is very closely related to the pedagogical quality of the clinical training. Therefore, it should be a major concern to improve it. It is important to encourage early contact of medical students with patients and to incarnate to fundamental principles of authenticity of the context and cognitive companionship. A parallelism between a medical professional and a professional in sports discipline can de drawn; both

achieve a high level of professionalism, through intensive practice and coaching both practical and theoretical, and starting from a young age.

7P2 (3018)
The Learning and Study Strategies Inventory (LASSI): Skill, Will, and Self-Regulation Among Medical Students at Alfaisal University in Riyadh, Saudi Arabia

Authors
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Presenter: Maram Alrefai, Alfaisal University, Riyadh, Saudi Arabia

Background: The Learning and Study Strategies Inventory (LASSI) is a 5-scale, 60-item assessment of students' awareness about use of learning and study strategies related to Skill, Will, and Self-regulation components of strategic learning. The LASSI is a valid and an effective tool to measure students learning techniques, the feedback from which can help improve their academic performance.
Method: Students from years 1 to 5 filled out the 60-item questionnaire online and were asked to give details about their GPA, academic year, gender, and high-school education background. Students chose their preferred answers on a 5-point likert scale (1 = not at all typical of me, 5 = very typical of me) on topics of Skill (split into Information Processing, Selecting Main Ideas, Test Strategies), Will (split into Attitude, Motivation, Anxiety) and Self-regulation (split into Concentration, Time Management, Self-testing, Using Academic Resources).
Results: A total of 109 responses were received. Study skills were generally high, however, Test-taking strategies scored relatively low (M:62%, F:60% selected 1 or 2 on the Likert-scale). 63% of students carried out proper Self-regulation in the form of Concentration, but just 38% and 22% used available resources and self-testing methodologies respectively. Of most significance was the Will component of the study, which showed that highly-motivated students had a much higher GPA (3.60 vs 3.51). All 60 questions have also been compared and correlated with GPA, gender, academic level, and high-school education background.
Medical students are generally well adapted to use appropriate study skills and self-regulation skills. Those scoring higher in these categories have better academic success. Additionally, the will component results showed that students who have a good anxiety management have higher motivation which leads to higher academic performance.
Conclusion: The several factors looked at in the LASSI provide us a unique insight into the studying strategies of any given student. Students can find out their strengths and weaknesses and get feedback on where they can improve. More importantly, specific programs and courses can be implemented at institutions to help students achieve their desired level.

7P3 (3236)
The concept of emotional intelligence at King Saud bin Abdulaziz University for Health Sciences at Saudi Arabia

Authors
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Linda Jones, Univeristy of Dundee, Dundee, UK

Presenter: Afnan Khoja, King Saud bin Abdulaziz University for Health Sciences, Jeddah, Saudi Arabia

Background: Emotional intelligence (EI) is a personal characteristic that enables persons to monitor their own and others' emotions (Mayer, 1997). Fostering EI is important for developing the medical students. Where it helps to maintain professional values in medicine, such as self-regulation and effective patient–doctor relationships (Arora et al., 2010; Cherry et al., 2014), which enhances patient satisfaction (Ravikumar et al., 2017; Weng et al., 2011).
Three objectives were initially identified: to identify the extent to which EI is understood by students and faculty at KSAU-HS; to identify similarities and differences in perceptions of EI among participants; and to identify models for developing EI education. A secondary objective was outlined to identify EI from the medical educator's perspective at UOD.
Method: Semi-structured elite interviews were conducted with two medical educators, from KSAU-HS and UOD. Focus group discussions were also undertaken with fifteen medical students at KSAU-HS. During which both students and the medical educators discussed the three research questions about their perspectives and the suggested model for EI development. A thematic analysis was then carried out using the interview transcripts.
Results: Four main topics were identified from respondents' comments: participants' understanding of EI and its benefits, what participants thought about EI within current curricula and recommended approaches to developing EI. The findings suggest that few students had encountered EI, but medical educators were familiar with the concept. All participants agreed that EI is not explicitly stated in curricula at either institute.
Conclusion: These findings emphasise the importance including EI in formal curricula, using the spiral curriculum and development methods, such as reflective practices, role modelling and faculty development. The findings suggest that the spiral curriculum, reflective practices, role modelling and faculty development are optimal approaches for developing EI at educational institutes. It was also clear from the study's interview sessions, which introduced EI to participants, that students and faculty are keen to explore EI further.
Take-home messages:
- Encourage state EI within the formal curricula.
- Further study is needed to explore the applicability of EI within KSAU-HS.

7P4 (3284)
Can Self-Efficacy Predict First Year Medical Students' Academic Success?

Authors
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Presenter: Jennifer Volberding, Oklahoma State University Center for Health Sciences, Tulsa, USA

Background: Self-efficacy (SE), the ability for an individual to believe in their own capabilities, has been connected to an individual's ability to succeed, deal with resistance and failures, and cope with challenges, all skills that are essential for competent physicians. SE has been found to have a positive impact on college student academic performance, but has not been evaluated in medical students. The purpose of this study was to measure first year medical students' SE and to determine what characteristics impacted their academic success in their first semester of medical school.
Method: 61 (29 male, 32 female) first year medical students at a single osteopathic medical school were asked to complete the SE scale and additional demographics. Data was combined with undergraduate (UG) GPA, MCAT score, first semester GPA, and class rank. Basic descriptives, means, standard deviations, and pearson correlation values were calculated.
Results: Four variables were found to be significantly correlated with first semester GPA (level of athletic performance of UG $r=.311$, $p=.015$; number applications submitted $r= -.414$, $p=.000$; UG GPA $r=.488$, $p=.000$; science GPA $r=.467$, $p=.000$) and three with class rank (number applications $r=.355$, $p=.005$; UG GPA $r= -.483$, $p=.000$; science GPA $r= -.495$, $p=.000$). General SE was significantly correlated to the size of hometown ($r=.256$, $p=.049$). This study determined that medical students' first semester academic success was better predicted by academic preparation rather than a student's self-efficacy. This is in contrast to current undergraduate literature that demonstrates a significant impact on GPA and retention. Self-efficacy may therefore be more applicable to astute clinical skills rather than pre-clinical academic performance.
Conclusion: While this study did not find SE to be a predictor of first year medical student academic performance, the ability to control thoughts, feelings, and actions in stressful situations is critical to overall success as a physician. Academic programs should seek out options to assess and improve these skills prior to entering the clinical setting.

7P5 (1248)
Emotional Quotient in Iranian Nursing Students: a descriptive cross-sectional study

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Presenter: Marzieh Hasanpour, School of Nursing and Midwifery, Tehran University of Medical Sciences, Tehran, Iran

Background: Nursing is a profession which deals with people directly on a day to day basis. Training the nursing students as future professional nurses is always a major concern of the nursing centers globally. Emotional Quotient is important in both personal and professional aspects of life (Thomas & Natarajan 2017)). As, EQ has an important potential role in nursing education and is necessary for personal mental health and professional practice. The aim of this study was to assess the emotional quotient nursing students in the one of University of Medical Sciences in Iran.
Method: This was a descriptive cross-sectional study. The study population included 169 nursing students who were selected using proportionate stratification. Data were collected by a questionnaire that consisted of two parts: demographic characteristics and "Bar-On EQ-i" questionnaire which included 90 questions and 15 subscales. Data analysis was conducted using description statistics tests (mean, frequency, standard deviation) and inferential statistical tests with SPSS 16.
Results: The finding of this study revealed that the nursing students' EQ mean score was 336.53(33.08). In addition, the results showed significant correlations between the score of EQ in nursing students with their married status (P= 0.02, t = 2.21) and academic term (P= 0.05, r = 0.15), and also, there was significant differences between the score of EQ in different levels of education from Bachelor's to Doctoral Degrees (P< 0.05). As well as, findings of study indicated significant correlations for some of subscales of EQ in nursing students such as empathy, responsibility, reality testing, stress tolerance and optimism (P < 0.05).
According to finding of this study, considering that emotional Quotient/Intelligence is important for high quality professional care and the necessity of fostering this concept in nursing students is so clear.
Conclusion: Therefore, researchers recommended an appropriate educational program consistent to level of academic degrees of students to improve EQ during of their study. It could be effective in promoting the health care systems and improving the services provided by nurses with high level of EQ in the future.

7P6 (2738)
Evolution of medical students´ learning strategies in a competency-based undergraduate curriculum. Results from a cross sectional study

Authors
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Marta Gogluska-Obirek
Harm Peters

Presenter: Asja Maaz, Charité-Universitaetsmedizin Berlin, Germany

Background: Fostering lifelong learning is one of the central aims of competency-based medical education. The use of different learning strategies reflects the interaction between personal (individual) and curriculum-related (situational) factors. There is limited empirical information on how learning strategies of medical students are influenced by competency-based curricula and their teaching formats.
Method: The learning strategies of medical students were examined in a voluntary cross sectional study at the Charité- Universitätsmedizin Berlin, Germany. Students were in the early (year 1/ 2: predominance of PBL) and later stages (year 4/ 5: predominance of bedside teaching) of their studies in a competency-based undergraduate program. Learning strategies were assessed by an established quantitative questionnaire for life-long learning on a five-point Likert scale (LIST, Schiefele/ Wild 1996, range -2 = fully disagree over 0 = neutral to 2 = fully agree). The data were analyzed using descriptive statistic measures.
Results: A total of 489 medical students (response rate 65%, 65% female) provided information. Overall, the results indicate that the medical students are employing primarily deep learning strategies independent of the year of studies. The deep learning strategies mainly used are "Elaboration" (year 1+2: M=2.03, SD= 0.58; year 4+5: M= 2.68, SD= 0.59) and "Metacognition" (year 1+2: M= 2.52, SD= 0.55; Year 4+5: M=2.46, SD= 0.49). The internal resource-oriented learning strategy "Effort" was employed to a lesser degree (Year 1+2: M=2.48, SD= 0.68; Year 4+5: M= 2.41, SD=0.7). Use of collaborative learning strategies decreases over the course of studies (year 1+2: M= 0.55; SD= 0.81; Year 4+5: M=-0,01; SD= 0.78).
Conclusion: The learning strategies of students seem likely to be already acquired und consolidated before entering medical school. They seem more influenced by individual rather than situational factors such as teaching formats of the curriculum. The analysis of actual student learning strategies provides useful information for faculty teachers and curriculum developers.
Take-home message: Medical students in our competency-based curriculum prefer deep level learning strategies. Collaborative learning plays an insignificant role.

7P7 (910)
Evaluation of formative assessment practice in medical education

Authors
Youn Seon Lim

Presenter: Youn Seon Lim, Zucker School of Medicine at Hofstra/Northwell, Hempstead, USA

Background: In self-directed learning (SDL) environment, the significance of formative assessment (FA) has been increasingly recognized because FA helps students build their skills for monitoring and assessing their own learning. It has been well observed that congruence should exist between instruction, assessment and outcomes for such positive effects to occur. The rationale for this study was a view that students should be involved in decisions about their FAs in the way of understanding assessment processes and the implications as learners.

Method: This study examined undergraduate medical education (UME) student perceptions and preferences of FAs by administrating two newly proposed theory-based questionnaires. Participating UME students (N = 140) were registered in an SDL-based-curriculum UME program. Factor analyses were conducted to confirm the conceptual model of the questionnaires. The estimates of internal reliability were examined. The validity and reliability of subscale scores were further examined in one-factor structure. Descriptive statistics were estimated to explore student perceptions and preferences of FAs. Mean and median comparison tests were conducted to evaluate gender-based, grade-based, and race-based differences.

Results: The five-factor and four-factor models were fitted well with the questionnaires (medical knowledge FA RMSEA = 0.004 (.004, .080), Cronbach-alpha = 0.840; SDL skill FA RMSEA = 0.012 (.012, .125), Cronbach-alpha = 0.863). The findings reveled that students have overall positive perceptions and preferences towards FAs (mean percentage of negative = 11.76%; mean percentage of positive = 72.54%). Significant between-group differences (gender, school year, race) were observed.

Discussion: The results clearly showed that UME students have overall positive perceptions and preferences on their FAs for their learning. Nonetheless, it suggested that students should be more consulted and informed about the forms of FA tasks; diverse students should be involved in the assessment decision process.

Conclusion: In revealing the multi-dimensions of UME student perceptions and preference, this study can help medical educators and researchers appreciate, not only the values of FAs in UME SDL-learning environment, but beyond. It is suggested that researchers develop a more complete picture of student perceptions and preferences of FAs and corrective feedbacks from diverse UMEs.

7Q: Short Communications: The Teacher

Location: Lima, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

7Q1 NOT PRESENTED

7Q2 (1705)
How can role model attributes be developed in a health professions teacher?

Authors
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Asela Olupeliyawa, University of Colombo, Sri Lanka
Gominda Ponnamperuma, University of Colombo, Sri Lanka

Presenter: Ruchith Priyananda, National Institute of Health Sciences, Kalutara, Sri Lanka

Background: Development as a good role model is essential for a health professions teacher. It is important to identify the strategies which promote such development. Although several studies conducted globally explore attributes of health professions teacher role models, only a few studies explore methods and strategies of their development. Therefore we explored how role model attributes can be developed in a health professions' teacher within the Sri Lankan context.
Method: This qualitative study on role model attributes and their development utilized the phenomenological heuristic design. In-depth Interviews were conducted with 38 teachers and 28 students representing multiple health professions including Medical Laboratory Technology, Nursing, Pharmacy, Dental Therapy, Electrocardiography, Electroencephalography and other categories of Public Health. Framework thematic analysis method was employed. This abstract discusses the findings on role model attribute development.
Results: The findings emphasized the need to embed the development within an outcome based curriculum for teacher training, with role model as an exit outcome. Main strategies and methods suggested for the development of role model attributes were reflective practice with portfolios for the overall development of all attributes; total well being practice including mental training for the development of empathy, compassion and other humanistic qualities; lecture discussions, role plays, case studies & videos to introduce the positive and negative attributes of health professions teachers; and a micro teaching system for the development of teaching skills. Teacher training programs in Health Professions Education should include not only the methods of the development of professional attributes and teaching attributes but also the humanistic attributes such as empathy, sympathetic joy. Meditation of loving kindness, mindfulness practice should be in-cooperated for this purpose. Reflective practice with portfolios should be introduced for all the health professions teachers for the continuing professional development.

Conclusion: Role model attributes should be developed through a well-planned outcome-based approach. Innovative methods such as total well being practice maybe useful.
Take-home message: Practice meditation daily to improve humanistic role model attributes.

7Q3 (3326)
What it means to be a medical educator: A bi-national comparison between Canada and Mexico

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Presenter: Silvia Lizett Olivares Olivares, Tecnologico de Monterrey, School of Medicine and Health Sciences, Monterrey, Mexico

Background: The professional identity of medical educators describes the construction and organization of the understanding of themselves and their role as faculty. This identity must be congruent with the processes in which individuals develop their behaviors, ideas, preferences, aspirations and teaching-style. Allowing to reframe the concept of "working as faculty member" towards "being a medical educator".

Method: This study explores how faculty integrate their teaching role into their identity. A qualitative study was performed involving 26 medical educators at a Canadian (13) and a Mexican medical school (13). Teachers were interviewed with the question: what it means to be a medical educator? and their narratives were coded using Kegan (1982) developmental stages of professional identity: 1)imperial, 2)interpersonal, and 3)institutional. Imperial stage takes into account the view of others but predominate whose own interests. Interpersonal when the individual is able to view multiple perspectives and is concerned about others perception. Institutional is an individual who can assume a role and enter into relationships while assessing them in terms of self-authored principles and standards independently of others.

Results: Distribution of answers of Mexican clinical educators were: 46% imperial, 38% interpersonal,15% institutional. Canadian faculty members were coded as: 15% imperial, 46% interpersonal and 38% institutional. Identity formation on Canadian participants are in higher stage levels.

The early stages are related to the self-knowledge of the individual creating their own beliefs and values. This values are molded by the experiences with others as team player on the interpersonal stage, as the teaching and learning process. However, in order to keep reaching higher levels, the person needs to lead initiatives for others to help them to create their identity.

Conclusion: The process of identity formation starts from peripheral participation to full participation through the social interaction in communities of practice. In order to improve identity formation for medical educators is important to facilitate faculty development with transformation projects where they may interact with simultaneously with students and peers.

7Q4 (1837)
Reading Between The Lines: What do Psychiatry Learners Tell us About Educator Effectiveness?

Authors
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Anne Lizius, McMaster University, Hamilton, Canada
Karen Saperson, McMaster University, Hamilton, Canada
Megan McConnel, Univeristy of Ottawa, Ottawa, Canada

Presenter: Sheila Harms, McMaster University, Hamilton, Canada

Background: The shift in postgraduate medical training towards a competency-based framework has focused on the competencies of medical educators, in addition to learners. Research has identified traits of good educators, but these findings do not consider the clinical context. This study examined narrative comments in Psychiatry faculty evaluations to understand educator effectiveness and compared findings with existing literature.

Method: Using available data, descriptive qualitative methods were applied to narrative comments on all faculty evaluation forms by three independent reviewers to answer the question: What do learners in Psychiatry tell us about educator effectiveness? Data consisted of all McMaster University Psychiatry faculty evaluations completed in 2015-2016 by postgraduate and undergraduate learners (N=268) in clinical and didactic settings. Saturation of themes was achieved prior to completion of coding.

Results: Qualitative analysis revealed four major themes and two sub-themes. Effective psychiatry educators demonstrated specific personal characteristics, which aligned with previous frameworks[1]. Data revealed novel themes, including the importance of relationships between the learner and the educator. Affective factors such as learner security and inspiration through role modeling were important relationship qualities that were identified. These attributions transcended the importance of medical expertise within an educator. Effective educators were described as embodying pedagogy in a way that moderated learning barriers.

Medical expertise and educator-learner relationships continue to be important in the educational process. However, the findings provide an opportunity to consider more deeply the affective domain of educator qualities and competencies in Psychiatry and their relative importance for desired learning.

Conclusion: Discussions of educator effectiveness in Psychiatry have excluded the dynamic, relational, and affective components of the educational exchange highlighted in the current study. This may be an important focus for future educational research in Psychiatry, as competency-based medical education becomes the dominant training framework in Canada.

[1]Srinivasan, M., Li, S. T. T., Meyers, F. J., Pratt, D. D., Collins, J. B., Braddock, C., ... & Hilty, D. M. (2011). "Teaching as a competency": competencies for medical educators. Academic Medicine, 86(10), 1211-1220.

7Q5 (3210)
Exploring the impact of gender on medical educators' professional identity development

Authors
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Alan Cribb, King's College, London, Uk

Presenter: Jo Horsburgh, Imperial College, London, UK

Background: The impact of gender on the practice and identity of medical educators is relatively under acknowledged and researched (Verdonk et al, 2007). Literature from education more widely suggests gender differences exist in the ways males and females approach teaching and other educational activities (e.g. Becher and Trowler, 2001) as well as links between gender and the status of teaching in higher education (e.g. Deem, 2003., Coate and Kandiko-Howson, 2016). Therefore the aim of this work was to explore the impact of gender on the professional identity development of a small group of medical educators.

Method: 15 semi-structured in-depth interviews were conducted with medical educators who had completed a Master's in Education. The impact of gender on their professional identity and practice was one aspect that was explored with participants. Interviews were audio recorded, transcribed and then coded and thematically analysed.

Results: Approximately one third of participants were able to identify differences between male and female educators in their approaches to teaching and some participants made links between gender and the status of these activities. Some female participants in particular discussed choosing a career focused on medical education because it was more compatible with family responsibilities. For some participants, the gendered nature of some specialties impacted on the type of educational activities that were considered acceptable.

Discussion and conclusion

Gender differences in the way in which males and females engaged with medical education were recognised by some but not all participants. Findings supported previous literature regarding the gendered nature and status of some teaching activities but also revealed that this was an under examined aspect of identity by a significant proportion of participants.

Conclusion: These findings suggest that in some cases, gender appears to impact on the identity and practice of medical educators, and faculty developers should be aware of this when supporting those developing their medical educator identity.

7R: Round Table: Multiple Mini Interview

Location: Hong Kong, 2nd Floor, CCB
Date: Monday 27th August
Time: 1400-1530 hrs

7R1 (720)
Relationship between student performances in non-cognitive skills in Multiple Mini Interview & Integrated Practical Examination

Authors
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Amena Masrur, Islamabad Medical and Dental College (IMDC), Islamabad, Pakistan

Presenter: Ayesha Rauf, National University of Medical Sciences (NUMS), Rawalpindi, Pakistan

Background: In Pakistan more than 18,000 candidates applied for admission to medical colleges in Punjab in 2009 alone which had increased to nearly 33,000 by 2011 against 3305 available seats in medical colleges.
Admission process of most public sector medical colleges in Pakistan still relies heavily on the assessment of cognitive mastery. The assessment of non-cognitive skills of the candidate by conducting semi structured interviews in addition to the admission test have been described as subjective and variable, while their reliability is also questionable.
Shifa College of Medicine focuses on training and assessment of non-cognitive skills especially communication, in the college curriculum. During the pre-clinical years, the students are assessed in their communication skills during their practical examinations. To ensure selection of candidates that not only excel in academics, but also show high achievement in non-cognitive skills, the college shifted from the traditional interview to Multiple Mini Interview (MMI).
Method: The objective of this study was to investigate the relationship between the performance of selected candidates in non-cognitive skills in Multiple Mini Interview and Integrated Practical Examination (IPE) of the first year of medical school. Cross-sectional observation study with statistical support. Student performance in communications skill at 8 station Multiple Mini Interview was compared with their scores in communication skills in the first Integrated Practical Examination. Descriptive statistics were calculated Pearson's Correlation was calculated to investigate the relationship between the two scores. A p value of <0.05 was taken as significant.
Results: The mean score in MMI was 130.38 ±9.90 as compared to a score of 79.96 ±19.74 in the IPE. This relationship has a statistically significant (p<0.001) positive correlation, with a Pearson correlation of 0.52.
Conclusion: Similar studies showed that MMI was a strong predictor of performance in communication skills as compared to problem solving or data acquisition. Our finding further validates the MMI as an assessment strategy for soft-skills.
Take-home message: MMI can be used as an admission strategy to select students demonstrating effective communication skills.

7R2 (2161)
The use of a standardisation method to control MMI assessors' bias

Authors
Christian Bourdy
Robert Gagnon

Presenter: Christian Bourdy, Université de Montréal, Canada

Background: In the province of Québec (Canada), a standard MMI format has been used since 2010 in four distant sites. Since average scores of candidates significantly differ from one site to another, a score standardization procedure across sites was instituted from the beginning in order to generate a common list of candidates looking for admission. In spite of standardization by site, current analysis of interviewers/assessors profiles show the presence of systematically generous or more severe types that may still presents validity threats to our results.
Method: Data from 2017 Admission process were used: raw scores from 10 stations for 1 162 candidates who were assessed by 195 different interviewers. We used to resampling method design to estimate the probably distribution of expected mean scores of individual assessors under the assumption of random error. We developed an Excel spreadsheet that permits to standardize the scores at the level of assessors. All scorings are centered using the global average and standard deviation of all assessments for any given station. Candidates' global MMI score is the summation of standardised score on 10 stations.
Results: Simulation from 2017 data show that raw score are : site 1 (mean = 197.3; sd = 26.6) and site 2 (mean = 207.5; sd = 24.5). Overall Cronbach alpha is 0.64 (site 1 = 0.66; site 2 = 0.59). Following proposed standardisation procedure mean for both sites are 202 and overall alpha is 0.77.
Conclusion: This method permits to level the individual bias of raters and to reduce the differences in rating between sites at the very basic level of raters. Reliability of scores are greatly affected by this procedure. MMI is a great addition to selection tools in medicine by sampling multiple situations; on the other side, the impact of using many different assessors needs more study and statistical methods to control for individual bias.
Take-home messages: Bias's identification in MMI; Methods to control bias by assessors' standardisation of setting and by statistical means.

7R3 (3101)

Do sociodemographic factors of medical students play a role in MMI ratings and their subsequent prediction of OSCE performance?

Authors

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Anja Schwibbe
Stefan Zimmermann
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Presenter: Mirjana Knorr, University Medical Center Hamburg-Eppendorf, Hamburg, Germany

Background: With issues such as widening participation and test fairness in mind, the impact of sociodemographic factors on admission tests like multiple mini-interviews (MMI) continues to be of high interest. In this context, demographic, cultural and socioeconomic factors are frequently considered. Whether having a physician as a parent is associated with an advantage has yet to be thoroughly investigated. Most importantly, there has been no investigation whether these sociodemographic factors influence the prediction of MMI results on OSCE performance.

Method: During the student admission process in Hamburg, over 90% of the candidates voluntarily provide sociodemographic data each year. In a first step, we analyzed the impact of gender, age (under 21 vs. 21 and older), German as first language and medical family background (no vs. at least one parent is a physician) on MMI performance ratings for eight cohorts (N = 1438). Next, we investigated whether MMI performance predicts second year OSCE performance considering the same sociodemographic factors and their interactions with MMI performance for two cohorts (N = 186). Both analyses were conducted using general linear models.

Results: Female gender (β = .19, p < .001), older age (β = −.14, p < .001) and German as first language (β = −.14, p < .001) were significantly related to MMI performance while medical family background was not. MMI performance (β = .16, p < .05) and female gender (β = .13, p < .05) both had significant main effects on OSCE performance. None of the interaction terms were significant.

Conclusion: Our study replicates the finding that female gender, older age and first language are related to better MMI performance. In the Hamburg MMI, applicants with a medical family background do not seem to have an advantage. MMI performance weakly predicts OSCE performance but sociodemographic factors do not moderate this prediction indicating that the predictive value of the Hamburg MMI is independent of sociodemographic background.

Take-home message: While gender, age and language have an impact on MMI ratings, the results and the predictive value of the Hamburg MMI are not dependent on sociodemographic background.

7R4 (3528)

The Development and Implementation of an MMI Approach in Postgraduate Selection in Anesthesiology: A case study using a validity framework

Authors

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Scott Nordstrom
Rachel Fisher
Catherine Paquet

Presenter: Natalie Buu, McGill University, Montreal, Canada

Background: Contemporary validity frameworks advocate for generating evidence to evaluate claims to support the use and interpretations of assessments. Validity evidence is required in order to support the use of assessment and to justify the information generated in making decisions. An Anesthesiology selection program revamped their traditional method based on interviews to a scenario-based multiple interview (MMI). The present study examines evidence using a Cizekian validity framework about the use of this method of selection and the justification of the decisions made.

Method: Over several months a multiple mini-interview (MMI) approach for selection process was developed. Identified stakeholders were asked to define desirable and less-desirable characteristics in a postgraduate trainees in Anesthesiology at our institution. This information was used to design scenarios (medical and non-medical) to assess salient characteristics. Corresponding rubrics using the CanMEDS framework for each scenario were designed. Evaluators used the rubrics to generate a global rating scale (GRS). Evaluators were also asked to identify characteristics considered completely unacceptable in the scenarios. The evidence generated allowed the examination of two claims: 1) the MMI captures relevant applicants' attributes that can be predictive of their performance in the program; 2) The process provides sufficient and well-supported information to make informed decisions regarding selection of candidates. This approach was used for the assessment of about 180 candidates over three years. Applicant and interviewer posttest acceptability was assessed using surveys.

Results: Descriptive qualitative data show acceptance of this interview process by candidates, staff and residents involved in the selection process. Quantitative data show a positive correlation between scores from rubrics and GRS.

Conclusion: A residency selection process using an MMI approach and assessment rubrics within CanMEDS framework provides better information for members of the selection committee and is perceived favorably by candidates. This approach appears to better identify candidates less-suited to our residency program. Evidence supports the use of the MMI approach as an adequate process to capture salient attributes of candidates and justify the decisions made. This constitutes the first step in generating evidence of the use and interpretation of the scores generated by the MMIs.

7S: Workshop: The Steps of Curriculum Integration - practical and playful understanding (105)

Location: Wettstein, 2nd Floor, Swissotel
Date: Tuesday 28th August
Time: 1015-1200 hrs

Presenters
Ugo Caramori, UNICAMP (University of Campinas), Brazil
Maria Helena Senger, Pontifical Catholic University of São Paulo, Sorocaba, Brazil
Lara Teheux, Radboud University, Nijmegen, Netherlands
Katerina Dima, Aristotle University of Thessaloniki, Thessaloniki, Greece

Abstract Text: Understanding the curriculum is one of the greatest skills to be achieved by the medical educator. The purpose of this workshop is to reflect on the importance of curricular integration as the maximum step for the construction of a curricula based in the real world, that is, the modern curricula.
This workshop is a practical adaptation of the brilliant article "The integration ladder: a tool for curriculum planning and evaluation" by Ronald Harden. From the perspective presented by Harden we will approach the different facets of the curriculum integration steps and discuss the best teaching-assessment methods that apply in a given curriculum configuration, participants will be encouraged to learn about teaching-learning methodologies, assessment methods and the SPICES model for curricular evaluation.The workshop concludes with a playful intervention, that is, the artistic construction of the images of the curricular steps proposed by Ronald Harden.

7T: Workshop: Interprofessional communication in clinical settings: from training professionals to changing culture (11)

Location: Helvetia 3, 1st Floor, Swissotel
Date: Tuesday 28th August
Time: 1015-1200 hrs

Presenters
Katherine Blondon, University Hospitals of Geneva, Switzerland
Alexandre Farin, Riviera Chablais Hospital, Vevey, Switzerland
Patricia Picchiottino, Interprofessional Simulation center, Geneva, Switzerland

Abstract Text: Communication failure occurs in more than half of preventable adverse events in hospital settings. Handoffs, or the transfer of patient information and accountability from one health professional to another, can potentially affect patient safety and quality of care. Communication is one of the five key principals for collaborative practice in the TeamSTEPPS® framework,

which includes tools for improvement, in particular for handoffs. Recent studies have shown effective ways to improve handoffs, in particular with the standardization of the handoff process.
Who should attend: educators, healthcare professionals (physicians, nurses, midwives, etc.), students
Structure of workshop: During this workshop, participants will take part in interactive activities to experience the theoretical concepts that will be presented. Groups discussions will allow participants to share their experience, needs and future plans.
Intended outcomes: you will learn how to improve handoffs, both in content and in form. We will present the TeamSTEPPS® framework and discuss some of the tools to help improve handoffs in your clinical practice. You will receive hands on experience in improving handoffs, in particular for standardizing its content. You will also learn how to give feedback using validated handoff assessment tools.
Level: Introductory/intermediate

7U: Workshop: The Role of the Educator in Improving the Quality of Postgraduate Medical Recruitment and Selection processes (147)

Location: Helvetia 4, 1st Floor, Swissotel
Date: Tuesday 28th August
Time: 1015-1200 hrs

Presenters
Sheona MacLeod, Health Education England, Leicester, UK
Moya Kelly, NHS Education Scotland, Glasgow, UK
Claire Kennedy, Health Education England, Birmingham, UK
Jonathan Howes, Health Education England, Birmingham, UK

Abstract Text: As different medical specialties develop more sophisticated methods for their selection of doctors into postgraduate medical training, we, as teachers, become increasingly certain that we each have the best processes in place. Yet a global assessment of specialty processes and comparisons across specialties, and regions, is often lacking.
The UK Medical and Dental Recruitment and Selection Quality and Standards committee was created to improve standards across all UK medical recruitment and selection processes and ensure equity for candidates. We have seen that the insight gained from learning about best practice and how issues have been addressed in other specialities, challenges the thinking of medical educators and helps us recognise that we need to evolve and improve.
Structure of workshop: We will offer our experience of creating cognitive dissonance to drive improvement, sharing some key elements of the range of work the committee has overseen in the UK; ensuring consistency between assessors, increasing equity in portfolio assessment, hearing the voice of the Public with the use of lay representatives, developing assessments with validity across specialties, and involvement in a high stakes assessment of doctors still in training.

We will then open the debate around "how do we, as educators, ensure our process really do have the high utility, reliability and validity which ensures the development of future professionalism, equity for trainees and high quality care and safety for patients"

Who should attend: This will be of interest to anyone involved in designing, delivering and creating policy around postgraduate medical recruitment and selection processes. It will also interest those involved in medical assessment and in undergraduate medical recruitment and selection as the principles to be discussed are transferable to other parts of the medical education system

Intended outcomes: Delegates will gain insights into how the MDRS committee approached challenges and made significant improvements in UK medical recruitment and selection, and will hear different perspectives and divergent views on what constitutes best practice in this area.

By sharing ideas and engaging in discussions delegates will be able to reflect on their processes and challenge themselves and others about how they as educators can improve the processes they are responsible for.

7V: Workshop: Medical Humanities today: how to teach it (1305)

Location: Helvetia 5, 1st Floor, Swissotel
Date: Tuesday 28th August
Time: 1015-1200 hrs

Presenters

Jonathan McFarland, Sechenov University, Moscow, Russia
Margaret Chisolm, Johns Hopkins University, Baltimore, USA
Joaquim Gea, University of Pompeu Fabra, Barcelona, Spain
Irina Markovina, Sechenov University, Moscow, Russia

Abstract Text: In the last 100 years, medicine has progressed greatly and the medical tools available to doctors have multiplied so that previously untreatable diseases can now be cured. This is the miracle of the twentieth century, due largely to scientific discoveries and technological breakthroughs, and has changed medical practice significantly. But, Medicine is becoming too reductionist, with an over dependence on the scientific, without taking into account the "uncertainty", and "doubt" that are ever present.

Nowadays, machinery has all but replaced the doctor's eyes and ears, and although this has brought about a standardization of medical practice, it has also transformed the doctor-patient relationship to such an extent that there is literally, and perhaps figuratively, more distance between them since before the days of Rene Laennec. Modern doctors are turning away from the stethoscope and physical examination to the MRI and CT scan. Clinical judgment has been superseded by algorithmic thinking and increasingly by 'machine learning', so, what is the answer?

We believe that Medicine is an art, based on science, with the humanities being as important as science to the practice of medicine. Our aim is to discuss and debate how best to (re)introduce the humanities as an integral part of a Doctor's lifelong learning, as we are convinced that the

varied scope of experiences, concerns, beliefs and cultural backgrounds that they bring with them will enrich Medicine

Who should attend: This symposium is open to ALL those who are curious about or already have an interest in medical humanities

Structure of workshop: Introductory discussion; Developing a list of potential problems and sharing experiences; Brainstorming best teaching strategies

Intended outcomes: After participating in this highly interactive symposium, learners will be able to:

1. Define medical humanities and discuss their importance for 21st-century medical practice and education

2. Describe the different varieties and disciplines within Medical Humanities

3. Give examples of other participants' perspectives and experiences using medical humanities in education, including different ways of introducing the humanities into the lifelong learning patterns of doctors

7W: Workshop: Where do I start? Planning a health education systematic review. A BEME workshop (846)

Location: Helvetia 7, 1st Floor, Swissotel
Date: Tuesday 28th August
Time: 1015-1200 hrs

Presenters

Morris Gordon, University of Central Lancashire, Preston, UK
Madalena Patricio, University of Lisbon, Portugal
Michelle Daniel, University of Michigan Medical School, Michigan, USA

Abstract Text: Many health education systematic review reports are limited by a lack of clarity in stated goals or a mismatch between the actual aims of the work and the needs for synthesis in the field. As such issues are rarely related to the methodology or scope of the work itself, but merely planning, in this workshop, BEME will explore this vital stage of the review process for all potential authors of health education systematic review. We will also present the idea of a focussed or rapid review and when such a review may be indicated and how this can be done without reducing quality.

Intended outcomes: To develop skills in: devising specific aims for systematic review in healthcare, particularly considering those that give the best potential outcomes from the works; planning a coherent review from research question into the transference to practice.

Structure of workshop: The workshop will start with participants reviewing a topic in small groups and devising different review titles to meet different goals (different context, educational problems, resource and time limitations). Participants will review a sample of titles, backgrounds and conclusions from actual BEME reviews and identify potential areas of concern using a variety of tools, with a whole group debrief to identify key areas of focus when planning and how research questions were addressed in conclusions Small groups will then work on

their own research title and question in small groups, with support within the groups from a facilitator.

Who should attend: All those interested in writing any kind of systematic review and evidence synthesis in all fields of healthcare.

Level: Introductory / intermediate

7X: Workshop: Continuing Health Profession Education: Innovative approaches to putting theory into practice for curriculum development (667)

Location: Osaka, 3rd Floor, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

Presenters

David C Thomas, Icahn School of Medicine at Mount Sinai, NY, USA

TJ Jirasevijinda, Weill Cornell Medical College, NY, USA
Reena Karani, Icahn School of Medicine at Mount Sinai, NY, USA
Monica Lypson, University of Michigan Medical School, Ann Arbor, USA
Carolin Sehlbach, School of Health Professions Education, Maastricht University, Maastricht, Netherlands

Abstract Text: Health Professional educators are often tasked to develop continuing education programs across the health professions; however, few have any formal training in this area. In this contemporary environment of limited resources and high accountability, it is imperative that educators gain the knowledge and skills to design educational experiences that impact patient care and inter-professional practice. This interactive workshop is designed for an international audience of educators interested in mastering the skills necessary to design innovative continuing professional development programs that meet the needs of multiple health professionals. We will demonstrate curricular development principles using a health professions model.

Who should attend: Participants will be health profession educators with an interest in developing and implementing educational programs for faculty development, continuing professional development and continuing health profession education programs.

Structure of workshop: The workshop will consist of a brief presentation on how practicing clinicians learn followed by how medical educators can develop a curriculum for health professionals. The majority of the workshop will engage the participant in an interactive skills building session on their own individual project in continuing health professions education.

Intended outcomes: By the end of the session, participants will 1) state the fundamental theories of how practicing clinicians learn and incorporate changes into their practice, 2) gain skills in instructional design for continuing education program development, 3) practice developing a model curriculum using a stepwise approach

and 4) develop an outcomes framework for their curriculum related to actual clinical performance.

Level: Intermediate

7Y: Workshop: The Science of Teams: Developing and Transforming Effective Teams (1994)

Location: Samarkand, 3rd Floor, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

Presenters

Darshana Shah, Marshall University Joan C. Edwards School of Medicine, Huntington, WV, USA
Elizabeth (Betsy) Dawkins, VCU, Richmond, Virginia, USA

Abstract Text: Successful teamwork in all professions depends upon behaviors that promote team building and collaborative thinking. Working effectively as part of a team is also incredibly important in academic settings. Sooner or later, all of us participate as a member or leader of committees, task forces, and teams. These can be either a waste of time and resources or an effective means of moving an issue, problem or need forward. Unfortunately, most of us have never been taught how to best use the tools called committees, task forces, and teams. Effective teamwork is identified as a requirement for enhanced clinical outcomes in the provision of healthcare and healthcare research. However, the current education does not appropriately train either physicians or scientists in these endeavors. Leadership and teamwork skills have received little formal attention, although acquiring these skills is critically important to trainees as they advance and assume supervisory responsibilities for medical teams. This workshop will provide an overview of Team Science and offer evidence-based insights and techniques on Team Science leadership. It will also demonstrate tools and resources that promote collaboration, communication, trust, and conflict management in teams.

Structure of workshop: Through a combination of lecture, interactive small group activities, case studies, and discussion this workshop will offer participants a collection of evidence-based tools and resources for implementing effective practices in team building.

Who should attend: This workshop is designed for educators, practitioners, program staff, and medical students.

Intended Outcomes: Participants will be able to:

• Understand what Team Science tells us about working together

• Identify team-friendly behaviors and skills

• Identify key Team Science concepts that can be used today

• Describe resources for forming teams and achieving results in teams

7Z: Workshop: I Teach, Therefore I Am: Examining Pedagogical Identity for Online and Face-to-Face Learning (1971)

Location: Guangzhou, 2nd Floor, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

Presenters

Holly Meyer, Uniformed Services University of the Health Sciences, Bethesda, USA
Eric Meyer, Uniformed Services University of the Health Sciences, Bethesda, USA
Dario Torre, Uniformed Services University of the Health Sciences, Bethesda, USA
Steven Kanter, University of Missouri Kansas City, Kansas City, USA
Lauren Maggio, Uniformed Services University of the Health Sciences, Bethesda, USA

Abstract Text: Health profession educators are increasingly asked to transition their face- to-face (F2F) teaching to online or blended learning modalities. Teaching and learning cannot be separated from the context in which they occur. Many teachers find themselves in an unfamiliar teaching setting, feeling pressured to use an approach incongruent with their pedagogical and personal identity. Such "identity dissonance" can generate frustration and can result in downstream negative effects on learner outcomes. This workshop provides participants a conceptual framework based on Pratt's five teaching perspectives(TPs) that will allow educators to gain insight into their own pedagogical and personal identity, consider strategies to manage a transition to an online teaching context, and share solutions to restructure and mitigate potential identity dissonance.
Who should attend: Faculty developers and teaching faculty (both junior and senior) should attend.
Structure of workshop: We will provide a brief overview of the TPs highlighting how as a conceptual framework they can assist educators in identifying and retaining their pedagogical identities while transitioning from F2F to online teaching.
Next participants will determine their own dominant teaching perspective by completing the freely available, online Teaching Perspective Inventory (TPI; http://www.teachingperspectives.com/tpi/). The TPI measures teachers' self-reported actions, intentions, and beliefs and identifies respondents' dominant teaching perspective.
In small groups, participants will share and discuss their dominant teaching perspective. Using a structured worksheet that introduces a real case scenario, the groups will consider how their dominant TP can help or hinder a shift from F2F to online teaching.
The workshop will conclude with a large-group summary of practical strategies participants can apply at their institutions that will ultimately enhance their teaching in the online setting without undermining their personal teaching identities.

Intended outcomes: At the end of this workshop, participants will be able to
• Describe the TPs
• Identify their dominant teaching perspective and understand its effect on their teaching approach across different leaning contexts
• Recognize and discuss strategies to mitigate identity dissonance when transitioning from F2F to online teaching
• Apply the conceptual lens of the TPs to facilitate a transition to new teaching contexts
Level: Introductory, no prior knowledge of topic required

7AA: Workshop: How to shoot, edit and distribute educational videos through Social Media (SoMe) (3625)

Location: Nairobi, 2nd Floor, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

Presenters:

Tobias Todsen, Department of Otorhinolaryngology, Head and Neck Surgery & Audiology, Rigshospitalet and Copenhagen Academy for Medical Education and Simulation, Copenhagen, Denmark
Mads R Dahl, Center for Health Sciences Education Aarhus University, Aarhus, Denmark

Background: Students are increasingly exposed to videos on SoMe which they also use for educational purposes. If optimized, videos are an effective teaching modality as it provides flexible learning opportunities. Students are constantly bombarded with information and using video content can therefore by an important educational tool for the medical teacher interacting with the SoMe generation. However, development of videos may challenge many medical teachers and therefore this workshop will provide some basic but effective tools and principles for optimal development of videos.
Who Should Attend: Medical educators interested in using video in medical education
Structure of Workshop: This workshop will teach the essential steps from idea over production and editing to the phases of distributing and integrating your video content on SoMe. We introduce some basic rules of video shooting and editing that will improve the quality of your video. The workshop will be interactive and demonstrate the principles in a short live video making session. Afterwards participants will have to shoot and edit a video using their own smartphone or tablet in small groups and upload it on an Youtube channel created for the AMEE workshop. Selected videos from the participants will be presented and discussed in plenum to wrap up the workshop.
Intended Outcomes: Be able to shoot and edit your own educational video and know how to optimize the design of the video to benefit the intended learning.
Level: Introductory

7BB: Workshop: Context matters: Exploring the role of place in health professions education (3091)

Location: Mexico, 2nd Floor, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

Presenters

Julia Blitz, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa
Ian Couper, Ukwanda Centre for Rural Health, Stellenbosch University, Cape Town, South Africa
Rachel Ellaway, Office of Health and Medical Education Scholarship, University of Calgary, Alberta, Canada
Roger Strasser, Northern Ontario School of Medicine, Ontario, Canada
Susan Van Schalkwyk, Centre for Health Professions Education, Stellenbosch University, Cape Town, South Africa
Paul Worley, Prideaux Centre for Health Professions Education Research, Flinders University, Adelaide, Australia

Abstract Text: A socio-cultural perspective on learning requires us to acknowledge the role of context in that learning, contrary to the common underlying assumption that knowledge is objective or context-independent. Bates et al (2016) suggest that, while it is something 'so intrinsic to the field of medical education, the concept of context remains troubling to scholars and those running medical education programmes'. In particular, this has relevance across the global spectrum of health professions education (HPE) and the way in which different approaches to the training of students can play out in these multiple contexts. Awareness of these differences, and of the 'pedagogy of place', can help guard against practices being directed solely from a single (dominant) position, thus being more responsive to the needs and dynamics of different contexts. In this workshop we will explore perspectives on HPE from a range of different contexts guided by principles of social accountability and community engagement, and discuss why context matters in our teaching practice.

Who should attend: Educators and students with an interest in the role of context in HPE (undergraduate and postgraduate) across professional groupings, from any region or geographic area.

Structure of workshop:

1. Introductions
2. Brief inputs:
   - Ian Couper – Overview of context in HPE
   - Rachel Ellaway – Key theories of context
   - Roger Strasser – The NOSM experience
   - Paul Worley – The Flinders network
   - Susan van Schalkwyk – The Stellenbosch University Rural Clinical School longitudinal study.
3. Small group discussions will focus on the following:
   - What is important in participants' contexts and how that shapes teaching and learning;
   - How these contexts can be more effectively utilised for learning and in addressing social accountability issues;
   - How programs can innovate, evaluate, and research context through the lenses of social accountability and community engagement
4. Plenary feedback

Intended outcomes: By the end of this session participants will:
• better understand the role of context in HPE and its value in their own training context;
• develop ideas for enhancing the value of 'place' when developing curricula, particularly for clinical training;
• be able to plan research to evaluate context, taking into account local program and societal needs.

Level: Intermediate

7CC: ePosters: Multiple perspectives - diversity, well-being & communication

Location: Kairo 2, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

7CC1 NOT PRESENTED

7CC2 (583)
Evaluation of the medical student perception related to delivering bad news compared to experts doctors

Authors
Carlos Miranda, Ribeirão Preto School of Medicine São Paulo University, Ribeirão Preto-SP, Brazil
Antonio Pazin-Filho, Ribeirão Preto School of Medicine São Paulo University, Ribeirão Preto-SP, Brazil
Islã Ventrua, Ribeirão Preto School of Medicine São Paulo University, Ribeirão Preto-SP, Brazil

Presenter: Carlos Miranda, Ribeirão Preto School of Medicine, São Paulo University, Ribeirão Preto-SP, Brazil

Background: The goal of this investigation was compared the perception of the medical students related to delivering bad news to experts doctors in this issue (clinical oncologists).
During an interactive classroom about delivering bad news the medical students received a transponder allowing them to respond in "real time" to question that was formulated by several experts and applied to 500 oncologists during survey of participants at of the American Society of Clinical Oncology.2000
The answers of 111 medical students were compared to 500 clinical oncologists (medical students vs. experts doctors). Have you had any specific teaching or training for breaking bad news: formal teaching (30% vs. 05%); sat in with clinicians interviews (05% vs. 39%); both (43% vs. 14%), neither (14% vs. 42%), p= 0,007. How do you fell about your own ability to break bad news: Very good (03% vs. 13%), Good (10% vs. 40%), Fair (44% vs. 39%), Poor (32% vs. 08%), Very poor (04% vs. 00%); p<0.0001. Have you had any training in the techniques of responding to patient's emotion: formal teaching (41% vs. 08%); sat in with practicing clinician (03% vs. 34%), both (36% vs. 10%), neither (14 vs. 49%); P<00001. Did you find that the SPIKES protocol made sense to you: Yes (90% vs. 95%); p=0.30. Do you feel that the SPIKES protocol is practical and can be used in your clinical practice: Yes (84% vs. 88%), p=0.326. Which element of the SPIKES protocol do you think you would find most difficult: Setting (01% vs. 02%), Perception (02% vs. 16%), Invitation (01% vs. 19%), Knowledge (10% vs. 07%), Emotions (75% vs. 52%), Strategy (02% vs. 03%), p<0.0001.
The medical students recognize the useful of the protocols such as SPIKE for delivering bad news and considered addressing the patient's emotions the most difficult task in this situation.

7CC3 (836)
Calling for Help: Teaching Medical Students about SBAR

Authors
Claire Gibbons, University Hospital of Coventry and Warwickshire, Coventry, UK
Rebecca Darge, University Hospital of Coventry and Warwickshire, Coventry, UK

Presenter: Claire Gibbons, University Hospital of Coventry and Warwickshire, Coventry, UK

Background: Newly qualified doctors often struggle with clinical handover. We have observed this in final year medical students in high-fidelity simulation sessions and colleagues across two sites have reported similar observations. SBAR (Situation, Background, Assessment and Recommendation) is a recognised tool used to aid clinical communication.
We aimed to pilot a new tutorial to improve medical students' confidence in using SBAR. We designed a one hour tutorial, to be delivered by two faculty members, to teach students to:
1. Describe and evaluate SBAR.
2. Critically appraise model SBAR procedures.
3. Develop SBAR good practice through low-fidelity simulation.
We evaluated session outcomes using student questionnaires, comparing results with answers from students who did not attend.
We invited 20 final year medical students on their acute clinical placements to attend the tutorial; ten attended. Students reported having limited opportunity to practice using SBAR previously. Of those who attended, six reported significantly improved confidence in using SBAR, and four reported slightly improved confidence. Qualitative feedback was positive. Students liked the use of simulation, receiving individual feedback, and small-group learning in a positive environment. They felt the session could be improved by additional clinical scenarios. Almost all the students surveyed felt that their acute clinical placements had improved their confidence in using SBAR. However, students who attended the tutorial reported greater overall confidence in using SBAR, and saw a greater increase in their confidence, than their peers who did not attend.
After acting on feedback the tutorial has been assimilated into the mandatory undergraduate teaching timetable, and postgraduate training.
Medical students benefit from practicing communication skills in simulated settings. By recognising and acting upon gaps in student abilities it is possible to introduce new, effective and relevant teaching. It should not be assumed that students will develop key communication skills by clinical exposure alone; these skills require teaching and practice with dedicated feedback. Simulation can provide a safe environment for this to occur and can facilitate experiential learning.
Facilitated practice with feedback can help improve confidence in using SBAR at the undergraduate level.

7CC4 (2489)
Applying Multi-Disciplinary Simulations to Demonstrate SPIRES Protocol for Teaching Medical Ethics and Communication Skills

Authors
Pei-Wei Wang
Ting-Fang Chiu
Li-Lin Kuo
Lin-Yang Chi
Oscar K. Lee1

Presenter: Pei-Wei Wang, Taipei City Hospital, Taipei, Taiwan

Background: For teaching communication, the SPIRES protocol, which consists of 6 steps, is a specialized form of skill training in physician-patient communication. Simulation-based teaching has also been applied extensively in medical education. This study is to share our experience of promoting the interests of our hospital staff for teaching medical ethics and communication skills with the method of multi-disciplinary simulations.
With the collaboration of trained standardized patients, a multi-disciplinary simulation theater workshop was developed since 2016. The performances required approximately 2 hours. To enhance the learning effect, we further introduce and apply the SPIRES protocol to demonstrate the appropriate communication skills in the final version since 2017. Hospital staff attending the ethics course completed pre- and post-tests for the Perceived Confidence Scale and simple quizzes to assess whether SPIRES protocol are understood.
There were 475 questionnaires collected and analyzed. In analyzing the Perceived Confidence Scale, all of the post-test scores for each item were significantly higher than the pre-test scores. Participants were also completely correct about the post-test quizzes of assessing the learning effect of SPIRES protocol. The reflections and suggestions given by the participates were also very enthusiastic.
Previous studies have clearly demonstrated that communication skills can be taught. We chose SPIRES protocol as our main concept of teaching communication skills because it is easy to remember and contains important skills. SPIRES and SPIKES are almost identical except that fourth step replaces knowledge by recommendation. To demonstrate actively the SPIRES protocol, we employ a multi-disciplinary simulation theater, which combines theater performance and the actual case for teaching communication skills and medical ethics. All participants are very appreciative and agree that this model is fascinating and has good learning effects.
In combination with multi-disciplinary simulations, SPIRES protocol can be specifically demonstrated, and participants can easily master the key communication skills.

7CC5 (356)
Guiding eprofessionalism-devleoping social media workshiops for health students

Authors
Jennifer May
Jess Stokes Parish
Lauren Cone
Miriam Grotowski

Presenter: Jennifer May, University of Newcastle, Tamworth, Australia

Background: Social media is part of the medical landscape in the 21st century. The experience of "participatory medicine" (clinicians and patients connecting in ways other than face to face) is now a day to day reality for all those involved in delivery of health care. The development of an educational framework in which to teach and support students to manage these participatory interfaces is understandably new.
Dr Kendall Ho and colleagues from UBC Canada developed an interactive workshop to equip students with safe social media habits This approach was reviewed and redesigned for an Australian context. This poster seeks to explore the experiences of students who participated and review the educational value of the workshop
An interactive workshop was piloted on a rural group of medical and allied health students. .After identification the utility and variety of social media available students discussed current guidelines for universities, health services and professional bodies. Participants completed a case-study based questionnaire prior to the workshop, and then reviewed their answers in an interactive format. Case studies were themed to demonstrate privacy, confidentiality, online conduct, professional boundaries and reputation concerns. Students rated the appropriateness or otherwise of the behaviours described.
Tools to evaluate social media information were reviewed with students identifying sources of information for course work considering content, credibility and captivation
Students provided constructive feedback about the delivery and utility of the workshop. The content validity and reliability of Likert scales for the assessment of the scenarios was reviewed and refined. Tools for social media contribution and approaches to social media content were considered desirable
Responsible social media use by health professionals will not just happen. Workforce and tertiary policies do not cover the "grey" areas of safe social media use. The implementation of a practical workshop was a useful way of exploring and challenging different knowledge levels and experiences. The application to nursing and allied health disciplines appears clear cut and further development of a social media curriculum is important for all involved in the delivery of health care.

7CC6 (566)
What is necessary to support female physicians in Japan?

Authors

Rieko Goto, Kumamoto University Hospital, Kumamoto, Japan

Hiroshi Takayanagi, Kumamoto University Hospital, Kumamoto, Japan

Kota Oyama, Kumamoto University Hospital, Kumamoto, Japan

Michito Sadohara, Kumamoto University Hospital, Kumamoto, Japan

Junichi Taniguchi, Kumamoto University Hospital, Kumamoto, Japan

Kunihiko Matsui, Kumamoto University Hospital, Kumamoto, Japan

Presenter: Rieko Goto, Kumamoto University Hospital, Kumamoto, Japan

Background: The persantage of female professors, associate professors, and docents is extremely low (3.6%) in Kumamoto University. Many female physicians quit their works by sexual division of labor when they have to take care of children in Japan. We have conducted a questionnaire survey to clarify the problem in acquiring an academic career of female physicians.
The questionnaire was distributed to 26 department managers in Kumamoto University Hospital in 2017. We divided into three groups: male (M), female (F), and female in childcare (FC). We asked questions of what are the numbers of physicians who have attended at academic meetings, who have submitted some papers, and who have had some certified medical specialty, in 2016. Nineteen of 26 department managers answered the questionnaire. There were 399 physicians in M group, 124 physicians in F group, and 37 physicians in FC group. The ratio of physicians in FC group who attended at the academic meeting (M: F: FC = 70.9%: 49.4%: 32.4%), and who submitted some papers in 2016 (32.3%: 19.4%: 13.5%) were significantly lower than those of the other groups. There was no difference in the ratio of physicians who had some certified medical specialty in each group (13.3%: 16.1%: 18.9 %).
In spite of the ratio of female physicians of 23.7%, only 3.6% of female have risen in academic position at Kumamoto University Hospital. Though female physicians can gain the certified medical specialty, improving the place of women may be hard especially in university hospital in Japan. As physicians in university hospitals in Japan are assigned all three roles of clinician, researcher, educator, at the same time, female physicians in childcare may give up their academic career because of focused busyness. We have organized "Kumamoto Career Support Center for Women Doctors" to develop Working-Style reforms, Child-care support system and supporting academic career system. We hope our activity may increase academic position of female physicians in Japan.
Working-Style reforms, Child-care support system, and supporting academic career may be necessary to fulfill the gender equality in university hospital in Japan.

7CC7 (1682)
Feminisation of postgraduate medical training influences burnout in medical residents

Authors

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Presenter: Maud Kramer, School of Health Professions Education (SHE), Faculty of Health, Medicine and Life Sciences, Maastricht University, Maastricht and Zuyderland Medical Centre, Heerlen, Netherlands

Background: High prevalence of burnout in medical residents is alarming. Female residents have higher risk to become burnout. At the same moment, an ongoing feminisation process of the medical profession is taking place (worldwide 46% female doctors in 2015, while 29% in 1990). Feminisation leads to a shifting gender composition in postgraduate medical training. Our study aims to understand the influence of last decade feminisation on the relation between gender and burnout in residents. Dutch medical residents filled out a questionnaire in 2005 (N = 2115) and 2015 (N =1231). Burnout was measured using the Utrechtse Burnout Schaal (UBOS-C), a validated Dutch version of the Maslach Burnout Inventory Human Services Survey. High scores on the scales emotional exhaustion and depersonalisation and low scores on personal accomplishment are indications for burnout. We used multilevel models to analyse the influence of percentage of respectively female physicians and residents per specialty in 2005 and 2015 on the relation between residents' gender and their UBOS-C scores.
Female residents scored higher on emotional exhaustion than males. Male residents scored higher on depersonalisation and personal accomplishment than females. Between 2005 and 2015, emotional exhaustion and depersonalisation decreased and personal accomplishment increased in both genders' residents. Percentage of both female physicians and residents moderated the relation between residents' gender and emotional exhaustion: more female physicians and residents related to higher exhaustion for male residents and lower scores in female residents.
Burnout-related symptoms in both genders' Dutch medical residents decreased during last decade feminisation. Feminisation of postgraduate medical training decreases risk at emotional exhaustion in female residents, while leaving other aspects of burnout unaffected and

negatively impacts emotional exhaustion in male residents. These findings indicate that feminisation has different impact for male and female residents. Burnout-related symptoms in both genders' medical residents overall decreased during last decade feminisation.

Optimising work culture during ongoing feminisation needs attention, as female residents are still most at risk for burnout. However, feminisation might also lead to more emotional exhaustion in male residents.

7CC8 (1638)
Assessing the impacts of Inter Professional Education Initiatives at a newly established tertiary hospital in Singapore

Authors

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Presenter: Wai Ching Deanna Lee, Sengkang General Hospital, Singapore

Background: Interprofessional Education (IPE) has the potential for improving professional relationships, increasing efficiency and coordination in enhancing patient care (1). Our 1,400-bed hospital is newly established with diverse healthcare professionals and one priority of building patient- centered care pathways. We started the hospital-wide monthly IPE Grand Rounds hoping to create a common platform for discussion and collaboration, to identify diseases to establish the care pathways and related protocols and policies. The topics were collated amongst our hospital staff to promote interest, participation, and usefulness in their daily clinical practices. The monthly IPE sessions started from August 2016, covering a wide range of topics such as diabetes management, end of life care, subcutaneous hydration. The first phase of data collection to evaluate the usefulness and impact amongst the staff started in Oct 2017. The validated Interprofessional Attitudes Scale (IPAS) (2) was administered through an online survey link to 120 hospital staff from different disciplines who attended the IPE sessions. The outcomes include reactions, change in perceptions and attitudes, perceived behavioural changes, acquisitions of knowledge and skills. Thereafter focused group discussions were conducted among agreeable survey responders to participate in further study to explore further impact of IPE sessions and suggestions to improve future sessions.
A total of 81 respondents (49.3% nurses, 31.6% allied health professionals) completed IPAS survey and 44 of them consented to participate in the focus group discussions . The result of the IPAS survey showed improvement in reactions, perceptions, attitudes and knowledge in domains of Teamwork, Roles, and Responsibilities (62.4%), Patient-Centeredness (53.5%), Interprofessional Biases

(30.7%), Diversity & Ethics (53.2%), and Community-Centeredness (56.7%). The focused group results will be available by June. Preliminary comments from participants revealed that IPE sessions has been "engaging", "interesting", "useful", "beneficial", and suggestions for improvement include "more frequent sessions" and "other topics".
The preliminary results show positive overall impact of IPE. For the follow-up studies, we would measure changes in practice and patient care quality.
IPE can improve quality of healthcare delivery and promote collaboration.

7CC9 (3060)
Narratives of care: the use of digital story-telling to understand lived experiences of care

Authors

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Background: Person-centred care (PCC) shifts the consultation narrative from 'what's the matter with you' to 'what matters to you' (Barry et al 2012). This has implications for medical education, where the place of the patient has historically been that of 'exemplar' of their condition rather than 'expert-by-experience'. This study explores the value of first person digital stories (DS) as an approach to teaching PCC. The study draws upon the work of Patient Voices, an organisation who help create first-person stories of healthcare, using audio, video and images.
The digital-stories are openly available for use by healthcare educators: our study draws on young people's stories about living with multisystem allergic disease (MSAD).
This is a qualitative study, using a cross over design, where medical student participants watch pairs of digital stories (young person and parent) followed by consultant led teaching on the same topic (or vice versa). They are asked to write freely on what they know about MSAD and its impact, adding and amending this text after each viewing. A focus group 2 to 4 weeks later seeks to identify lasting influences of thinking.
The elicited data will be analysed in two ways. Firstly, the free text documents will be used to explore changes in thinking after each type of teaching intervention. Secondly, the focus group data will be thematically analysed with the hope of identifying the usefulness of first person digital stories as a teaching method focussed on promoting person centred care. (Data available April 2018).
The goal of this study is to explore practical and accessible approaches to teaching person-centred care in a medical school setting. It will compare the impact of watching first

person digital stories with more traditional consultant-led teaching. Implications will be presented and discussed. Person centred care means re-thinking patient involvement in medical education.

First person digital stories are an accessible and powerful way of bringing patient voices into medical education

Barry, M and Edgman-Levitan S (2012) Shared Decision Making – The Pinnacle of Patient-Centred Care. N Engl J Med 2012; 366:780-781

7CC10 NOT PRESENTED

7CC11 (100)
International Use and Correlates of Dundee Ready Educational Environment Measure (DREEM) in Assessing Learning Environments Within Undergraduate Medical Education: A Narrative Review

Authors

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Background: The Dundee Ready Educational Environment Measure (DREEM) was specifically designed to measure the undergraduate medical educational environment. This study seeks to review the adoption of DREEM internationally, and its association with different learning contexts and learner factors in order to better support our learners and facilitate future applications and research.

A systematic literature review was conducted on all articles that adopted and reported data using the DREEM from 1997 through April 2017.

Overall, the majority of 106 included studies from over 30 countries were conducted in Asia and Europe (76.4% of studies) within medical, dental and nursing programs (86.8% of studies). Seventy-nine out of 98 studies (80.6%) which reported DREEM scores observed a mean total DREEM score within the range of "more positive than negative" (101-150 out of maximum 200 points). Higher DREEM scores were associated with better past academic achievement, quality of life, resilience, positive attitudes towards course, mindfulness, preparedness for practice, less psychological distress and greater peer support. The majority of undergraduates rated their learning environments "more positive than negative". Juniors tended to score higher on DREEM compared to their seniors in undergraduate programs and higher DREEM scores were associated with different learner factors which can help in identification of learners needing greater support. Future studies may want to examine other correlates of DREEM such as coping styles, personality profiles, burnout level and DREEM scores can be incorporated into reviews of learning environments to ascertain longitudinal changes following educational interventions.

Take home points
• Global studies using DREEM were mostly conducted in medical, dental and nursing undergraduates

• The majority of undergraduates rated their learning environments "more positive than negative"
• Higher DREEM scores were associated with different learner factors
• DREEM scores can be incorporated into reviews of learning environments to ascertain longitudinal changes following educational interventions

7CC12 (1252)
Stressors encountered during overnight duties by Anaesthesiology Senior Residents impedes their role as teachers & learners

Authors

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Presenter: John Song En Lee, KK Womens' and Children's Hospital, Singapore

Background: Anaesthesiology Senior Residents take on the role of supervising and teaching junior residents during 16-24 hour overnight duties. They concurrently learn through the management of complex and critical emergency cases in the operating theatre and intensive care unit. A recent study demonstrated that the sensorimotor and executive function of anaesthesiologists were slowed after these demanding shifts. We studied the impact of these stressors on the cognitive abilities of the senior residents as clinicians, teachers and learners.

We adopted the constructivist approach and conducted a qualitative research, using the semi-structured interview format. 7 senior residents participated in focus group and individual interviews. An inductive and iterative process of information collection, analysis and thematic classification was conducted. Data collection continued until data saturation was reached. The audio-taped interviews were transcribed, analyzed, and themes were identified.

High levels of stress were experienced by the senior residents. Based on thematic classification, the categories of stressors included (1) clinical, (2) psychosocial and (3) cultural. Clinical stressors were predictable, and included inexperience in managing complex cases and crises, and demands in perioperative resource management. Psychosocial stressors included the concern with poor patient outcomes, complaints and self-doubt. Work-place cultural stressors included the concern of conflicts with other stakeholders, and appearing deficient to their supervising faculty. Collectively, these factors impacted negatively on their cognitive abilities, resulting in increased tunnel vision, poorer clinical judgement, and rash decisions. The senior residents were less inclined and motivated to teach and guide the juniors, and to allow procedural attempts. Their own ability to learn were significantly impaired.

We identified the stressors that impeded clinical management, teaching and learning. Reluctance to consult for fear of appearing deficient to the faculty were concerning. Recommended strategies included (1)

reducing the impediment to timely faculty consults, (2) providing case-based training, (3) improving communications with the stakeholders, (4) equipping with team-based management skills, and (5) engaging in inter-professional collaborations.

While stressors during overnight duties can hamper the clinical, teaching and learning abilities of Anaesthesiology senior residents, recommended strategies can be employed to reduce their impact.

7CC13 (1802)
Effectiveness of a self-selected "SMILeSS" Intervention to reduce and/or prevent depression and general well-being of preclinical medical student.

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Presenter: Thanita Thongtan, Mahidol University, Bangkok, Thailand

Background: Medical education has always been perceived as highly stressful environment by students. Stressors affecting medical students' overall well-being were significantly related to the medical training especially academic matters. A good intervention was then focused to help reduce the stressful impact to the student. A 2-hour small group intervention based on the participant's preference was designed. The outcomes of the intervention on medical students' depression and general well-being score were then determined.

A controlled before-and-after study was conducted on 133 preclinical medical students. Their 9-item depression score (PHQ-9) and 18-item general well-being schedule (GWBS) were measured before the intervention and 2-month after the intervention. The self-selected "SMILeSS" intervention based on their preference in the aspects of stress management (S), motivation (M), interpersonal skills (I), learning skill (Le), self development (S), and self discipline (S). The independent sample T-test was applied to determine the effect of the intervention on the participant.

A total of 133 preclinical students (intervention = 69 and control = 64) completed the study. The depression score and the general well-being score between the intervention and the control group will be compared.

There are many issues that medical students face. SMILeSS model may also be a promising intervention for medical student to reduce and/or prevent a stressful impact especially in early stage of medical academics.

The medical school is composed of various expertise faculty members who are able to provide support in many aspects to medical students. Continuous of SMILeSS intervention can be easily implemented to match the need of all levels of medical training with the support provided by the faculty.

7DD: Posters: Surgical Simulation

Location: Hall 4.1, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

7DD1 (1762)
Integrating Skills Lab stations into a course on the principles of fracture fixation

Authors
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Presenter: Emanuel Gautier, HFR Kantonsspital Fribourg, Switzerland

Background: The AO Foundation has been involved in education since the 1960s. The AOTrauma Basic Principles of Fracture Management course is now an integral component of residency programs in several countries. In 2013, a new educational simulation was introduced in the courses with the addition of 10 Skills Lab stations.
Method: The present-day Skills Lab stations started off with the idea of a 'Playground' – a time during the course when participants could experiment with drills, reduction tools, instrumentation, and bone models, to work out the principles of fracture fixation. Over the years, this activity was formalized, given a structure, and learning objectives for each station defined. Surgeons, engineers, and educationalists worked together to create a novel approach to teaching basic surgical principles and skills.
Results: The Skills Lab stations have now been used in over 300 courses worldwide. Implementation was monitored by conducting online surveys, and we received feedback from 318 participants, 146 faculty, and 91 Skills Lab directors. Faculty education programs, self-explanatory videos, and faculty guides for each station were prepared to educate faculty on the Skill Lab stations. In addition, during the early phase of the roll-out process, a surgeon expert and a member of the AO Education Institute accompanied the Skills Lab to every course.
Discussion & Conclusion: The Skills Lab has proven to be of great value to the AOTrauma Basic Principles of Fracture Management course. It is an effective way of reinforcing the concepts taught at the course, and in increasing interactivity between participants and faculty. The Skills Lab is now a core component of this course.
Take-home message: Integrating the concepts of fracture fixation within a course can be successfully performed using Skills Lab stations. The concepts addressed can be revisited, emphasized, and elaborated upon during the rest of the course in lectures, practical exercises or small group discussion. This educational simulation is highly interactive and proven to be very popular with course participants and faculty alike.

7DD2 (2484)
Novice Development of Cerebral Aneurysm Coiling Skills in Virtual Reality

Authors
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Sandrine de Ribaupierre, Western University, London, Canada

Presenter: Roy Eagleson, Western University, London, Canada

Background: Endovascular surgical procedures require visual-spatial coordination in workspaces with restricted motions and temporally limited imaging. The acquisition of the procedural skills and error reduction strategies can be facilitated by 3D simulator-based training, however, cerebral angiography (CA) has lagged behind in this training approach due to the lack of validated, realistic training models, relying strictly on clinical case exposure frequency as a means of assessing proficiency. The ANGIO Mentor visual-haptic simulator has been regarded as an effective training tool, increasing performance in diagnostic CA, however, this simulator has not been assessed thoroughly in its ability to improve interventional skills such as effective aneurysm coiling.
Method: In this study, 12 novice medical students were given simulation-based diagnostic cerebral angiography training until a procedural plateau in performance, established in our previous work (Zaika et al., 2016). Subsequently, they were trained using video tutorials and written instructions to identify, measure and intervene with cerebral aneurysms using endovascular coils. Subsequently, over the span of 6 sessions, participants were assessed on their procedural pace, coiling quantity and quality, and perforation rates. Spatial ability was assessed using a mental rotation test (MRT) and used in the performance analysis.
Results: All individuals were able to perform the procedure faster after 6 sessions, reducing their average time from 42 to 24 minutes. Coil success rate improved over from 82% to 88% and coil packing rate remained consistent at 30% throughout testing. High perforation rate seen at the start of the study showed a trend of decreasing over the latter sessions, however, over half of aneurysms were still being perforated by the novice participants. No change in aneurysm coiling quality was found, with a slight decrease in number of parent artery coil protrusions. High MRT individuals were better able to establish necessary tools prior to coiling, however, no other MRT-specific changes were seen.
Conclusion: This work identifies the utility of simulation-based cerebral angiography training in identifying the particular difficulties trainees experience in learning procedural skills, including prevention of perforations, proper positioning and success of coils within the aneurysm.

7DD3 (2771)
First experiences in hospital-based simulation training in spinal decompression and fusion

Authors
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AOSpine Chairpersons (Ahuja S, Theiss S, Vialle E, Ito M, Al-Mutair A)

Presenter: Staffan Källbäck, AOSpine, Dübendorf, Switzerland

Background: Time away from clinical practice is a challenge for surgeons. Hospital-based education in the local setting using a simulator and supported by a blended learning approach should be explored as an alternative or complementary to external courses. A group of AOSpine surgeon faculty decided to design and evaluate a new, standardized program on simulation training in spinal decompression and fusion for international implementation.
Method: The surgeon faculty designed a program consisting of 2 hours of online learning materials, a 1-hour online tutorial for participants with the chairperson, and a 3-hour face-to-face event focused on simulated minimally invasive procedures. Microsurgical decompression and interbody fusion were selected and scheduled for groups of 2 participants to perform on a simulator with a lumbar pathology model and a microscope under the guidance of 1 faculty.
Results: The program was delivered to 81 orthopedic and neurosurgical trainees and fellows during 2017 in 6 events in England (n=18 participants), Wales (n=6), US (n=18), Japan (n=8), Brazil (n=19), and Kuwait (n=12) with a local chairperson and faculty. Evaluation by 62 participants (76%) showed 82% (range 64%-100%) learned something new and intend to use it in practice. All responders would recommend the event to colleagues. Positive feedback was noted regarding minimal interruption to regular work, enhancement with online pre-course activities, the authenticity of the simulator, the OR setting, and the high faculty to participant ratio.
Feedback from participants and faculty compare favorably to our other educational events. The evaluation instruments could be enhanced by the addition of procedure metrics for participants and faculty to receive and provide even more focused feedback. Projected advantages of condensed on-site time, no travel, and low costs were all found in these events. Future plans are to deliver such events on a larger scale. A detailed analysis and comparison with other events is currently being made.
Conclusion: Hospital-based education using simulation will be an effective alternative and complements existing education. Further study of its effectiveness and efficiency is warranted.

7DD4 (2898)
Exploration of learning curves for simulation-based training in hip-fracture surgery

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Presenter: Amandus Gustafsson, Copenhagen Academy for Medical Education and Simulation, Copenhagen, Denmark

Background: Several studies describe virtual reality (VR) simulators conveying training in osteosynthesis of hip fractures and their metrics' ability to differentiate between novices and experts. However, there is no evidence in simulated hip fracture surgery supporting a pass/fail standard based on proficiency. The aims of the study were to determine when novices and experts reached their learning plateau and to establish a pass/fail performance standard for trainees based on experts' performance.
Method: Thirty-eight orthopedic interns and eight consultants were included for simulation with cannulated screws, Hansson Pins and sliding hip screw on Swemac's TraumaVision, which has metrics with established validity evidence. The training ceased when a participant failed to improve the combined score for three consecutive times and a plateau score was defined as an average of combined scores of the last four tries.
Results: The novices trained for 168.5 minutes (range 82.1-295.5, SD: 52.1) compared to 143.3 minutes (range 83.1-198.9, SD: 40.9) for the experts. The highest achieved combined scores for novices was 92.0 % (range 82-98%, SD: 4.2) and the experts 95.6 % (range 92-98%, SD: 1.9), p=0.022. The plateau scores were 84.9 % for the novices (range 60-98%, SD: 7.7) and the experts 92.4% (range 84-97%, SD: 4.0), p=0.011. A pass/fail standard for the plateau score using contrasting groups' methods was 88%.
Time needed to train to plateau was highly variable for both groups. The participants trained to a plateau without the motivation to attain a predefined standard and hence it cannot be concluded that the novices trained to their best of their ability, why we are reluctant to use contrasting groups' method to establish a criterion for proficiency, but prefer a mastery performance criterion.
Conclusion: The variability of time spent to reach plateau emphasizes that simulation-based training should continue to a predetermined criterion with supporting validity evidence. We suggest a mastery learning criterion of 92 % based on the experts' average plateau score.

Take-home message: A plateau score of 92 % on Swemac Traumavision VR trainer for hip fracture osteosynthesis is recommended as a mastery learning pass/fail standard.

7DD5 NOT PRESENTED

7DD6 (1490)
improving basic surgical skill with suture practice assignment at home for medical students

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Presenter: Nicko Rachmanio, Universitas Muhammadiyah Yogyakarta, Indonesia

Background: The limited time to practice during practicum becomes a problem for students to have good basic surgical skills. Home assignment of making some types of sutures such as simple interrupted sutures, continuous sutures, horizontal mattress sutures and vertical mattress sutures is expected to be a solution.
Method: A cross sectional descriptive analytic study was carried out on total sample of 20 students that divided into two groups. Group A, group of 10 students were given four kinds of sutures (simple interrupted sutures, continuous sutures, horizontal mattress sutures and vertical mattress sutures) tutorial and they were given assignment to do the four kinds of sutures at home every day and collected in the next day for seven days. Group B, group of 10 other students that were only given four kinds of sutures tutorial and opportunities to try independently during the practicum and allowed if they want to practice any of the time in the practicum room. After one week, an assessment was done based on the time it takes for each student to do four types of sutures
Results: Data analyzed with independent T-test. There were significant differences between two groups (sig.(2tailed) 0,00 < 0,05). The average time from group A to make the four types of sutures is 283 seconds while group B obtained the average time making the four types of sutures is 374 seconds.
Conclusion: From the evaluation result it was found that there was significant time difference between group A that were given assignment with group B that were not given assignment to practice at home. The method of assignment is still effective in the world of education, a significant result indicates that individual awareness only is not optimal enough if it is not accompanied by other factors.
Take-home message: Home assignment is effective to improve learning outcome especially for limited time practicum conditions

7DD7 (1495)
Cricothyroidectomy 3D Simulation Model

Authors

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Chow Wai Tung
Raymond Ngo

Presenter: Feifan Wang, National University Hospital, Singapore

Background: Cricothyroidectomy is an emergency life-saving surgical procedure performed on the airway. Cricothyroidectomy training is crucial to ensure the competency of our doctors. This entails thorough knowledge of the procedure, steps, airway anatomy, and ability to detect subtle surface anatomy to perform the procedure with confidence.
Current available model in cricothyroidectomy simulation teaching is not anatomically accurate, and is unable to replicate real life tactile sensation. We hope to improve this with our model.
Method: We utilized an amalgamation of 3D printing resources and produced a prototype model of the laryngeal framework to replicate the surgical field over the neck. The skin substitute made from an admixture of silicon materials bears close resemblance to skin thickness and feel, allowing for accurate tactile simulation. Performing the cricothyroidectomy procedure on the prototype model closely replicates the actual surgical procedure. With the prototype, we conducted training sessions for our junior medical officers. We evaluated their confidence in performing the procedure with a survey with both qualitative and quantitative elements before and after the training session.
Results: Our simulation model is anatomically accurate and silicon replica as skin substitute accords reasonable real-life simulation. Confidence scores of seven participants improved after the training session over all domains (Understanding of airway anatomy, Ability to surface mark, Procedural Steps, Performing the procedure). After the training session, all participants were assessed to be competent by a senior ENT surgeon. A significant residual concerns participants have is the challenge of performing the procedure under time constraints, with anatomical or positional variation in real life scenarios.
Conclusion: An anatomically accurate 3D simulation model for cricothyroidectomy is an advancement in the training of this critical procedure. Trainees were competent after the training session. They are also more confident in performing the procedure.

7DD8 (1968)

Interprofessional team-based in situ simulation in the intensive care unit

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Presenter: Hsu-Kai Huang, NDMC, TSGH, Taipei, Taiwan

Background: Most teaching hospital provide off-site simulation, but within the hospital in-house training center in Taiwan. Interprofessional teamwork training can reduces clinical errors. We design interprofessional, team-based in situ simulation courses for patient safety. The course focused on critical thinking, problem solving, effective communication and collaboration.
Method: The in situ, announced simulation course was held monthly in the intensive care unit. The participants were chosen from nurse, nurse practitioners, respiratory therapy or residents based on clinical scenario. To evaluate the teamwork and management critical patients after course, the database of reporting system of patient safety was applied.
Results: Participants were satisfied to join the simulation course and had feedback with benefit to their clinical work, especially in communication. The quarterly database of reporting system showed no improvement of patient safety. The published studies indicated in situ simulation may be more effective than other types of simulation model in medical education. In situ simulation provides participants realistic condition and environment for achieving the learning objectives. Our finding showed the interprofessional team-based in situ, announced simulation course can help participants to have effective communication. To improve patient safety in the intensive care unit maybe need continuous and more authentic learning course.
Conclusion: Designing interprofessional, team-based simulation course was challenging, and we think the in situ, announced simulation course can provide learner to get more real experience for patient safety in the teaching hospital.

7DD9 (2243)

Using a 360° video based Virtual Reality environment of a kidney transplantation and donation procedure in different phases of the medical curriculum

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Presenter: Arianne Pieterse, Leiden University Medical Center, Leiden, Netherlands

Background: 360° degree Virtual Reality (VR) is a digital technology where learners using VR equipment are able to "look around" in an artificial world. The VR experience gives medical students the opportunity to be involved in activating experiences and to be engaged in actual clinical situations before entering these in real life. To our knowledge this technology has not yet been applied in teaching medical students on the topic of renal transplantation procedures.
Method: Two 360° videos of an actual kidney donation and transplantation procedure were recorded at the Leiden University Medical Center. Both the 360° view of the operating room and the direct surgical view were incorporated in the VR environment. The 360° video was shown to fourth year medical students and surgical residents equipped with 3D glasses. During and after watching the video, the students took additional assignments focusing on observed behavioral skills in the operation room and the student's knowledge regarding different tasks of the operating team and procedure.
Results: The medical students experienced the 360° video realistic and stated unanimously that they had a better idea of what actual participation in operative procedures would be like, and which role every professional has. This preparation was found to be superior to immediate exposure during internships. Students indicated VR is an inspiring addition to traditional course materials, and helps them to feel better prepared for complex and dynamic environments such as the operating room. Surgical residents indicated that the environment would be helpful in preparing for assisting in the operation room. Introducing VR in the medical curriculum provides students and residents with more adequate preparation for live situations in the operating room. When clear learning goals and focussed learning assignments are provided, the same VR environment can be used for teaching different target audiences, ranging from medical students to experienced doctors.
Conclusion: Virtual Reality can be used in different phases of the medical curriculum to teach both behavioral skills and content knowledge.

7DD10 (2779)
"Masterchef" – a Simulation Component in Surgical Residency Selection

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Presenter: Saleem Ahmed, Tan Tock Seng Hospital, Singapore

Background: Background: In 2015 we re-designed our surgical residency program selection after an internal review and literature search. It now has 3 components: (i) semi-structured interview, (ii) manual dexterity test and (iii) a novel non-clinical simulation (i.e. baking) exercise to assess non-operative technical skills, during which NOTSS (Non-Operative Technical Skills for Surgeons) is used to grade the candidates.
Method: : We conducted a faculty development workshop that immerses participants in the candidates' task (whisking) and the assessor's work with the aim to challenge them to rethink their selection process. Participants were randomly grouped into teams, given a set of instructions, ingredients and equipment to whisk egg white into stiff peaks i.e. the candidates' tasks. They then wore the assessor's hat by watching videos of teams of candidates completing a baking task during an actual selection and graded them using NOTSS (score 1-4).
Results: 18 faculty members (grouped into 4 teams) attended the workshop of which 14 were experienced interviewers involved in candidate selection. 17 of 18 participants rated the overall effectiveness of the simulation exercise at 7.67 (6.66-8.68, max 9). Learning points fall into 3 categories: (1) attention to design of selection process and choice of tools, (2) desirable assessor attributes and burden of work during selection, especially when using NOTSS to assess "soft" skills, and (3) consideration to review selection tools that they are currently using.
Non-surgical technical skills are notoriously difficult to assess. Designing and implementing a reliable and feasible simulation exercise to assess such skills is a challenge. Replicating this simulation exercise in a faculty development workshop doubles the challenge but is critical in providing the immersive and fun element for participants to experience the candidates' perspective. NOTSS while widely used adds substantial burden to assessors when a team of 3-4 candidates are being observed simultaneously.
Conclusion: A non-clinical simulation component in residency selection promises to assess non-surgical technical skills. Replicating this simulation exercise in a faculty development workshop allows participants to gain insight and have fun. Any tool that assesses non-surgical technical skills, which are inherently complex, should not overburden the assessors.

7DD11 (2825)
Early simulated surgical practice improves learning effectiveness and attitude in clerkship

Authors
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TsungYing Chen
Jen-Hung Yang

Presenter: Guan Jin Ho, Tzu Chi General Hospital, Hualien, Taiwan

Background: Clerks under the new academic system are facing the challenge of shortened training time from 7 years to 6 years by Taiwan's medical education system. The Tzuchi "Basic skill learning programs on cadavers" for the 7th-year internship are changed to the 5th-year clerkship who has no clinical experience before and there are two-years of overlapping periods for this two different systems. This study will clarify if the goal of building the self-confidence and adaptation in the clinical environment have the same effectiveness in the new system.
Research Method and Structure: Quantitative
Method: Due to medical education system reform, there were two group clerks six-year (no clinic experience) and seven-year (two years of clinic experience) were tested. After standardizing the teaching of simulated surgeries, the survey was conducted using the questionnaire on "Effectiveness of Clerks in Learning Clinical Skills. Questionnaire". Descriptive statistics are presented in times, percentage, average, and standard deviation. The results of questionnaire analysis are compared by independent sample T test, with $p < 0.05$ being a significant difference.
Results: A total of 58 questionnaires, 36 from 5th-year clerks (male 22, female 14) and 22 from 7th-year clerks (male 11, female 10), were collected from September 2017 to January 2018. The results show the benefits for clerkship on familiarizing with the clinical settings and procedures and elevating self-confidence. In surgical skills, lack of previous clinical experience is the weak point on strengthening their spatial sense, confidence of clinical practice, and understanding the surgical impacts on patients. The clerks with no clinical experience focus more on basic skills, procedures, and are more dependent on teacher's teaching. By operating on the cadavers, the clerks can establish a physician's identity sooner and a more positive learning attitude.
Conclusion: As far as experiential learning, the clerks' early participation in simulated surgery courses may promote their confidence and positive attitudes in the workplace, and the clinical experience has vital impact in the training course. Based on this study, learner-centered training programs will be the principle in the future.

7DD12 (3495)
Laparoscopic Surgery: Based in Illumination Training System (Bits) Face, Content and Construct Validity

Authors
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Genesis Jara

Presenter: Omaira Rodriguez, Universidad Central de Venezuela, Caracas, Venezuela

Background: The purpose of this work is to present and validate BITS (Based in Illumination Training System), an inanimate, low-cost and low-technology model, as a tool for laparoscopic surgery training. To determine the usefulness of this system was used face, content and construct validities

Method: We evaluated 16 participants divided into two working groups, experts and novice surgeons. Both groups made three BITS exercises and results were compared based on time, number of errors, and object drop while performing tasks. Participants completed a post-study questionnaire to evaluate face and content validity.

Results: The expert surgeons group made the three exercises faster, making fewer errors, and with less object drops than the novice surgeon group, showing significant statistical differences between the two groups. Expert participants found the model acceptable and rated the model favorably in terms of content and face validity.

Conclusion: The model described proved to be able to differentiate between novices and experts surgeons, and the experts surgeons rated the model favorably in terms of content and face validity, which validates this as an useful tool for laparoscopic surgery training.

Take-home message: BITS is a validated model for laparoscopic surgery training.

7DD13 NOT PRESENTED

7DD14 NOT PRESENTED

7DD15 NOT PRESENTED

7EE: Posters: Use of Technology and Specialist Training

Location: Hall 4.1, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

7EE1 (2272)
Medical Residency in Psychiatry from the students' and teachers' point of view: assessing the Medical Residency in Psychiatry of the University of the State of Rio de Janeiro/Brazil

Authors
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Presenter: Silvana Ferreira, UERJ, Rio de Janeiro, Brazil

Background: Due to the challenges inherent to psychiatric clinical practice, much has been discussed about technical knowledge and competencies that should be achieved by students during their medical education as mental health specialists. In Brazil, National Medical Residency Committee provides guidelines to Medical Residency in Psychiatry programs concerning its theoretical contents and practical learning scenarios. However, when it concerns the desirable skills that should be achieved by the graduates, guidelines are more generic and amenable to different interpretations.
Method: The aim of this work was to assess professional training provided by the Medical Residency program in Psychiatry of the University of the Estate of Rio de Janeiro (MRP/UERJ). A semi-structured questionnaire was applied online to investigate the impressions of students (n=25) and teachers (n=9) regarding the strengths and weaknesses of MRP/UERJ, especially on their perceptions about the learning process in the three axes mentioned above : (1) theoretical content, (2) learning scenarios and (3) acquisition of personal skills necessary for future clinical practice.
This study is currently in progress and results are expected by the end of april/2018.
If, on the one hand, students generally are prone to value the relationship established between them and their teachers as a fundamental pillar in their professionalization process and acquisition of professional identity, on the other hand, faculties in the academic settings tend to cherish the acquisition of theoretical/technical knowledge to the detriment of the development of personal skills needed to a qualified psychiatric clinical practice.
Conclusion: Assessing teachers' and students' perceptions about learning processes can be an important tool to provide feedback to medical residency programs on curriculum changes and to highlight the importance of the teacher as a skill model to follow suit in professional practice.
Teachers' role involves the development of personal skills such as a reflective attitude towards vocation and the professional mission.
"I wish I had more time and learned more of how much you have to teach because you are an incredible teacher and a very inspiring psychiatrist".

7EE2 (372)
Action Research to Faciltate the Learning of Case Formulation in a Psychiatry Residency Program

Authors
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Lay Ling Tan

Presenter: David Choon Liang Teo, Changi General Hospital, Singapore

Background: Case formulation (CF) is the process by which a psychiatrist understands a patient's presenting problems holistically and thereby plans specific, individualized treatment interventions. Faculty at Changi General Hospital observed residents having difficulty learning and demonstrating competency in this clinical skill. To improve training in CF, we used action research to understand this educational problem from both faculty's and residents' perspectives, and to collaboratively generate ideas to facilitate the teaching and learning of this skill.
Method: We adopted the action research methodology to improve residents' learning of CF. Faculty and residents were surveyed to understand their pre-existing perspectives on what constitutes CF, its importance, how it is presently taught, and how it can be taught better (reflect). We facilitated a video-recorded focus group including faculty and residents to collaboratively understand the problem and brainstorm on how to improve the teaching of CF (plan). Results of the survey were subsequently presented to highlight differences in perspectives. A consensus was obtained on how CF should be taught and practiced in day-to-day work and supervision (act). Thereafter, residents fed back that they better understood what CF is. Faculty observed improvements in residents' case formulations (observe). Future reflect-plan-act-observe cycles have been planned to further improve the training.
Results: Both faculty and residents agreed on the importance of CF. However, there were differing views about what constitutes CF, how and in what settings CF is learned. Both groups agreed that supervision is an ideal setting to learn the skill. Faculty favoured formal learning modalities like case write-ups and presentations, while residents preferred a more didactic approach such as lectures and worked examples.
Conclusion: Action research is a flexible circular process that allows understanding and change to be achieved concurrently in addressing educational problems. As the action for change was developed by the participants, there was a greater sense of ownership and better adoption of the strategies.
Take-home message: Through action research, assumptions can be made explicit. Facilitating a shared understanding of learning objectives and opportunities through this process can improve educational outcomes.

7EE3 (957)
Usefulness and Extent of Utilization of Balint Groups in Postgraduate Psychiatry Training in India

Authors
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Presenter: Jonas Sundarakumar, Spandana Institute of Psychiatry, Bangalore, India

Background: Postgraduate Psychiatry training programs in India mostly adopt conventional training methods, involving didactic teaching and clinical demonstration, that largely focus on imparting subject knowledge and clinical skills. Very few institutions in India have dedicated training methods for imparting non-clinical professional skills or promoting reflective learning. Balint groups were originally started among General Practitioners in the U.K. for this purpose.

Method: In-depth interviews were conducted with 15 current or recent Postgraduate Psychiatry trainees, who had participated in the weekly Balint groups at Spandana Institute of Psychiatry, Bangalore, India. In addition, 2 senior faculty, who were the Balint group leaders, were also interviewed. The first-hand experiences of the trainees and group leaders were recorded, to understand the usefulness of these groups to the trainees. Also, the curricula and training methods for Postgraduate Psychiatry courses, conducted by various teaching institutions across India were reviewed, to understand the extent of utilization of Balint groups in Postgraduate Psychiatry training in India.

Results: The trainees expressed that their participation in Balint groups was an enriching experience in several ways. Entry-level trainees found the groups useful to develop interviewing skills, empathy and to facilitate better rapport with their patients. All trainees felt that the groups offered a conductive environment to share and introspect about their difficult clinical interactions, to learn from the experiences of their peers, as well as to gain a deeper understanding about the emotional experiences of both their patients and themselves. Most trainees felt that time was a constraint, owing to their hectic schedules and rotational postings. Both the trainees and group leaders strongly recommended Balint groups as a routine part of Postgraduate Psychiatry training in India. However, it was found that throughout the country, Balint groups were extremely uncommon, grossly underutilized and not routinely prescribed as a part of Postgraduate Psychiatry training in India.

Conclusion: Balint groups can be an effective and feasible way of improving non-clinical professional skills, improving the doctor-patient relationship and offering a support network for trainees.

Take-home message: Postgraduate Psychiatry training programs in India should incorporate Balint groups as a regular part of training.

7EE4 (430)
Psychiatry Boot Camp: A successful application of 4 weeks' intensive training for doctors new to mental health in Europe

Authors
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Presenter: David Rigby, North East London NHS Foundation Trust, London, UK

Background: The UK is currently experiencing a crisis in recruitment into psychiatry. Therefore our department needs to be more inclusive in their employment strategies to fill vacancies. The department took 3 doctors with no prior experience of psychiatry in the Europe. To ensure patient safety the recruits were inducted into a 4 week psychiatry 'boot camp.'

Method: Each recruit was allocated an educational supervisor and was attached to a clinical post for the 4 weeks. They also received 4 full days of teaching covering the basics of the profession with an emphasis on using simulated patients of common presentations in psychiatry. To ascertain the effectiveness of the boot camp the recruits were surveyed as to their level of confidence in various clinical skills using a Likert scale before and after the course. In addition they were set a 24 point MCQ using a matrix based on Romiszowski's (1981) analysis to ensure a breadth and depth in curriculum coverage. The pass mark was determined using a panel of experts applying the Angoff (1971) method.

Results: The recruits overall reported a significant increase in their confidence in basic clinical skills. They reported on average a confidence level of 5.5/10 in performing a psychiatric history before the course, this increased to 8/10 at the end. They reported an increase in feeling ready for on calls from 3/10 to 5/10. The MCQ pass mark was determined at 53%. All 3 recruits failed the exam at the start of the course scoring 29%, 46% and 50%. 2 out of 3 recruits passed at the end of the course scoring 58% and 54%, the third recruit could not attend the exam.

Conclusion: Our organisation was able to provide effective and focussed teaching to doctors with no previous experience in UK psychiatry as evidenced by improvement in MCQ score and confidence levels.

Take-home message: Think outside the box when dealing with recruitment shortfalls in your speciality but ensure you can evidence improvement in clinical skills and patient safety.

7EE5 (399)

How psychiatry residents perceive the clinical teaching effectiveness under direct observation versus without direct observation

Authors
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Background: Residents in the National Psychiatry Program rotate to various sites for their one-year ambulatory training. Supervision of their training may be direct observation (DO) of clinical cases, without direct supervision (WDO) or a mixture of both (M). This study explores the residents' perceptions of teaching effectiveness under the different supervision framework with an aim to standardize their supervision at the different teaching sites.

Method: A survey was conducted amongst the residents at the end of their third year ambulatory training. Data was collected over three years (2014-2016) to establish a sample of 41 residents over 7 teaching sites. The Cleveland Clinical Teaching Effectiveness Instrument (CCTEI) was used to capture the residents' perception of the various domains of clinical teaching effectiveness.

Results: Fewer residents received DO (15/41; 36.6%) and M (7/41; 16.7%) compared with WDO (19/41; 46.3%). There was no statistical difference in the various domains of CCTEI scores of the 3 supervision formats. However, when asked for their preference, 20/41 opted for DO (increase of 36.6%) and 11/41 for M (increase of 57%). WDO was least preferred (10/41; decrease of 47.7%). The significant CCTEI domains for preferred M were (Q8) asking questions that promote learning (p=0.001) and (Q5) offering regular feedback (p=0.002). Surprisingly, Q2 (stimulates me to learn independently) and Q3 (allows me autonomy) were found to be insignificant.

Previous studies found DO anxiety-provoking with concerns of compromised autonomous learning. This study did not uncover similar concerns but highlighted the effectiveness of timely questions and regular feedback in clinical teaching with mixed method supervision.

Conclusion: Although DO is most preferred and is crucial in the initial months of training, it will not be sustainable with an increasing pool of residents. There is a need to standardize the ambulatory training supervision across teaching sites. Adoption of M supervision framework may be most feasible. However, further studies are needed to determine when residents can practice independently within this framework.

Take-home message: There should be flexibility in the supervisory framework for residents to function more independently when they are deemed to be competent and safe.

7EE6 (1567)

Applying Artificial Intelligence to enhance healthcare decision making reliability in a postgraduate course at a Brazilian Health Sciences University

Authors
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Presenter: Melissa Santos Fortes, Universidade Federal de Ciências da Saúde de Porto Alegre, Brazil

Background: Expert Systems are an Artificial Intelligence (AI) application that consist of a knowledge base of well-established facts and rules (SPIRLANDELLI, 2011; XAVIER, 2009). They are supplied with evidence based knowledge of some experts to provide other expert users with reliable and fast solutions to problems (SPIRLANDELLI, 2011). Some have been successfully used in health for diagnostic support and prevention (PROCHASKA, 2005; KHOSRAVI, 2015).

Method: A descriptive report of the educational experience in a healthcare postgraduate course of using the Expert SINTA Software to develop Expert Systems that support healthcare professionals in decision making in two healthcare scenarios. More specifically, we discuss the development by a medical postgraduate student of an Expert System to assist cardiology teams in the selection of the most appropriate transcatheter aortic valve prosthesis for aortic stenosis patients. We also detail another Expert System by a nutrition postgraduate student that aids in the diagnosis of adiposity pattern in adults.

Results: Our results show that the use of Expert SINTA Software in a healthcare postgraduate course can enhance decision making by specialists in Cardiology, Nutrition, Neurology, Anesthesiology, Physical Therapy, among others.

The introduction of Expert Systems in healthcare education provides for problem-based learning contexts. The students realize how complex their knowledge is when faced with the task of making factual and/or tacit specialized knowledge explicit to enable a machine to aid health professionals to make more reliable and fast decisions in everyday practice.

Conclusion: The development of Expert Systems in our postgraduate course demonstrates that Artificial Intelligence can be applied by non-experts in computing not only to aid but also to increase reliability in decision making in several healthcare contexts.

Take-home message: Artificial Intelligence should be part of healthcare postgraduate education as it provides for problem-based learning contexts in which students can transfer their specialized knowledge and reasoning into machines to help other health professionals in decision making in their practice.

7EE7 (3434)
Effect of Simulation-based Training in Diagnostic Abdominal Ultrasound: A Randomized Trial

Authors
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Presenter: Mia Louise Østergaard, Copenhagen Academy for Medical Education and Simulation/Department of Radiology, Copenhagen University Hospital, Copenhagen, Denmark

Background: Ultrasound is a complex skill and ensuring the competency level of the operator is crucial for the outcome of the examination. Simulation-based training may overcome some of the educational challenges in modern medicine and possibly benefit performance levels.
Method: The project is a randomized controlled trial registered on ClincalTrials.gov (Identifier: NCT02921867) and reported using the CONSORT statement[1]. Twenty radiological residents from three regions of Denmark are enrolled before starting clinical ultrasound training.
All participants are randomized in a paired randomization to either control group (no simulation training) or intervention group (simulation training). The intervention group will attend a simulation-based mastery learning program, with nine modules correlating to the European level 1 ultrasound examiner, before starting clinical training[2].
All participants will score all ultrasound scans in the first six weeks of training using a standardized assessment sheet (OSAUS) for ultrasound skills with solid validity evidence[3].
Results: Eighteen out 20 participants have completed the study at submission deadline and data collection will end by 1st of March 2018. Final results will be ready no later than June 2018.
Conclusion: This project will contribute new knowledge on the effect of competency-based simulation-based training in diagnostic abdominal ultrasound and potentially providing a standardized simulation-based educational program suitable for mastery learning.
Take-home message: New knowledge of the effect of simulation-based training in diagnostic abdominal ultrasound; based on a multicenter, randomized controlled trial design.
Ref.:
[1]*Consort Statement. Available at: http://www.consort-statement.org/citered 6. May 2016.*
[2]*European Society of Radiology. Guidelines & Recommendations Appendix 5 EFSUMB. Available at: http://www.efsumb.org/guidelines/guidelines01.asp cited 10. November 2015.*
[3]*Todsen T et al. Reliable and Valid Assessment of Point-of-care Ultrasonography. Ann Surg.: Februar 2015;261:309–315.*

7EE8 (358)
SMART Learning for the Millennial Physician

Authors
Amulya A Nageswara Rao
Deepti Warad

Presenter: Amulya Nageswara Rao, Mayo Clinic, Rochester, USA

Background: The ultimate goal of medical education is the transformation of a learner into a competent physician who upholds the highest standards of professionalism. Providing quality care requires knowledge acquisition, clinical and communication skills development, self-awareness and self-directed learning that adapts itself to the ever-changing landscape of medicine. Medical training should be personalized and should incorporate adult learning methodology while keeping up with the digital age and current generational demands.
Method: In our pediatric hematology/oncology fellowship training program, we introduced an experiential and transformative learning process. Our curriculum follows the required elements of experiential learning:
- active learning (concrete experiences) using case simulations with standardized patients for breaking bad news and cross-cultural communication training,
- reflective observation using case-based education and chemotherapy competency training sessions creating an opportunity for practice with clinically relevant situations,
- abstract conceptualization through core lectures, article of the week sessions (an article is reviewed every week followed by board exam style quizzes), online quizzes and state of the art lectures by peers, faculty and renowned experts via web-based portals/video sessions, and
- active experimentation wherein the learner, through cycles of experience, reflection and knowledge acquisition, is able to add value to daily clinical and learning experiences.

Trainees also attend a teaching skills workshop and professionalism sessions covering issues such as challenging patients, death and dying, and stress and burnout.
Results: Trainee evaluations have been very positive. Initiatives such as the case-based education sessions, cross-cultural communication and chemotherapy competency training workshops are among the most highly rated within our fellowship program. These initiatives seem to also positively impact the subspecialty in-training exams.
Conclusion: A SMART learning process which allows the trainees to Seek their edge (to self-identify what they know versus areas of deficiency), be a Master educator (reinforce their learning through teaching peers and faculty), Acquire knowledge (through active and passive learning), and Reflect (by observing, analyzing and feedback) helps with the Transformation of the learner into a master clinician.
Take-home message: Training programs should incorporate an individualized SMART learning process which follows best practices of adult learning.

7EE9 (497)
Use of three-dimensional (3D) printed models to enhance hands-on experience among residents attending basic and advanced colposcopy course

Authors
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Swee Chong Quek, KKH, Singapore
Timothy Yong Kuei Lim, KKH, Singapore
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Presenter: Muhammad Fairuz Abdul Rahman, KK Women's and Children's Hospital (KKH), Singapore

Background: Three-dimensional (3D) printing has allowed the rapid production of models which simulate human anatomy. In order to simulate colposcopy, we used 3D printed models to facilitate learning during our colposcopy course. It is unethical and impracticle to allow real-life patients to be examined by residents repeatedly during a colposcopy course. The purpose of this study was to evaluate the use of 3D printed models to enhance the hands-on experience among residents attending basic and advanced colposcopy course.
Method: A 3D printed model of a vaginal canal was used throughout five consecutive basic and advanced colposcopy courses conducted at KK Women's and Children's Hospital (KKH), Singapore, in 2016 and 2017. This plastic model consisted of a base, a stand, a flat backing and a hollow tube. Assembly of the model and attachment to smoke evacuator was quick and easy. In our centre, we used the ox tongue for its similarity in appearance and texture to a human cervix. The courses comprised of lectures and practical sessions. Residents attending the courses were given a pre- and post-course quiz and used the model throughout the practical component of the course.
Results: A total of 89 participants comprising predominantly junior and senior residents were involved in the five colposcopy courses conducted in 2016 and 2017. Facilitators comprised of consultants from the Department of Gynaecological Oncology, KKH. Feedback of the 3D printed model was highly positive, with residents and facilitators commenting on its ease of use, durability and reliability. Its quick assembly also meant a short turnover time between participants.
Conclusion: Colposcopy in clinical practice takes a substantial amount of knowledge, skills and experience in order to achieve competency. Use of simulation training with the 3D printed models allowed the residents to develop, refine, and apply the clinical knowledge without compromising patient safety. Its lightness, durability and ease of assembly could potentially make the 3D printed model a useful instrument for conducting courses anywhere around the world. There is probably more that 3D printed models can offer in enhancing the learning of residents in the future.

7EE10 (1645)
Workshop for difficult patient management containing of Significant Event Analysis and video-based discussion

Authors
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Presenter: Shoichi Ito, Chiba University, Chiba, Japan

Background: We frequently experience difficult patient (DP) encounter, and have to manage such encounter appropriately for providing patient-centered care quality. To provide learning opportunities for DP management, we created e-learning videos showing DP encounter and developed workshop for improving DP management. Here, we report effectiveness of the workshop and the factors influencing its effect.
Method: Thirty second-year residents in our hospital participated in the workshop for DP management. Before workshop, their empathy was assessed by Jefferson's scale of Physician empathy, and their expectations for DP management as fellows after residency were also assessed. The workshop contained of two parts; Part 1: Significant Event Analysis (SEA) for participants' experiences of DP encounter, Part 2: video-based small group discussion for improving DP management. They completed self-assessment questionnaires regarding DP management.
Results: The workshop improved residents' confidence and learning motivation for managing DP. Almost all participants reported that they could acquire new knowledge. Positive correlation is observed between the participant's empathy and learning effect throughout the workshop. The expectations for DP management in fellowship program positively influenced improvement of leaning motivation.
Conclusion: The workshop including SEA and video-based discussion could develop participants' knowledge, confidence, and learning motivation for managing DP. SEA can be useful for improving patient-centered DP management and deep learning for professionalism of residents. Video-based discussion can be useful for improve learning motivation. Empathy in patient-centered care quality and expectations for DP management in the future are considered necessary for better DP management.
Take-home message: We can improve resident's knowledge and attitudes for DP management effectively by the workshop including SEA and video-based discussion. Empathy is important for better DP management.

7EE11 (1116)

The Clinical Situation Teaching Program to Promote Nurses Effectiveness for Coping with Workplace Violence

Authors

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Presenter: Jin-Lain Ming, Taipei Veterans General Hospital, Taipei, Taiwan

Background: Workplace violence is a global and severe problems in healthcare theatre. Prevention focused situational education is a good strategy to reduce the risk of violence.

Method: The aim of this study was determining the perception, attitudes and confidence in dealing workplace violence following a situational educational intervention. Using a experimental design, four hundred nurses were enrolled and assigned into two groups. 392 of them completed program of the workplace violence prevention in the study. Data were analyzed by Generalized Estimating Equation.

Results: The results indicated that the situational education group's participants had improve considerably in their perception, attitudes and confidence in dealing workplace violence at post-test (p < .001). Meanwhile, the participants in the post situational training program showed considerable improvements in their training compared with control group. We concluded that using workplace violence prevention training can increase the Workplace violence awareness, established the correct attitude forfacing Workplace violence.

Conclusion: We recommended that situational teaching education of workplace violence prevention may be used as a standard training program for nurse staff. Implications for different department of healthcare setting practice and future studies were also suggested.

7EE12 (334)

Improving the communication skills and ability of searching medical literature of postgraduate doctors by a standardized patient and a simulation scenario

Authors

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Ching-Chung Lin, MacKay Memorial Hospital, Taipei, Taiwan

Presenter: Chiu-Ping Kuo, MacKay Memorial Hospital, Taipei, Taiwan

Background: Doctors need lifelong learning. Postgraduate residents often face requests from the patients and family members for the evidence of medical advices. We designed a simulation scenario for postgraduate residents to practice the skills of EBM (evidence-based medicine). In the end of the test, immediate feedback is made from the examiner and the standardized patient.

Method: The topic of the simulation scenario is "Explain the benefit of therapeutic intervention to a standardized patient by medical evidence-the benefit of thoracoscopic surgery in a recurrent primary spontaneous pneumothorax". The examinees should realize the questions of the standardized patient and search the medical literature immediately on the internet. Then, explain the evidence and answer the questions. The Exam time is 15 minutes, and the time for instant feedback is 5 minutes (both examiner and standardized patient).

Results: We collected the data of test results during 2013-4-13~2016-6-18, and there are 247 examinees totally. Test results were analyzed by SPSS（Statistical Product and Service Solutions）software. The average score of the first year (2013, 3.50) is lower than the subsequent years (3.99, 3.86, 3.76). Communication is better than EBM skill from examiners' view (3.87±0.57 vs. 3.69±0.64); on the contrary, the standardized patients gave better scores on EBM skill than communication (3.78±0.80 vs. 4.03±0.94).

We had never used OSCE to test EBM skills till 2013. The lowest score at the first year (2013) may be due to the examinees were unfamiliar with such form of test. The reasons that the examiners and standardized patients scores oppositely on communication and EBM skills may be that they have different backgrounds and expectations.

Conclusion: We believe that regular test EBM skills of postgraduate residents can promote their performance. Instant feedback from the examiners and standardized patients can enhance the learning effects and offers complementarity.

Take-home message: EBM is the essential capability of postgraduate doctors. Training and evaluating EBM skills by a simulation scenario is feasible. Instant feedback from examiners and standardized patients offers complementarity.

7EE13 (574)
Long-term learning of junior doctors following high-fidelity simulation

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Presenter: Thomas O'Dell, Imperial School of Anaesthesia, London, UK

Background: Simulation based medical education (SBME) is an effective method of learning[1]. It provides safe rehearsal in a controlled and immersive environment while teaching both clinical and non-technical skills. However, beyond the demonstration of practical skills[2], little is known about the more complex long-term learning of candidates.

Method: Our study investigates junior doctors learning from SBME after one year. 165 Foundation Year 2 doctors were recruited over four academic years to complete a free-text questionnaire regarding their Foundation Year 1 medical emergency high-fidelity simulation training from multiple centres. Two researchers independently performed thematic analysis of the comments, combining results by common themes.

Results: 95.5% of responses demonstrated lasting learning and clear themes were highlighted consistently across year groups:
• A structured approach to the sick patient – 24.7%
• Escalation to senior colleagues – 15.6%
• Management of specific emergencies – 6.6%
• Importance of reassessment after intervention – 6.1%
Further points included: communication amongst team members (5.5%), the importance of staying calm (4.6%) and using clear or SBAR handovers (4.5%). 4.5% gave no response.
Most doctors recalled learning one year after SBME with popular learning topics echoing desired learning outcomes. Many doctors recalled a systematic ABCDE assessment encompassing new knowledge, behaviours and thought processes. These are generic and transferrable skills for clinicians, which cannot easily be taught outside of the simulation suite. Other learning points like 'communication', 'escalation' or 'teamwork' include an element of perceived behavioural change. It is recognised that these learning outcomes are self-reported rather than assessed, however they cover some important educational goals.
A minority of doctors reported no learning at one-year, this would need further exploration.

Conclusion: High-fidelity simulation may offer long-term learning in key clinical skills through acquisition of knowledge alongside perceived change in behaviour, attitudes and beliefs.

[1]*Ziv, A. et al., 2003. Simulation-based medical education: An ethical imperative. Academic Medicine, 78(8), pp.783–788.*

[2]*Boet, S. et al., 2011. Complex procedural skills are retained for a minimum of 1 yr after a single high-fidelity simulation training session. British Journal of Anaesthesia, 107(4), pp.533–539.*

7EE14 (3623)
'Tech Savvy Teachers': Leading Engagement in Post Graduate Medical Education with a technology enhanced approach

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Presenter: Craig Knott, UK

Background: Within a large teaching hospital, it can be a challenge to signpost the appropriate learning opportunities, to the correct audience, in a timely manner. After feedback from staff about lack of awareness of teaching, especially inter-departmental opportunities, a need for clear communication was highlighted as a priority. The Post Graduate Medical Education (PGME) team at Great Ormond Street Hospital (GOSH) previously used traditional flyers and emails to advertise. We wanted to try a novel approach, bringing together teaching opportunities from across the Trust.

Method: The PGME team were trained in use of a new platform (Guidebook) to create an app specifically for GOSH education. Within the app a teaching calendar of events was created with details of how to book, venue, timings, main audience and option to provide feedback. The platform also allows sharing of relevant external and internal websites and trust projects. The app has been included in induction programmes to improve new starter engagement. At the same time, the use of PageTiger for creating a weekly newsletter pulling together teaching opportunities was also trialled. We continued to advertise using traditional methods.

Results: Our app has been downloaded 542 times, with 5921 guide sessions, since launching in November 2016, peaks are seen with each staff induction. We average 66 views of the newsletter per week, and rising. We have identified formal teaching programmes from across 5 departments which have been opened up to others within the Trust. The number of underfilled sessions has reduced. There have been challenges raising awareness of the app to all staff groups. Existing staff groups remain a particular challenge to reach. The content of the app now includes a 'PRAISE tool', to allow positive feedback for colleagues.

Conclusion: Over the coming months we will continue a quality improvement approach to developing the app's ability to provide immediate feedback to educators. Email alone is not enough for engagement.

Take-home message: Apps may not meet the needs of all staff, but having a centralised location for all teaching allows for more coordination and reduces waste of educational resources.

7EE15 (2926)
If you build it they will come and stay: Implementing a new Family Medicine Residency Program (FMRP) in an under-served community

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Presenter: Stuart Murdoch, University of Toronto, Canada

Background: In response to a government request to recruit and retain physicians in under-served communities, an FMRP was established 100km north of the University of Toronto at the Royal Victoria Regional Health Centre (RVH). This study investigated the correlation between postgraduate medical training and future practice locations, and the strengths, unique features and opportunities for improvement of this new under-served community FMRP.

Method: RVH graduates from 2010-2015 (40) were invited to participate. The current practice location of participants was determined using records from a government funded data centre and the public registry of the provincial licensing body. Semi-structured 1:1 interviews were conducted to gain insight into graduates' experience in the program. Interviews were recorded, transcribed and coded; thematic analysis and a constant comparative method were used, including anticipated and emergent findings and searches for disconfirming evidence. Purposive sampling was employed for thematic saturation.

Results: Tracking practice patterns of graduates demonstrated that 2/3 of participants continued to work in the RVH region after graduation and 3/4 work in the RVH/northern regions of the province. Of respondents who completed the survey, 93% were either very satisfied/satisfied with their work with only 17% indicating that they would very likely change their job setting in the next five years.

Analysis of qualitative data provided insights into an overwhelmingly positive educational experience with a wide range of learning opportunities. Strengths of the program included hands-on training opportunities and graduates perceived that the program added value to the local community by increasing capacity to provide care to an underserviced patient population.

Conclusion: The successful establishment of a new FMRP in an underserviced community provides a strong mechanism to recruit physicians to these communities. Training in this setting provides excellent educational experiences to residents who feel prepared for independent practice when they graduate.

Take-home messages: Establishment of a postgraduate FMRP has been an important physician recruitment and retention strategy for the RVH community.
The experience of RVH graduates suggest that this new program has much to offer as a model for successful expansion of community-based postgraduate medical residency programs.

7EE16 (1091)
Resident practice-sharing in an academic Family Medicine Teaching Unit: Exploring effects on patient care and the resident educational experience

Authors
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Presenter: Rachel Peters, Department of Family and Community Medicine, University of Toronto, Canada

Background: Family Medicine residents often manage their own "mini-practices" in Family Medicine Teaching Units (FMTUs), providing a limited number of half-days of care each week due to other clinical and educational commitments. This necessarily compromises their patients' access and continuity of care, contributing to a range of negative health and educational outcomes. Practice-sharing, in which paired residents jointly manage a merged practice, was explored as a possible solution to this issue.

Method: This study was conducted at an FMTU at the University of Toronto from September, 2016 through April, 2017. Four residents were recruited to form two practice-sharing pairs, with the remaining 24 residents at the site serving as controls. Data was retrospectively collected from the clinic's electronic medical record and the effects of practice-sharing on continuity of care metrics were analyzed using a multivariate difference-in-differences logit regression. The potential effects of practice-sharing on the subjective educational experiences of residents were interrogated using a focus group format. The main outcome measures were a continuity of care metric (the probability that a patient accessed one of their primary residents) and "no-show" rate, as well as resident focus group responses.

Results: The continuity of care metric increased by 11% (P=0.01), and the no-show rate decreased by 24% (P=0.01), both in the practice-sharing group relative to the non-practice-sharing control group. Practice-sharing residents subjectively perceived increased continuity of care, as well as the potential for improved cross-coverage, collaboration and mentorship with their partners. A small, acceptable increase in workload was noted.

Conclusion: Practice-sharing in an FMTU improved continuity of care for patients and reduced overall "no-show" rates, and resident perceptions of the intervention were almost uniformly positive. More extensive examinations of practice-sharing in educational environments, particularly employing prospective designs, are indicated. Assessment of patient satisfaction with practice-sharing would also be critical prior to widespread implementation of such an initiative.

Take-home message: Practice-sharing offers a potentially powerful, simple way to improve the experiences of both patients and residents in a primary care training environment.

7EE17   WITHDRAWN

7EE18 (1628)
How does general practice compare to hospital rotations? Comparison of the educational experience by junior doctors

Authors
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Presenter: Emily Haesler, ANU Medical School Academic Unit of General Practice, Canberra, Australia

Background: Teaching in general practice/family practice settings is becoming more popular, as the number of junior doctors increases and organisations seek to find appropriate clinical learning experiences for expanding cohorts of interns. In Australia and elsewhere, some medical education programs have incorporated the option for a general practice term into the junior doctor curriculum. However, there is a paucity of literature evaluating the educational effectiveness of a general practice/family medicine term.

Method: We conducted a longitudinal evaluation of a general practice placement compared to hospital rotations in one setting in Canberra, Australia. Junior doctor participants (n=37 total) completed an adapted version of the Postgraduate Hospital Educational Environment Measure (PHEEM) over one year. The PHEEM was completed online at the completion of each of the junior doctor's five clinical rotations. The adapted PHEEM included 20 statements to be ranked on a 5-point Likert scale that evaluated the subscales of: teaching, clinical skills, social support and role autonomy.

Results: Participants who undertook a general practice rotation generally did so by choice (82.4%) and a slight majority of participants (55.9%) were particularly interested in general practice as a career at the time of completing the survey. In all four PHEEM subscales, general practice rotations performed as well as, or better than, hospital rotations in areas such as emergency, medicine, and surgery. A general practice rotation was also considered to be a strong experience by junior doctors who were interested in a career in other specialities (e.g. paediatrics and psychiatry).

Discussion & Conclusion: This study demonstrates the educational value of a general practice placement compared with a hospital rotation. General practice placements expose junior doctors to the generalist skills of community-based medicine, providing strong experience in choosing investigations, diagnostics skills and patient-centred care. The broad range of patients seen in community-based medicine provides experiences relevant to other clinical specialities. Junior doctors found a general practice rotation was superior in promoting autonomy, responsibility and workplace culture.

Take-home message: Incorporating general practice into a junior doctor medical education program provides as strong a learning experience as the hospital setting.

7EE19 (2991)
The tutorial is dead: long live the tutorial

Authors
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Emma Bowley
Rachel Elliott

Presenter: Rachel Elliott

Background: The tutorial is a long established educational activity used in both primary and secondary care. Historically tutorials have been topic based with less consideration given to the setting. We are now educating a new generation of trainee (Generation Y – 'Millennial's and Generation Z – 'Digital Native's') with new technologies available.

Method: General practitioner (GP) supervisors hold a weekly tutorial with their trainee. Data was collected via a questionnaire to ascertain what modalities are used in tutorials, where tutorials take place and the reasons why the structure/place is varied. A workshop, which included a short walk, was subsequently held with multi-specialty medical educationalists, sharing questionnaire data, gaining a wider perspective of the tutorial. Feedback was subsequently shared with the GPs, sharing ideas and validating the varied personalised approach.

Results: GP supervisor questionnaire results (n=21) demonstrated the following modalities are used during a tutorial: YouTube clips (52%), Online eLearning (58%), Shared tutorial (more than one trainee present) (81%), Role-play (81%) and tutorial with "other" practice member(s) (53%). Alternative settings included the trainee in the "consultation" seat ("chair of power") (86%), trainees room (71%), coffee/other room in practice (29%), café / restaurant [ensuring patient confidentiality] (52%), Supervisors home (43%), performed while walking (67%). General themes for changing the structure and venue were to address challenging issues/trainee and for variety. When in the multi-specialty professional workshop (n=32) the GP's present (1/4) had varied their tutorial style and location unlike the hospital doctors. At the end of the session all could see the benefit and felt they could adapt and do something different in the future.

Discussion & Conclusion: Tutorials aim to educate a professional life long learner. There is a drive to create a more personalised approach, looking at the wider picture of training during tutorials, developing 'softer skills', addressing the 'hidden curriculum'.

Take-home message: Alternative tutorial/small group work can help manage challenging issues and provide variety. Adaption of the current format of tutorial is required for new generation of trainee and enables additional learning needs to be addressed both in the primary and secondary care setting.

7EE20 (1307)
Can short term rural practice-based learning program promote clinical and non-clinical skills in CPIRD junior doctors?

Authors
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Presenter: Noppawan Pongsopa, Suratthani Hospital, Suratthani, Thailand

Background: Suratthani Medical Education Center take responsibility for providing CPIRD medical students in rural hospitals after graduation, the researcher want to evaluate how junior doctors has been implemented practice-based learning program in rural hospital for 2 months to improve skills, community bonding and teamwork.

Method: Twenty-eight juniors were asked 5-level Likert's scale questionnaires about their opinions towards appropriateness of time spent on rural hospital and benefits of training program. Medical personal workers (53 doctors, 228 nurses, 41 pharmacists) in rural hospitals were also asked questionnaires on junior doctors' performance. Descriptive statistics were used.

Results: From the study, Junior doctors' opinions were showed that mostly benefit of practice-based learning postgraduate curriculum in rural hospital were community bonding, improve clinical skills, processing analysis of caring patients, increase communication skills and teamwork 4.70 ± 0.53, 4.35 ± 0.74, 4.30 ± 0.57, 4.10 ± 0.64, 4.05 ± 0.68 respectively. Nineteen of junior doctors (67.8%) felt that short time spent in rural hospitals was not enough for gaining experiences. Also medical personal workers' opinions thought the program helped to improve teamwork, community bonding and clinical skills 4.45 ± 0.25, 4.23 ± 0.33, 4.00 ± 0.43 respectively.

Discussion: Evidence suggests that practice-based program in rural hospitals need to be applied during postgraduate period about clinical and communication skill, processing analysis of caring patients. The skill of community bonding and teamwork were highest gain to participate the multidisciplinary and being an effective doctor in rural hospital.

Conclusion: Postgraduated Practice-Based Learning program in rural hospitals provided the benefit for community bonding, improve clinical skills, processing analysis of caring patients, increase communication skills and teamwork.

Take-home message: Postgraduated Practice-Based Learning program in rural hospitals improve clinical and non-clinical skills in CPIRD junior doctors.

7FF: Posters: Empathy and Ethics

Location: Hall 4.1, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

7FF1 (981)
Does change of empathy over academic years have a geographical pattern of variation?

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Presenter: Gominda G. Ponnamperuma, Centre for Medical Education, Yong Loo Lin School of Medicine, National University of Singapore, Singapore

Background: High levels of physician empathy have been suggested to correlate with positive health outcomes, including greater patient satisfaction. However, how empathy changes during undergraduate medical education is poorly understood. Although the US data show that there is a significant drop in empathy in the third year, Australasian studies do not. Hence, this study aimed to compare empathy change during undergraduate career in an Asia-Pacific Medical School with other such studies in the world; and to investigate whether there is a trend in the change of empathy related to the geographical region.
Method: Jefferson Scale of Empathy - Student Version (JESS), which had been previously validated during a cross-sectional study, was administered at the beginning of each academic year. For students who responded in all years (matched sample; n=31) repeated measures (within subjects) ANOVA was used to compare the yearly mean total empathy. Empathy of those who did not respond in all years (unmatched sample; n=120) was compared using between-subjects ANOVA. Year-wise comparison of the means of matched and unmatched samples was conducted using student's t-test. All analyses were carried out using SPSS (version 24) at significance level of $p<0.05$.
Results: Results were compared with studies in different regions. Means of total empathy for the matched sample (Year1=5.76; Year2=5.80; Year3=5.73; Year4=5.71; Year5=5.67) showed no statistically significant change across the years (F=0.608; p=0.638). Similarly, total means of the unmatched sample (Year1=5.70; Year2=5.71; Year3=5.69; Year4=5.71; Year5=5.72) did not show a significant change in empathy (F=0.25; p=0.999). Year-wise comparison of matched and unmatched sample means was also statistically insignificant.

Conclusion: Above results are different to the Western studies, but more similar to Australasian studies. The drop in empathy over academic years reduces progressively as one moves from West to East. Rather than a drop, there may be even an increase in empathy in the latter years of study in the Far East, as one Japanese study has shown.
Take-home message: There are indications of a trend where the drop in empathy over academic years becomes lesser as one moves from West to East.

7FF2 (736)
Service-learning enhanced humanistic caring ability and empathy of medical students: A study from Shantou university medical college

Authors
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Guanhua Fan
Changmin Lin
Frieda Law
Junhui Bian

Presenter: Zhanqin Huang, Shantou university medical college, Shantou, People's Republic of China

Background: Professionalism in medicine is an essential element of physician's competency. The importance of educating medical professionalism has been emphasized in medical schools. How to explore an effective and feasible program for the education of medical professionalism is a big challenge. At Shantou university medical college, we defined medical professionalism in students based on the theme of Physicians' HEART, in which "H" stands for Humanity, "E" for Empathy, "A" for Art of medicine, "R" for Respect and Responsibility, and "T" for Teamwork. This study was conducted to investigate whether the service-learning project in SUMC enhanced medical student perspectives of humanism, humanistic caring ability and empathy in their medical training.
Method: The investigation included 160 undergraduate medical students that were randomly divided into intervention group (n=80) and control group (n=80). The students in the intervention group participated in the service-learning project. They took part in the community service projects to provide health education and medical service to the community, especially in the poor rural areas. As part of the service-learning experience, students were required to submit a written self-reflection about their experience. In the qualitative study, data were extracted from student reflection report that were written in response to the service-learning project. In the quantitative study, data were collected after service-learning project finished. Respondents filled out anonymous questionnaires. The humanistic caring ability of nursing undergraduate assessment scale was used for the assessment of humanistic caring ability. The student version of Jefferson Scale of Physician Empathy was taken as study tools to measure empathy.
Results: The reflection reports about the service-learning showed that students improved their abilities in managing medical service, teamwork and interpersonal

communications. Students' sense of humanitarianism, empathy, social responsibility, compassion and dedication to service was strengthened. Compared with the control group, the total score of humanistic caring ability and the empathy level was significantly higher in the intervention group.

Conclusion: The findings of this study demonstrate that incorporating service-learning in the community is a beneficial way of educating humanism and empathy for medical students.

7FF3 NOT PRESENTED

7FF4 (2658)
Residents' and Medical Students' self-assessed empathy levels do not correlate with patients assessments

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Presenter: Monica Bernardo, UNICAMP, CAMPINAS, Brazil

Background: Empathy is a complex psychological trait with affective, cognitive, behavioral and moral components. Physicians' empathy is a crucial component of patient care, influencing clinical outcomes, patient satisfaction and physicians' well-being. Most of the research on physicians' empathy is based on self-assessment, and several pedagogical interventions designed to foster medical students and residents' empathy also relies on these measures. Self-assessment represents an inaccurate measure for most of physicians' competencies and we hypothesized the same phenomenon would be true for empathy.

Method: This is a multicentric longitudinal and observational study which enrolled 374 patients and 37 undergraduate students and 26 residents from clinical and surgical specialties from three University Medical Hospitals in Sao Paulo, Brazil. The study was approved by local ethics committees. The students and residents filled the Jefferson Scale of Physician Empathy (JSE) and the International Reactivity Index (IRI), and patients filled the Consultation and Relational Empathy scale (CARE), and the Jefferson Scale of Patient's Perceptions of Physician Empathy (JSPPPE).

Results: We did not observe any significant correlation between self-assessed empathy levels and patients' assessments of physicians' empathy. This was true for all the scores of all scales and also for the scores of the subdimensions of each scale.

Conclusion: The lack of correlation between self-assessed empathy levels and patients' perceptions demands for including patients in the process of empathy evaluation.

Pedagogical interventions to foster empathy should not be based only in self-assessment methods.

Take-home message: Training strategies aiming the development of empathy should include patients' evaluations and perspectives.

7FF5 (1888)
Longitudinal relationships between motivation and empathy among medical students during clinical years

Authors
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Anne Baroffio, University of Geneva, Geneva, Switzerland
Margaret W. Gerbase, University of Geneva, Geneva, Switzerland

Presenter: Giovanni Piumatti, University of Geneva, Switzerland

Background: Previous studies found that medical students with higher empathy reported higher interest in people oriented medical specialties, and that psychosocial values including being empathic, patient-centred and sensitive to patients' psychosocial needs correlated with internal motivations for becoming a doctor. However, the relationship between different sources of motivation (i.e., internal or external) to pursue a medical career and empathy among medical students remains partially unclear and the mutual longitudinal effects between these constructs in the context of medical studies are yet to be tested.

Method: Using longitudinal cross-lagged analysis we tested four different hypotheses on the reciprocal relations between internal and external motivations for becoming a doctor on one hand and empathy on the other hand: independency, motivation affects empathy, empathy affects motivation, and reciprocity. Our sample consisted of 189 medical students (mean age=24.51 years, SD=2.15, 56% female) from the Geneva medical school. Measures included internal (e.g., care for patients, save lives) and external (e.g., future earning potential, prestige) motivations to become doctors and the student's version of the Jefferson Scale of Empathy. Covariates included age and gender. Baseline and follow-up data collections took place respectively at the beginning (4th study year) and end (5th study year) of the clinical training in the medical school.

Results: The model stating motivation affects empathy provided the superior explanation, $\chi 2(4)=3.30$, p=.51, CFI=1.00, TLI=1.02, RMSEA=.00. Higher internal motivations ($\beta=.15$, p<.05) and lower external motivations ($\beta=-.18$, p<.05) at baseline predicted higher empathy scores during follow-up. No moderating effects of gender were observed.

Conclusion: Our analyses support the hypothesis according to which internal and external motivations for becoming a doctor can positively or negatively affect the development of empathy among medical school students during their clinical years. Conversely, self-reported levels of empathy do not explain students' motivations to become a doctor. This is true for both genders.

Take-home message: Empathy development among students wishing to pursue a medical career is modulated by individual differences in motivation.

7FF6 (1864)
Longitudinal assessment of empathy by two different instruments and evolution of gender relationships in medical students

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Background: Empathy is a recognized key competence for medical practice. Numerous studies have assessed students' empathy during medical training showing gender differences with higher scores found in women. Evidence from longitudinal assessments of empathy throughout medical studies has been found relatively inconsistent, but results have been mostly gathered by single instruments and the longitudinal gender effect has not been sufficiently examined.
Method: We analysed longitudinal changes in empathy by gender in a sample of 189 undergraduate medical students from pre-clinical to clinical years using two widely adopted measures of this construct, namely the student's version of the Jefferson Scale of Empathy (JSE-S; administered during the 1st, 4th and 5th academic years) and the Empathy Quotient (EQ; 2nd, 4th and 5th academic years).
Results: According to growth curve modelling results, there was no significant change in empathy across assessments for either JSE-S or EQ measurements. Women showed systematically higher empathic scores than men across assessments (p level set at < .05), given the exception of JSE-S scores during the 4th academic year where scores did not significantly differ by gender. Examining gender differences across JSE-S sub-scales (i.e. CC-compassionate care, SPS-standing in the patient's shoes, and PT-perspective taking), women displayed significantly higher scores than men only for CC and these differences were consistent across time (Yr1: 69.2±0.5 vs. 65.9±0.8, p<0.001; Yr4: 70.3±0.7 vs. 67.9±0.8, p=0.025; Yr5: 69.3±0.7 vs. 65.8±0.9, p=0.04). By contrast, SPS and PT scores weren't significantly different comparing men and women.
Discussion & Conclusion: Empathy scores remained relatively stable overtime irrespective of the instrument used for its assessment. Gender stratification confirmed trends for differences shown in the literature, but statistical significance between men and women was domain-dependent and restricted to the Compassionate Care sub-scale of the JSE-
Take-home message: This fairly large cohort shows overall longitudinal stability of empathy across medical studies using two different instruments. Findings indicate that gender differences which have been generally reported as a global score might be limited to a specific construct.

7FF7 (2419)
Evaluating Outcomes in Empathy and Multicultural Competency Training: A Simulation-Based Approach

Authors
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Shoichi Ito
Tomoko Inagawa

Presenter: Daniel Salcedo, Chiba University Hospital, Chiba, Japan

Background: Empathy and multicultural competency are critical skills for successful clinical interaction with patients which in turn leads to better health outcomes. Currently, a wide range of educational intervention formats exist for helping students and health professionals develop and improve these skills, yet the specific outcomes of these interventions remain difficult to measure reliably and objectively.
The purpose of this project was to develop an empathy and multicultural competency outcome evaluation approach based on valid and reliable measurement tools using simulated clinical encounters to provide clear evidence of outcomes of different types of interventions designed to improve these skills.
Method: Each participant completed at least 6 encounters with different simulated patients before and after participating in different types of empathy and multicultural competency related educational interventions.
We designed each simulated encounter to include a primary medical concern, a social issue and a cultural conflict, after which the simulated patient assessed each participant and after each series of encounters, the participants completed a self-assessment tool.
The primary measurements used were the Jefferson Scale of Physician Empathy (JSPE), the Consultational And Relational Empathy (CARE) Measure, encounter checklists and simulated patient personal impressions of the encounter (narrative).
Results: We conducted all simulated clinical encounters at the Chiba Clinical Skills Center which is host to a multinational team of simulated patients from 16 different countries who are trained to simulate complex social and multicultural conflict scenarios. This assessment methodology allowed to accurately and consistently identify pre and post-intervention empathy and multicultural skill changes for several formats of educational interventions.
Conclusion: Simulation provides an ideal environment for evaluating empathy and multicultural skills in a realistic setting, allowing a systematic evaluation of learning outcomes of various types education interventions. The use of self and simulated patient evaluation tools allow a more precise impression of individual skill levels.
Take-home message: Simulated clinical encounters offer a useful tool in the evaluation of the effectiveness of empathy and multicultural training.

7FF8 (901)
Empathy – a core competence for clinicians? A question of attitude, personality or competence development in Medical Education and Postgraduate (Psychiatric) Training

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Presenter: Henriette Löffler-Stastka, Medical University Vienna, Postgraduate Unit /Teaching Center, Vienna, Austria

Background: Clinicians' competencies are essential for effective treatment. Taking up the assumption that empathy and the capacity to mentalize is a key element for professional clinical work, empirical data on the development of reflective functioning and the mentalizing capacity in clinicians from the beginning of clinical work and ongoing to postgraduate practice is essential. Besides, the question how subliminal affective experiences influence clinicians' interviews should be addressed.
Method: Assessment of mentalization capacities and results of training effects of an ongoing postgraduate MBT-training in a psychiatric ward compared to clinically experienced mental health professionals without MBT-training in the same ward with the MASC. MASC – the Movie for the Assessment of Social Cognition is a video-based test. The video shows an everyday dinner scene and is paused a total of 45 times to ask the participants questions about the feelings, thoughts and intentions of the actors. The MASC can be carried out in the group by means of a questionnaire. These completed questionnaires are evaluated with the scoring key. Correct answers receive 1 point and incorrect answers are scored in one of three ways: ToM excessive, ToM less, ToM No. To assess interventional competencies, how subliminal affective experiences influence clinicians' interviews (crisis intervention), micro-expressions (FACS) are analysed due to correlations to different interventions and their impact on working alliance (WAI) is measured.
Results: The current MBT-training is an ongoing one. Therefore we present preliminary data. The evaluation of the MASC-test of the participants at the beginning of MBT-training shows an above-average mentalization capacity in both groups - the MBT-Training group and the controll group and a different response to social situations in the film as well. This reflects a clinically high experienced staff.
Conclusion: Preliminary data shows different effects of MBT-Training in the different occupational groups.
To what extent is the above-average mentalization capacity due to their professional experience and age? How are the different ocupational groups developing in MBT-Training participants and in the controll group. Are the interventions and the accompanying microexpressions different in the investigated groups?

7FF9 (3730)
Empathy Among Undergraduate Medical Students

Authors
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Presenter: Mayar Helaly, Alfaisal University, Riyadh, Saudi Arabia

Background: Empathy is the ability to understand and share the feelings of another. Therefore, it plays an essential role in a physician's success in comprehending and cooperating with their patients. Numerous studies have shown that as a student progresses through medicine, their level of empathy tends to be reduced in different aspects. In Alfaisal University, an extremely updated, modern curriculum has been implemented which focuses on emphasizing the importance of compassion in the doctor-patient relationship, and on various ways to increase it. Therefore, the aim of our study is to compare the degree of empathy among the different years of undergraduate medical students.
Method: A questionnaire was distributed among 311 medical students of Alfaisal University years 1 and 2. The Jefferson Scale of Physician Empathy, a validated scale to measure the extent of empathy, was used. It assessed whether the students' degree of sympathy as they advanced from year 1 to year 2 has been altered. Additionally, it compared empathy level between males and females. Note: The continuation of the study will include undergraduate medical students of all years.
Results: We have obtained two clear components "perspective taking" and "compassionate care" respectively. Using an exploratory Principal Components Analysis (PCA) the scores show that second year students are significantly stronger on the second component than first years. In addition, the results depict that males differ from females for the first component only in which females are stronger than males.
In the initial year, students don't possess empathy highly. In Alfaisal University, the Professional Skills course in first year focuses on different aspects of a physician's communication skills including empathy. Therefore, in second year, the students' compassion has been reinforced.
Conclusion: Empathy is an instinct in all human beings. However, the extent of it varies among people. According to the study, teaching and emphasizing on empathy showed an impact in the response of the medical students. Thus, medical schools should continuously provide courses and workshops to strengthen the sympathy as it is extremely vital in the physician-patient relationship.

7FF10 (261)
Empathy, fake empathy and how to make an empathetic statement - the views of SPs

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Background: Empathy is one of the tenets of patient-centred consulting. The teaching of communication skills, including empathetic skills, frequently involves simulated patients (SPs). Despite the central role SPs play in teaching, there is little research around their views on that makes for good medical communications. This study aims to address this gap in the literature and this poster reports the findings on empathy.

Method: 18 SPs from two medical schools – HYMS & Durham – were interviewed, using an in-depth, one-to-one, semi-structured approach. Data, transcribed verbatim, were thematically analysed. The results around empathy were addressed for this poster.

Results: There were three main findings. First, the terms empathy and listening were used interchangeably, both were facilitated through the same non-verbal communication, especially eye contact. Second, whilst empathetic statements were welcomed, hollow or fake statements of empathy were easy to detect and could be irritating to patients. Third, for an empathetic statement to be sincere, words need to be accompanied by appropriate non-verbal communication, like a concerned expression: otherwise, words did not ring true. Indeed, non-verbal attributes like silence, or a faint smile of recognition, were preferred to words in some instances. SPs are well-placed to offer empathy advice: in their training and work as actors, SPs develop expertise in putting themselves into the shoes of others through the act of building a character.

Discussion & Conclusion: SPs welcomed the empathetic statement. However, their qualification that fake statements of empathy are easy to identify is supported by a philosophical inquiry into the nature of empathetic connection. Davis argues that empathy is akin to a process of 'crossing over' in which a person finds they are closely aligned to another, a crossing that cannot be forced. The advice that genuine empathetic statements need to be accompanied by appropriate non-verbal communication has backing from research indicating that when verbal and non-verbal signals conflict – e.g., saying 'that must be hard' with no eye contact and a grin – the non-verbal message prevails.

Take-home message: Empathy is linked to attentive listening and words need to be backed with body language. Fake empathy is easy to detect.

7FF11 (3437)
The skeleton in my closet: exploring empathy in health sciences students in relation to the hidden curriculum and burnout

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Presenter: Komal Atta, The University of Faisalabad, Pakistan

Background: empathy in medical and health sciences students is a key component for progression in their fields as the are constantly handling patients at a very close level. The aim of this study is to explore how non-curricular factors such as the hidden curriculum and student burnout effect student empathy.

Method: Validated measures of both empathy and burnout were distributed in three different institutes in three different cities to Pakistan. study cohort included students of medical and allied health sciences at the three campuses, 2000 questionnaires were distributed of which complete data of 1100 (55%)were retrieved. In the second part of the study 2 focus groups were formed of 10-15 students each per campus for qualitative analysis of themes relating to the hidden curriculum and empathy.

Results: A negative correlation was established between empathy and burnout and the hidden curriculum proved to be a significant shape of student reactions in clinical setups. themes that emerged in correlation to empathy were " negative/positive role modelling", "unstructured healthcare setup", "sociopolitical scenario" and "communication skills and language" issues.

Discussion & Conclusion: Students from fields with greater burnout (e.g.medical students) reported lower levels of empathy as compared to others. Subsequently, the focus groups revealed that contrary to popular belief, hidden curriculum is not just limited to subconscious attributes of the teacher but is also affected by the sociopolitical scenario, administrative issues, patient issues and the overall ambiance of the surroundings of the student and is a major contributor to empathy in students. Our study shows that both burnout and hidden curriculum are key players in determining empathy in students of heath science departments. students are effected not just by teachers and staff members but by overall national/international issues, policy reforms in health care and the sociodemographic setups of their area.

Take-home message: The hidden curriculum plays a much more significant role in medical education then is usually attributed to it, to increase empathy in our trainees we must retrain ourselves first.

7FF12 (1471)
Relationship Between Level of Empathy During Residency Training and Perception of Professionalism Climate

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Background: Empathy is crucial in the physician–patient relationship. Prior studies have proposed that physician empathy may decline in clinical phase of training. Unprofessional learning environment has been attributed as an important contributor to this decline. In this correlational study we have looked at the relationship between the empathy level and the perception of climate of professionalism during residency, by administering two self administered internet based surveys to assess professionalism in learning environment and the level of empathy.
Method: The study was a correlational study and included residents of women and child health division. They were surveyed using the web based Jefferson scale of physician empathy and the validated professionalism scale "climate of professionalism". Paired data for each respondent was analyzed for descriptors of empathy and professionalism and spearman rank analysis was performed to correlate the scores of both instruments.
Results: The overall response rate was 81.4%. The mean empathy level was 103 . The Cronbach's Alpha was 0.76 for JSPE scale and 0.65 for PCI instrument, There was female preponderance in the respondents, 81.4%. The difference in mean empathy scores between senior and junior residents in both specialties was not statistically significant. On the other hand female and male residents have statistically significant different mean empathy scores. (p = .012(95%CI, 2.27 to 17.59).The mean PCI score was 106+8.88 and no significant difference was found in the mean scores of both specialties. There was no effect of year of residency or gender on professionalism score either. Correlation of Empathy score with professionalism climate score was also not found significant (rS = .056, p = .64).
Discussion: The results of this study suggest that empathy is a relatively stable trait in this selected sample with female residents being more empathetic then males Climate of professionalism does not come out as reliable predictor of empathy level in these residents.
Conclusion: Acquiring competency in empathy has become mandatory by many postgraduate educational bodies. Much uncertainty still exists about the relationship of professionalism climate with empathy and inclusion of other specialties residents might be able to shed more insight into this .

7FF13 (2426)
Empathy training for nursing students through sociodrama

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Presenter: Miao-Ju Chwo, Fu Jen Catholic University, New Taipei City, Taiwan

Background: Sociodrama helps people understand the feelings and perceptions of roles in a social and cultural situation. This article describes using sociodrama in service-learning education for nursing students to expand the understanding of empathy.
Method: The authors invited an expert, specialized in drama and education, to assist teaching in three undergraduate nursing student's classes in Department of Nursing during 2017. One volunteer patient with Spinal Muscular Atrophy (SMA) was invited to the classes, sharing his life stories for an hour, followed by using sociodramatic techniques for an hour to help students to understand and articulate the hidden feelings in the story similar to the patient's situation. Strategy for engaging participants (before the exercise): Pair up and massage each other to warm up their bodies and get familiar with their roles prior the exercise. Strategy for finding values and applying knowledge in practice (after the exercise): Reflective writing: explore the learning after exercise, providing opportunity to gain self-knowledge through their thoughts and feelings. Group sharing: allow participants to apply the knowledge gained from the exercise in practice in the future. Qualitative feedback from students (n=140) and observation records were collected and further analyzed.
Results: Based on the analysis, the results showed that: (1) Instant somatic experience: students' somatic experience was created so that they had a deeper understanding about the patient's suffering. (2) Acknowledgement of different perspectives: role-playing different roles helped students acknowledge others' perception of the patient and his family, and how the behaviors of others affected the patient. (3) Expectations of having more empathy: after the experience students expected themselves to think and response from the patient's perspective with more respect, acceptance and empathy.
Conclusion: The advantages of sociodrama used for empathy training are to create instant somatic experience and a deeper understanding about others' feeling, and acknowledgement of different perspectives. Teachers need to create a warm and safe atmosphere, assisting students to fit in the roles through warm-up activities when using sociodrama.

Take-home message: The advantages of sociodrama used for empathy training are to create somatic experience and acknowledgement of different perspectives.

7FF14 (2047)
Online gaming on empathy - A friend? Or foe?

Authors

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Background: Empathy is of paramount importance to patient-physician relationship and medical professionalism. Internet activity, gaming, or even addiction, have been more and more common among medical students. However, there's been no report showing whether internet behavior has a substantial impact on empathy in medical students.
Method: Internet behaviors are divided into two groups, "internet users without online gaming (IU)" and "internet users with online gaming (IG)", each group was further divided into 3 groups according to their average online retention time each day (6 hrs). Empathy was evaluated by the scores of the reports and humanities reflection after watching indicated movies, and by self-measured empathy questionnaire. All students taking the year-2 optional course ""Narrative, Comprehension, and Communication" were enrolled.
Results: As compared with students in IU group, those in IG group had significantly lower scores for the reports ($81.3+-3.7$ vs. $86.4+-5.1$, P=0.014). If further dividing students into 5 groups (IU< 2 hrs, IU 2-6 hrs, IG< 2 hrs, IG 2-6 hrs, and IG> 6 hrs), the scores were significantly and negatively correlated to online gaming with longer hours (r=-0.556, P=0.006). However, there was no significant difference between IU and IG groups ($33.0+-5.4$ vs. $34.8+-3.2$, P=n.s.), in terms of scores in the self-measured empathy questionnaire, neither was there any significant trend of scores along with longer online hours across the 5 groups (r=-0.164, P=n.s.).
Conclusion: To date, there has been no evidence showing whether different internet behaviors (with or without online gaming) have distinct impacts on empathy. Although all of medical students had a similarly good self-perception for empathy, our data suggested that online gaming did have a negative impact on their actual expression of empathy. Our observation has brought up an important issue for pondering: May IT- or gaming-assisted medical learning actually harm students' empathy?
Take-home message: Long hours of online gaming harms expression of empathy, though all medics think themselves a person of high empathy.

7FF15 (1515)
Comparison of empathy scores among students from two distinct medical curriculums (the Joint Medical Programme and the Regular Thai programme) across different stages in medical education

Authors

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Background: Faculty of Medicine, Srinakharinwirot University has 2 distinct medical curriculums: the Joint Medical Programme (Srinakharinwirot University and The University of Nottingham) where students experience early clinical exposure during the preclinical years at The University of Nottingham, and the Regular Thai Programme. This study, therefore, aims to find out the effects of early clinical exposure on students' empathy scores across different years between the two curriculums.
Method: A cross-sectional study recruiting 82 students from the Joint Medical Programme and 155 students from the Regular Thai Programme was conducted. Their empathy levels were assessed by Jefferson Scale of Empathy- Student Version (JSE). Results were subsequently analysed using two-ways (factorial) ANOVA model.
Results: There were no difference in the overall mean JSE scores among students from the Joint Medical Programme (111.20 ± 11.90) and the Regular Thai Programme (110.72 ± 12.35, p-value=0.774). However, a trend showing that final year students in the Joint Medical Programme scored higher than those in the Regular Thai Programme (111.00 ± 13.218 vs. 103.84 ± 14.919, p-value=0.104) is noted. A significant drop in scores for both curriculums is observed between students doing their final preclinical year and students doing their first clinical year (mean difference 8.609 ± 2.976, p-value<0.01).
Students with early clinical exposure experience seem to score higher. This trend is, however, not consistent. External factors such as adaptation to different learning environments (preclinical and clinical years) must be taken into consideration. Interestingly, there was a significant drop in scores for students in both curriculums once they had started their clinical clerkship.
There were no significant difference in the mean scores within the two curriculums; however, students in the Joint Medical Programme seemed to score higher than students

in the Regular Thai Programme in their final years.

Conclusion: Students in preclinical years scored higher in JSE scores in comparison to students in clinical years regardless of the curriculums; therefore, further measures must be put in place to enhance the empathy scores among students in clinical years.

Take-home message: Early clinical exposure could potentially be beneficial for empathy development.

7FF16 (1779)
Teaching Ethics through Art Using the Visual Thinking Strategy

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Background: Visual thinking strategy (VTS) is a novel strategy that has been recently incorporated in medical education to increase the art of observation. This tool in addition to enhancing the power of observation can aid in discussions revolving around doctor-patient relationships and ethical issues in medical practice.

Method: We employed this strategy using the workshop method in selected final year medical graduates. Each group was divided into five groups with five participants each from different cultural and religious backgrounds. Three artistic pieces were projected on the screen based on the Doctor-patient encounters. The works of art included: 'The Doctor' – Sir Luke Fields, 'Mr. S is Told He Will Die' – Robert Pope and 'The Anatomy Lecture of Dr. Nicholas Tulp' – Rembrandt. A facilitator ensured that all students were given an opportunity to express their opinions and justify the reason for the particular observation. A scribe was assigned to note the discussions points and a feedback was obtained following the VTS process.

Results: Majority of the participants found the workshop enjoyable and useful. A few of the feedback comments from the participants included honing of observational skills, introspection, empathy and heightened sensitivity towards patients.

Discussion: VTS as an education tool has been explored in learners of different ages and is flexible to be adopted across disciplines. Research has shown that VTS is effective for writing and observational skills and critical thinking. We explored this novel strategy in teaching issues pertaining to the doctor-patient relationship and ethical dilemmas such as end-of-life issues.

Conclusion: VTS is an important tool which can be used as an aid to teaching ethics and doctor-patient relationships to medical graduates from diverse cultural backgrounds.

Take-home message: VTS enhances visual diagnostic skills and aids in identifying facial human emotions; Stimulates dialogue about doctor-patient relationships and difficult ethical decisions pertaining to end-of-life issues.

7FF17 (947)
Case-Based Ethics Grand-Rounds have a positive impact on Ethical-Decision-making and Professional Behaviors in Interns

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Presenter: Shekhar Kumta, The Chinese University of Hong Kong, Hong Kong

Background: Ethics teaching outcomes for medical students, are best assessed by evaluating students' capacity to analyze the ethical dimensions of a problem and apply key principles towards a possible resolution of such conflicts.

Method: Our program for Bioethics establishes a solid foundation required to understand Ethical principles. Senior students (years 4-6) are exposed to grand rounds, involving Ethical dilemmas or professional misbehaviors. Student participation is obligatory for final year students with a 100% attendance requirement.

Results: To date, 430 students have participated in the grand rounds (n=8). These rounds require students to a) Identify the key Ethical Issues that arise in the context of the case b) Discuss possible conflicting principles and c) Provide a reasonable resolution based on the 4-principles approach that underpins much of our teaching of ethics. Student participation has been enthusiastic. The rounds are interactive and generate heated discussions. Students and staff members are required to vote using a green-red card, and this encourages everyone to participate.

Evidence of Impact: Focus group interviews of interns from 2 successive batches of CUHK* students (n= 44) who participated in these grand rounds revealed that rounds had a positive impact on their ability to apply ethical principles in case resolution, during their practice as interns.

Some of the interns also reported that they were able to identify issues of professional behaviors in themselves and amongst other healthcare workers – in particular conflicts between patient autonomy and paternalistic behaviors. The principle of justice became much more tangible and evident in their daily practice and in their views the rounds increased their sensitivity and improved their awareness towards the ethical dimensions of clinical care.

Conclusion: The discussion of real and authentic cases that happen in the health care environment where students are eventually going to practice, exposes them to some of the vagaries and realities of practice. Allowing students to discuss these cases without fear, and mentoring them to defend key ethical principles has been deeply valued. This is likely to have an impact in their practice behaviors and may counteract the hidden curriculum they are often exposed to.

7FF18 (1413)
Exploring the Gap between Ethics Education in Medical School and Clinical Application

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Background: Ethics education plays an important role in medical education, preparing students to better grasp ethical dilemmas they may face and apply ethical reasoning. Students receive ethics education in medical school, however, ethics training is not well-built into the clinical clerkship curriculum. Our study aimed to explore how to bridge the gap between ethics learning and application.
Method: Semi-structured interviews were conducted with 25 medical students who started medical school in 2013. Interviews were recorded, transcribed, and thematically analysed.
Results: Most participants highlighted a gap between the idealisation of ethics teaching in the classroom and their ability to apply their learning in clinical situations. Some participants interpreted taught ethical issues such as patient autonomy, living and dying, and organ transplantation as effectively preparing them for clerkship. Pregnancy termination and euthanasia were considered empty talk as relevant cases were rarely encountered during clerkships. Clinical variation and the short rotation of clerkships gave rise to fragmented learning experiences. Clerks act as intermediaries between clinicians and patients and can devote more time to communicate ethical concerns with patients. A lack of medical knowledge and inexperience in patient-engagement are barriers to ethical practice.
Faculty members might be disengaged from clinical management while physicians might not understand how to bridge ethics learning between classrooms and clinical application. Ethics curriculum and teaching reform, in both the medical school and clinical setting, could narrow this gap. The flexibility in clerkship rotations induce dual roles of being a physician and caregiver, providing an opportunity to enhance empathy and strengthen ethical learning. Encouraging students to cross-share their clinical experiences of ethical issues may increase the applicability to ethical teaching learned in the classroom. Students'

reflection during their application of ethics strengthens reinforces both their personal and professional identities.
Conclusion: An ethics learning framework could be developed based on clinical relevance, and training should better orientate faculty to the ethical skills and discussions students require to apply such notions in the clinical setting.
Take-home message: Ethics curriculum should be designed for better integration and seamless learning between theoretical approaches and application in the clinical setting.

7FF19 (1317)
Key Success of Teaching Medical Ethics in Clinical Years: WHO and HOW?

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Background: Teaching medical ethics is a challenging topic in medical curriculum. During clinical years, medical students have chances to learn with real situations, but teaching and discussing about ethics in between clinical settings sometimes is difficult or inappropriate. Therefore, proper learning materials and methods are important tools for the success in teaching medical ethics.
Method: This cross-sectional study was performed with all 5th year medical students who studying in the department of obstetrics and gynecology from May 2016 to January 2018 in Naresuan university hospital. Ethics in OB&GYN were taught with case-based approach and small group discussion about medical errors and disclosure. A medical teacher played a role as a facilitator and discussed with students. Likert scale questionnaire and opened-end questions were designed to evaluate medical students' attitudes towards learning method, learning experience and also the preferable characteristics of medical teachers who should teach ethics.
Results: From 65 medical students, 98.5% agreed that small group discussion highly impacted on their learning process better than conventional lectures. The more mimic to real clinical situation of the case-based scenario brought more interested of students. Fifty-two percent of students suggested that case discussion among 4th – 6th year medical students may provide better points of views. After the class discussion, most of students (95.4%) felt more confidence about disclosure of the medical errors if they have faced these kinds of situation. The preferable characteristics of medical ethic-teachers were: optimal experience in academic working and teaching (32.3%), good listener (27.7%), good role model (24.6%), friendly (23%), good explanation and communication (16%).
Conclusion: A case-based with problem-oriented scenario stimulated students' critical and reasonable thinking. The characteristics of medical teachers positively affected medical students' attitudes and learning environment.

Take-home message: A case-based scenario and small group discussion with medical teacher as a facilitator are appropriate methods for teaching medical ethics. In addition, the facilitators with appropriate manners to teach ethics will lead to better learning outcomes.

7GG: Posters: Integration and Curriculum Planning

Location: Hall 4.1, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

7GG1 (750)
Integrated Health and Social Care Teaching

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Background: A national vision for a new model of care, the NHS 5 year forward view (NHS England, 2014), calls for health and social care to work in greater partnership. With this in mind we sought to teach medical undergraduates, the future workforce of the NHS, about the importance of integrated health and social care provision for the elderly population. The aim was to better equip them for professional practice in the future when the demand for integrated health and social care is predicted to be greater than ever due to rising needs in an elderly population.
Method: Pilot half-day sessions were held in nursing homes for 83 Year 4 medical students during an elderly medicine placement. Each session consisted of small group teaching of 5 students followed by individual history taking and presentation of findings, all facilitated by a GP tutor. Qualitative and quantitative evaluation was obtained by e-form.
Results: The evaluation response rate was 30% (25 responses). Over 90% of students said that the placement enabled them to learn very well or fairly well about the interaction between health and social services, the provision of long term care for older adults and the role of the multidisciplinary team. Positive comments included the opportunity to obtain the patient's narrative and to develop a better understanding of care in the community.
Discussion: Integrated health and social care teaching in a nursing home setting allows medical students to gain a better understanding of the multidisciplinary assessment and management of an elderly person's complex co-morbidities.
Conclusion: GP led teaching in a nursing home has improved students' knowledge of health and social care integration. This will help to prepare them for professional practice in the future when the population of over 75 year olds with complex co-morbidities is predicted to expand.
Take-home message: The importance of health and social care working in greater partnership to proactively and comprehensively respond to the health needs of the elderly population can be demonstrated to medical students through an integrated nursing home teaching session.

7GG2 (1586)
Enhancing Medical Education Reform and Medical Student Professional Development Through Longitudinal, Co-Curricular Distinction Tracks

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Background: Despite calls to better prepare future physicians with leadership and adaptive learning skills, few undergraduate medical(UME) programs address this need. Brody SOM developed Distinction Tracks to provide co-curricular, longitudinal training customized to professional interests and core values.
Method: Advanced learning tracks combining didactics and independent projects were developed in four areas related to the mission of the school: Health System Transformation and Leadership (LINC), Medical Education and Teaching (MET), Service-Learning, and Research. Students participate in an immersion course following their M1 year, receiving advanced didactic and experiential training in conceptual foundations and competencies. Across the M2-M4 years, sessions focus on track-specific objectives and the development of an independent capstone project under the direction of a mentor resulting in a scholarly manuscript/portfolio. Upon completion of the program, Scholars receive recognition of their accomplishment in the academic transcript and senior awards/graduation programs.
Results: 66 students currently participate in one of the Distinction Tracks. Outcomes to date are: 28 research scholars have published 24 abstracts with accompanying national presentations, 4 published manuscripts, 5 national-level awards, and 2 grant submissions. 10 MET students served as teaching assistants for health professional students, completed 3000+ peer tutoring hours and made scholarly presentations. 20 Service-Learning students participated in individually-designed service projects throughout 10 countries, completed 2152 service hours, and presented at 3 regional/national meetings. 25 LINC Scholars are embedded in quality improvement projects throughout the healthcare delivery system resulting in 16 published abstracts and 12 presentations, with 9/10 Cohort 2 scholars trained as TeamSTEPPS Master Trainers.
Conclusion: Students receive advanced training and practice in an area of study that they would not normally be exposed to during the pre-clinical years. The educational initiatives addressed by each distinction track are grounded in the fundamental need to train physician leaders who can improve healthcare for both individuals and communities through education, research, improvement science, and service.
Take-home message: Alignment with UME through longitudinal, co-curricular distinction tracks promotes a

scholarly foundation for future career goals and adaptive learning through directed and independent activities in learning communities of students and faculty with similar career interests.

7GG3 (561)
Exploring basic science discussion during internal medicine rounds with clerkship medical students

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Presenter: Jonathan Pai, University of California San Francisco, USA

Background: Educators have suggested integrating basic science (BS) and clinical science to promote application of BS knowledge. Yet, clinical clerkship teaching appears to have shifted away from BS. Limited studies suggest that BS teaching is restricted due to competing demands and to underappreciation of the relevance of BS knowledge to clinical care.
Method: We performed a qualitative exploratory study using thematic analysis. Participants included internal medicine (IM) teams at UCSF Medical Center. We observed medical student (MS) patient presentations on IM rounds and tracked BS discussion content. Following observation, we conducted individual interviews with team members to clarify what was observed. Three investigators read transcripts independently, developed codes and a codebook. Codes were synthesized into themes after discussion.
Results: We observed three different IM teams and each team consisted of an attending, resident, two interns, and an MS. BS was a small fraction of total teaching and was primarily initiated by the attending and directed to the MS. Interviews (11 out of 15 observed team members) evoked three themes: 1) reasons to discuss BS, 2) goals of teaching and 3) barriers to BS discussions. Reasons to discuss BS included personal curiosity, unusual patient presentations, and importance for management. Goals of teaching BS included improvement of understanding and learner engagement. Barriers included time constraints, lack of attending comfort with BS knowledge, and lack of MS comfort with setting. All interviewees wanted to enhance BS discussions in the clinical setting.
Conclusion: Like others we found a time tension between clinical management and BS limiting discussion. We found this true despite professed interest in the BS topics. Several methods were used by teams to promote BS discussions such as brief teaching of BS by the MS during the assessment and plan of the patient presentation. Future directions include developing best practices for incorporation of BS on rounds.
Take-home message: BS continues to be under-represented on IM rounds. However, this study identifies strategies to use to improve BS discussion during clinical case presentations.

7GG4 (1818)
Will Early Clinical Training improve the professional skills? – Experience from a New Medical Education in Sweden

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Presenter: Stefan Särnblad, School of Medicine, Faculty of Medical Sciences, Örebro University, Örebro, Sweden

Background: The undergraduate medical education in Sweden is 5½ years long (11 semesters), followed by an 18 months internship before license. The university curriculum used to be 6 theoretical semesters followed by 5 "clinical" semesters. Today it is common with integrated curricula with an early introduction of clinical training.
Method: School of Medicine at Örebro University started in January 2011 and now admits 70 students every semester. The first students graduated in June 2016. The educational approach is problem-based learning and the curriculum is integrated with six themes based on physiological processes. Biomedicine, clinical medicine and professional development are integrated throughout the entire programme.
Results: In total, clinical placement constitutes 74 weeks of which 16 weeks are spread through the first six semesters. The remaining 58 weeks (semester 7-11) are divided into six longer periods related to the themes. The objective of clinical placement during the first 6 semesters is to practice general clinical skills like communication, history-taking and clinical examination, but also to understand the health care system and the tasks of other health care personnel. The clinical placement in semester 6 ends with a seminar for reflection around the professional development and the value of early clinical placement. The students appreciate the early clinical placements. They manage to acquire general professional skills at this early stage and have the possibility to reflect upon their choice of profession. This stimulates theoretical studies and makes them more comfortable when entering the long clinical placements related to the themes. This is beneficial also for the clinical tutors. The first Örebro students that graduated were satisfied with the preparation given "to work as doctors" and gave the University the highest rank in a national survey.
Conclusion: Early clinical training is beneficial for the development of professional skills; it motivates and gives the student an early understanding of their future professional role. A challenge may be to find enough placements and the need for coaching adjusted for different stages of professional development.

Take-home message: Early clinical training is beneficial for the development of professional skills.

7GG5 (3266)
Change from a classical to an integrated curriculum has an impact on the assessment?

Authors
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Fernanda Silva-Pereira
Maria Amélia Ferreira

Presenter: Milton Severo, Department of Public Health, Forensic Sciences and Medical Education, University of Porto Medical School, Porto, Portugal

Background: The success of integrated curriculum depends on the implementation of integrated assessment. This study aims to evaluate the effect of changing from a classical curriculum to an integrated curriculum.
Method: In academic year 2013/14 was implement an integrated curriculum on University of Porto Medical School. Eighty-eight disciplines were evaluated, 55 (62%) were from the new integrated curriculum, corresponding to 499 final examinations ranged from academic year 1 to 5. The number of multiple-choice questions that were flawed and were eliminate/changed during the test correction has been count. This number was compared before and after the implementation of integrated curriculum. A total of 1180 students answered a question if the assessment was adequated with a Likert scale ranging between 1 (total disagree) to 5 (total agree), after the implementation of the new curriculum.
Results: The proportion of examinations with items eliminated increase from 37.1% to 42.1%, when this proportion was adjusted for the curriculum year this proportion increased from 33.7% to 44.7% (p-value=0.021). The mean of adequacy of the disciplines assessment was 3.0 ranged from 1.4 to 3.9.
Conclusion: The number of flawed items increased after the implementation of integrated curriculum. The main reason pointed out to this was the fact that a new multi-choice question bank constructed from scratch was need for almost all disciplines and the time to test the questions was too short. In addition, the new questions should be create as teamwork from the different contributing disciplines and not as individual work.
Take-home message: To construct a integrate assessment we should plan the assessment at the same time as we prepare the disciplines to reflect integrated curriculum.

7GG6 NOT PRESENTED

7GG7 (873)
Clinical Application of Medical Sciences (CAMS) to Phase 1 Medical Students

Authors
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Dow Roon Koh, National University of Singapore, Singapore
Hwei Keong Koh, National University of Singapore, Singapore
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S Thameem Dheen, National University of Singapore, Singapore
Tan Ching Lau, National University of Singapore, Singapore

Presenter: Dinesh Kumar Srinivasan, National University of Singapore, Singapore

Background: The Yong Loo Lin school of Medicine (YLLSOM), National University of Singapore (NUS) actively pursues medical curricular reforms in order to better train doctors to be well grounded in the scientific basis for disease and treatment, clinical skills, whilst also enabling them to become good communicators and self-directed life-long learners. The main objective of this study was to introduce Year 1 (Phase I) medical students to the scientific basis for relevant physical examination skills so that it will reinforce basic principles in human structure and function.
Method: The Clinical Application of Medical Sciences (CAMS) module was designed and scheduled at the end of every teaching/ system blocks. CAMS sessions consists of five 2 hourly sessions. An online survey was done at the end of the semester to measure medical students attitudes towards CAMS. A 5 point Linkert scale was used. Students were given 8 weeks to provide their responses.
Results: About 89% of our students were satisfied with the quality of the module. 83% agreed that the learning outcomes were clear and relevant. 80% agreed that the learning and teaching methods were effective. Approximately 88% agreed that the tutors were good at explaining the concepts. Furthermore, CAMS was able to help students link theory to clinical application through hands-on practice. However, there was a significant number of students indicating that they should have more structured lesson plan, more equipment and handouts in advance. Overall, both students and tutors positively received the intervention.
Conclusion: Our initial experience on preclinical Year 1 medical students' approach towards exposure to CAMS showed promising results. Year 1 medical students displayed keen interest in CAMS. Introducing CAMS to preclinical medical students not only served as a link between didactic lectures (theory and practical) but also served as a platform to build on when the students enter Phase II.
Take-home message: CAMS provided an added dimension to teaching and making basic sciences more clinical relevant, thereby better preparing medical students for clinical years and beyond.

7GG8 (2392)
The structured frameworks of organ system-based integrated curriculum, curriculum integrated examination, and impediment monitoring system in undergraduate medical education

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Presenter: Bor-Ching Sheu, Center of Faculty Development, Curriculum Integration & Department of Obstetrics and Gynecology, National Taiwan University College of Medicine, Taipei, Taiwan

Background: The curriculum integration group of National Taiwan University College of Medicine (NTUCM) have constructed organ system-based integrated curriculum (OSB-IC) of the undergraduate medical program since 1992. New systems of organ system-based curriculum integrated examination (OSB-CIE) and Examination Impediment Monitoring System (EIMS) were launched since 2015. The present report illustrated the structured frameworks of OSB-IC, OSB-CIE and EIMS in our undergraduate medical education.
Method: The NTUCM implements the integration of basic and clinical disciplines into a unitary unit that allows courses in the same organ system to be completed within a structured time framework of teaching coordination. The new OSB-CIE changed the traditional exams and merged all subjects into the organ-system integration exam according to the teaching contents. The EIMS then monitored and calculated individual test results, analysis the difficulty of test questions, and the index of high and low scores of student achievement.
Results: Details about the structured frameworks of the OSB-IC, OSB-CIE and EIMS of NTUMC are illustrated. We unified proposition of subjects and distributions of exam scoring methods for the integrated test questions to all subject departments through the established scoring and analytic construction of OSB-CIE. The EIMS assess the problem occurred in examinations and statistical evaluate the difficulty of examinations in all subjects. The statistical results then provided to all subject departments

immediately for the reference of various adjusting disciplines.
Discussion & Conclusion: Integration throughout the whole organ and functional system-based curriculum is time-consuming and hard work is required for planning, organization and execution. Organ-functional-based curriculum integration is a distinguished educational aim, which entails achieving cognitive, conceptual, and practical connections among the complex categories of unified basic and preclinical knowledge. The present structured framework OBS-CIE and EIMS curriculum explicitly includes examinations of how integrating intelligence from basic and clinical disciplines on a biomedical basis. Our report applied a framework for monitoring the learning effectiveness of OSB-IC in an undergraduate medical curriculum.
Take-home message: The structured framework improved OSB-IC to the specific discipline of undergraduate medical education and may provide a potential and promising new teaching method that can be widely utilized.

7GG9 (2466)
Paediatric education in the Curriculum of the School of Medicine in the University of Örebro in Sweden

Authors
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Presenter: Myrsini Lemonaki, University Hospital of Orebro, Sweden

Background: In Sweden there are seven Medical Schools. Some of them have existed in more than 50 years whereas the School of Medicine at Örebro University was established in 2011. The education is built as 5,5 year studies (330 ECTS credits) and the Curriculum is integrated according to the PBL system. The aim is to present our approach to the training in paediatrics.
Method: The poster presents the theoretical and clinical studies, as well as the examination and the assessment system concerning the paediatric education. The medical students in Örebro study paediatrics during the study of the theme of Reproduction and Growth. This is formed in three steps during their studies, particularly in terms 2, 6, 9. As an integrated medical curriculum students have both theoretical and practical studies during all the terms. The learning methods are base studies, seminars, lectures, simulation training, and clinic practice.
In the second term, the medical students study embryology, genetics, anatomy and have some clinical practice in the paediatric primary health center. In the sixth term, they study about the healthy newborn, child and adolescent as well as normal and retarded growth and normal development and nutrition. Students also start their training in taking medical history and doing clinical examination. In the ninth term students have focus on the sick newborn, child and adolescent. Seminars on child abuse and neglect are given with a specialized pediatrician, a specialized lawyer and social worker as teachers.

Conclusion: The theoretical aims of the paediatric curriculum are obtained through clinical practice, team base groups, case seminaria, other seminaria, lectures, and self studies. The clinical skills are obtained through clinical skills training in paediatric units and simulation training. The examination system includes a writing exam after each term as well as an examination of clinical skills and a OSCE examination after the ninth term. The assessment of the students in the end of each term is very good.

Take-home message: The training in paediatrics in the Medical school of Örebro is formed in three steps in an integrated form.

7GG10 (462)

Does changing from teacher-centered to learner-centered contexts develop self-regulated learning? A qualitative study in a medical university in Japan

Authors

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Cees van der Vleuten, Maastricht University, Maastricht, Netherlands

Presenter: Yasushi Matsuyama, Jichi Medical University, Shimotsuke, Japan

Background: Context matters when striving to promote self-regulated learning (SRL). We previously showed that teacher-centered contexts hindered East Asian undergraduates from SRL whereas more learner-centered contexts promoted SRL in postgraduates (Matsuyama Y et al, Med Teach. 2017, Epub ahead of print). However, it is unknown whether changing from a teacher-centered to learner-centered undergraduate curriculum would encourage medical students to become better self-regulated learners.

Method: We conducted three focus groups that examined 13 East Asian undergraduates who shifted from a teacher-centered curriculum to a student-designed, student-selected component (SSC), and two focus groups that examined 7 students who remained in a teacher-centered curriculum (non-SSCs). Students were asked to discuss their 1) motivation to learn, 2) learning strategies, and 3) self-reflection in self-study during the period. Data were analysed using thematic analysis.

Results: Compared to non-SSCs, SSCs described losing indicators such as teachers' assessment and constructing an achievable self-image as an alternative indicator. Self-reflection revealed the gap between their current status and their achievable self-image, which they turned into a learning subject. To fill this gap, they actively employed learning strategies used by doctors or mentors, leading to the diversification of their learning strategies. Self-determination regarding learning activities without teachers' assessment promoted autonomous behaviors of reflection, forethought, and performance in learning. Changes in learning contexts could provide significant opportunities to promote SRL even where teacher-centered cultures prevail.

Conclusion: Changing from teacher-centered to learner-centered contexts encourages learners to become better self-regulated. They 1) construct achievable self-images, 2) identify the gap between their current and potential future selves, and 3) develop diverse learning strategies.

7GG11 (168)

How to become a doctor? A preliminary report of pre-clerkship summer camp

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Presenter: Ching-Chih Chang, National Yang-Ming University School of Medicine, Taipei, Taiwan

Background: In Taiwan, the clerkship starts from the 5th grade in medical school. However, a busy rotating course occupies the time-frame of clerkship. Lack of time and opportunity to understand the patient and other professionals make a clerk be incompetent of medical professionalism and collaborative practice. We therefore conducted a program to test whether an early engagement in hospital help strengthen Taiwanese medical students the relevant capabilities.

Method: We invited medical students from National Yang-Ming University at the end of the 3rd grade to join a 2-week summer camp at the ward of General Medicine in Taipei Veteran General Hospital, while they were having the summer vacation. Every participant was assigned to meet one patient and accompanied this patient throughout his/her hospital course, including going for examinations. Besides, they were asked to encounter other professionals, including nurses, social workers, pharmacists, and cleaners. They were asked to write a diary of hospital life every day. Every student had one senior doctor as his/her mentor who was responsible to check his/her diary and to have a discussion. Finally, they were asked to give a narrative feedback. They also had to complete pre- and post-camp questionnaires.

Results: Twenty-two medical students joined this program. The questionnaire include 10 questions involving professionalism, communication with patients/paramedical staffs, and understanding of working environment. The attitude towards these questions were scored as 1-5 points, ranging from disagreement to total agreement. Compared to the pre-test, the post-test showed that the score of overall performance improved after a 2-week camp. In addition, the scores of professionalism, communication with patients and

paramedical staffs were significantly improved. From the narrative feedback of students, most of them appreciated this program.

Conclusion: A pre-clerkship camp is worthy of continuing. Future development of the program is anticipating, since it help a medical student understand the importance of professionalism and collaboration with other professionals.

Take-home message: Under the current circumstances of medical education in Taiwan, if a medical student can be timely engaged in the clinical environment with a good guidance, they will be mature and empathetic easier and earlier.

7GG12   WITHDRAWN

7GG13 (3408)
Introductory course in Gynecology and Obstetrics based on medical practice settings: an experience of six years

Authors
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Ricardo de Carvalho Cavalli
Rosana Maria dos Reis
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Presenter: Francisco Jose Candido dos Reis, Ribeirao Preto Medical School - University of Sao Paulo, Ribeirao Preto, Brazil

Background: The amount of knowledge available has grown exponentially in recent years and health care needs varies among different regional populations. Therefore we decided to modify our introductory course of Gynecology and Obstetrics from a traditional model to practice guided model.

Method: The course is a 135 hours rotation, during the year four of a six-years medical course, dedicated to introduce medical students to the basic concepts of women's health. It is a preparatory course for a posterior eight weeks rotation clerkship in year five and for a six weeks rotation in year six.

Results: In the traditional course the distribution of learning activities were: lectures = 35%; seminars = 16%; practice = 27%; self-study = 17%; assessment = 5%. In the new practice informed model the distribution of learning activities changed to: practice= 36%, self-study = 32%; case based discussion = 27%; assessment = 6%.

We evaluated the student performance using quantitative scales (0-100) obtained from: a written test based on ten clinical cases, and an OSCE of five stations (history taking, physical examination, Pap smear, interpretation of data, and patient orientation).

From 2011 to 2016, a total of 606 medical students completed the practice based course (Pr group). A sample of 287 students from the traditional course (Tr group) was used for comparison.

The mean (SD) of OSCE scores were 81.2 (8.9) for Pr group and 77.2 (8.4) for Tr group (P<0.001). Written test scores were 73.2 (10.6) for Pr group and 74.1 (48.9) for Tr group (P=0.75). Substantial improvement in performance of Pr

group was observed in physical examination, procedural and patient orientation abilities.

Conclusion: An introductory course in Gynecology and Obstetrics is feasible and associated with improvement of OSCE scores. The reduction of hours dedicated to traditional lectures did not impair the performance in written tests.

Take-home messages: To use the medical practice in the health system is a very effective way to guide content for introductory courses in medical specialties. It is associated with improvement in clinical abilities without loss in cognitive knowledge acquisition.

7GG14 (1540)
Reforming Undergraduate Medical Education at Five Universities in Vietnam

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Presenter: David Duong, Harvard Medical School - The Partnership for Health Advancement in Vietnam, Boston, USA

Background: The Vietnam Ministry of Health (MOH) has prioritized reform of undergraduate medical education (UME) to meet the population's evolving health care needs because of changing epidemiological trends and an overburdened healthcare system. The MOH identified 5 universities of medicine and pharmacy (UMP) to lead the reform and serve as models at other universities in the country.

Method: To support UME reform, the MOH, the World Bank, the USA Agency for International Development (USAID) and Harvard Medical School's Partnership for Health Advancement in Vietnam (HAIVN) are collaborating on a five-year project to reform UME at the 5 UMPS. Our approach includes initial needs assessments, formation of reform committees, introduction of the change management process, development of new curricula frameworks, a series of step-wise faculty development workshops, immersion trips between HMS and the UMPs, and faculty "twinning" for ongoing mentorship.

Results: Starting with an initial effort at Ho Chi Minh City UMP, the faculty developed new curricula that is student-centered, integrated between basic and clinical sciences, and has early exposure to clinical practice with a community-based experience. In 2016, Ho Chi Minh City UMP launched a new curriculum. Its faculty now serve as technical experts in the ongoing reform at the four other universities increasing the capacity for ongoing reform in the country.

Discussion & Conclusion: This is the first comprehensive UME reform in Vietnam and is ongoing at five different UMPs, each with different geographic, socio-economic and ethnic considerations. The collaboration has enabled the UMPs to undertake a comprehensive approach to curriculum reform that can serve as a model in Vietnam and for other resource limited settings.

Take-home messages:

- Collaboration for a successful and comprehensive curriculum overhaul requires a longitudinal and coordinated approach.
- A standardized process includes adaptation of change-management principles by leadership, faculty development workshops, immersion trips, and "twinning" between faculty to provide ongoing mentorship is feasible and effective.
- Shared agenda making, identification of host-country needs and leveraging of existing resources are factors in successful collaborations between low-and-middle income countries (LMICs) and resource-rich academic partners

7GG15 (392)
Improving Mental Health Literacy in the Community Through Implementation of a Student-Delivered Mental Health Curriculum

Authors

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Glenda Carr, Idaho State University Pharmacy Program, Meridian, USA
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Presenter: Jared Papa, Idaho State University PA Program, Meridian, USA

Background: The state of Idaho, located within the USA, has many confounding factors that have resulted in a concerning environment for mental health. Idaho ranks near the bottom in the nation with regards to the rate of suicides and health professional shortages in mental health.

Method: Faculty at one PA program developed a mental health curriculum to address health disparities through a community-based project. The curriculum was designed to enhance an existing interprofessional community health screening (CHS) project by incorporating mental health education into the screening process. Participants attending the CHS events are underserved individuals and are often from minority backgrounds. PA, nursing, and pharmacy students work collaboratively at the CHS events to provide a patient-focused comprehensive screening. The interactive mental health educational session was student-delivered through the use of iPads and a PowerPoint presentation. The curriculum included instruction on why mental health is important, contributing factors to mental health, recognizing signs of a mental health crisis, and provided a list of local and national resources for mental health evaluation and treatment. Community participants at the CHS events completed pre and post-curriculum surveys assessing their knowledge and attitudes regarding mental health. Students delivering the curriculum also completed a pre-survey prior to the first CHS event and a post-survey after the final CHS event of the semester.

The mean was determined for each statement in the survey and the pre and post survey results for each group were compared using paired t-tests.

Results: Participant results showed an increase in the mean on all seven of the survey statements. Three of these were determined to be statistically significant (P<.05). Student results showed an increase in the mean on six of the seven survey statements with three of these being statistically significant (P<.05).

Conclusion: The results of this study show an improvement in the knowledge and attitudes regarding mental health by both the community participants receiving the mental health education and the students delivering the curriculum.

Take-home message: Mental health literacy in the community can be improved through the implementation of a student-delivered mental health curriculum.

7GG16 (2384)
Medical Curriculum Development for the Pre-clinic Medical Students in Naresuan University, Phitsanulok

Authors

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Presenter: Saisiri Mirasena, Naresuan University, Phitsanulok, Thailand

Background: Medical curriculum of Naresuan University (NU) has been implemented since 1995 for Collaborative Project to Increase Production of Rural Doctor (CPIRD) and One District One Doctor (ODOD) purpose. This curriculum was under the regulation of The Medical Council of Thailand and Thai Qualification Framework (TQF) for Higher Education, The Higher Education Commission.

Method: Medical lesson plan will start with general education at first year, for the second and third year will attend pre-clinic course organized by Faculty of Medial Science and Pharmaceutical Science with professional development (PD) course, and the clinic course will implement in the forth-sixth year hosted by NU Hospital and 5 Medical Education Centers. Then they will be assessed with the Medical Competency Assessment Criteria for National License. The learning outcomes (LOs) was implemented and integrated the desired characteristics of the medical student so called 7-star doctor in every subject..

The medical curriculum was developed continuously in every 6 year, the latest developed medical curriculum will be implemented on academia year 2019. This curriculum will be assessed with the World for Medical Education (WFME) Global Standards. The LOs and teaching methods for the pre-clinic classes will be revised and integrated to characteristics of 7-star doctor, the medical student sand the pre-clinical lecturers will be participated for the developed curriculum preparation. The pre-clinic teaching and hands-on methods; lecture, group discussion, skill lab, case-based learning (CBL), problem-based learning (PBL), Team-based learning (TBL), self-directed learning (SDL), small group discussion and Flipped classroom will be implemented and assessed. These would be helped the medical student for the integration of pre-clinic knowledge to clinic. The developed curriculum will be drafted and evaluated by the curriculum committee before submission to The Medical Council of Thailand and The Higher Education Commission.

Conclusion: Preparedness and understanding of the medical curriculum to students and lectures are very important to achieve the medical education purpose

7GG17 (2282)
Challenges, Success Factors and Pitfalls in the Implementation of Distributed Medical Education: A Multi-stakeholder Perspective from a Canadian Province

Authors
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Tom Smith-Windsor
Loni Desanghere
Kathy Lawrence
Sinead McGartland
Kent Stobart

Presenter: Anurag Saxena, University of Saskatchewan, Saskatoon, Canada

Background: There are only a few descriptive reports on implementation of distributed medical education (DME) and these provide accounts of successful implementation from the senior leadership perspective. In Saskatchewan, over a period of four years (2010-2014), four new sites of Family Medicine (FM) residency were opened and two additional sites could not be developed. The aim was to identify challenges, success factors and pitfalls in DME implementation based upon experiences of multiple stakeholders with both successful and unsuccessful outcomes.

Method: Data were obtained through document analysis (n=64, spanning 2009-2016; perspectives of government, senior leadership, management and learners), focus groups of management/operations personnel (n=10) and interviews of senior leaders (n=4). Challenges and success factors were ascertained through categorization. Iterative coding was used to determine themes in organizational dynamics.

Results: Both challenges and success factors included contextual variables, governance, inter- and intra-organizational relationships (most common success factor), resources (most common challenge), learning environment and pedagogy. Management/operations was

only a challenge. The conditions for success and the pitfalls included the pace of development across multiple sites, collaborative governance, continuity in leadership at the apex, operations alignment, and reconciliation of competing goals.

Discussion: The findings in our study on FM DME expansion reflect experiences and perceptions of multiple stakeholders with both success and failure to achieve desired results. The challenges and strengths spanned contextual factors, governance, management, inter-and intra-organizational relationships, resources, pedagogy and learning environment. The pitfalls referred to the pace of development, collaborative governance, leadership at the apex, operational alignment, and competing goals.

Conclusion: Emerging opportunities for DME can be leveraged through collaborative governance, aligned operations and resolution of competing goals even in constrained contexts to translate political will into success, however, there are pitfalls that need to be avoided. Our findings based upon multi-stakeholder perspectives add to the body of knowledge on deployment carefully considering the conditions for success and associated pitfalls.

7GG18 (1356)
Undergraduate Medical Education for the Future

Authors
Sam Lingam
Claire Lingam

Presenter: Sam Lingam, London International Medical School, London, UK

Background: The future medical education will need a revolution. In this internet era with most information and goods in the World Wide Web (www) a revolution is already taking place in every aspect of our lives. Undergraduate Medical Education is now more integrated; task -based and student-centred; with technology driving the change. At present, most medical schools in the world are using the traditional methods of teaching using the standard curriculum. It is usually a 5 to 6 years course.

Method: Our medical school is different in that as it will use the well-established curriculum as expected by WHO but will deliver the curriculum more flexibly; and using E-learning technology. This new programme will cover the whole syllabus including the clinical medicine in 4 ½ years. Also, our undergraduate medical programme will introduce "patient-focus format so that our students will be exposed to clinical practice from the beginning. Patient-based education introduced from the first week.
Our new programme will be a competency-based medical education. We will introduce the questions and answers sessions from very early in the course. We will concentrate in educating our students to well above the competency levels to pass USMLE (so that our doctors can work in the USA and Canada) and also pass UKMLA (to work in UK). If and when the Commonwealth gets its act right and when a Commonwealth-wide COMMLE comes into place they can work in any Commonwealth country. Thus from the beginning we will prepare our medical students to pass both examinations. This will give them

the golden key to open many doors.   We are preparing
doctors for the globe.

7HH: Posters: Approaches to Curriculum Evaluation and Education Environment

Location: Hall 4.u, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

7HH1 WITHDRAWN

7HH2 (1697)
Competency testing of knowledge in management of emergency nephrology conditions in externs and interns indicates the need for change in the teaching process

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Presenter: Krisana Roysri, Clinical Medical Education Center, Surin Hospital, Surin, Thailand

Background: Externs have learned the necessary knowledge of medical practice in there preceding years while interns have gained additional experience in patient care. This study aimed to test the basic knowledge if externs and interns in management of emergency nephrology conditions before starting practice.
Method: A test composed of 100 point was delivered to 32 externs and 9 interns. Pretest and posttest scores were compared. The minimum passing score was set at 50 points.
Results: For the pretest scores, 71.9% of externs and 77.8% of interns was lower than the minimal passing level with average scores of 31.6 ± 4.2 for externs and 19.7 ± 6.8 for interns. For the posttest scores, 71.9% of externs and 100.0% of interns passed the minimal passing level with average scores of 68.6 ± 4.0 for externs and 66.9 ± 3.1 for interns. Both pre- and posttest scores were not different between externs and interns but posttest scores significantly positively correlated with pretest scores (p=0.015).
The low pretest scores and more than 70% of externs and interns failing the test could indicate a lack of conceptual knowledge. Even in the posttest, 28.1% of externs still did not pass the test.
Conclusion: Externs and interns may lack knowledge and experience in patient care which could lead to malpractice. Evaluation of their knowledge before practice may help guide attending physicians in better providing guidance to externs and interns.

7HH3 (3244)
Infrastructure, resources and the curriculum: An opinion at Facultad de Medicina, National Autonomous University of Mexico (UNAM)

Authors
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Cruz Montoya Mario Jacobo
Trejo Flores Paola Jaqueline
Fernández Altuna María de los Ángeles

Presenter: Irene Durante, Facultad de Medicina of National Autonomous University of Mexico, Mexico City, Mexico

Background: Developments in scientific knowledge and globalization, increasingly influence medical education. In this context, Facultad de Medicina at UNAM is evaluating its competency-based curriculum and searching for balance between what we teach and the resources used to achieve students' learning.
For that purpose, one of the focuses is to identify academic leaders' perception of the relation between the material resources used by the Facultad de Medicina, and its 2010 curricular model. This three-stage analytical research process took place from May 2017 to January 2018.
Method: First stage: National and international literature was reviewed regarding academic infrastructure and material resources in the achievement of competencies during higher education and medical education.
Second stage: Compilation of data on Facultad de Medicina UNAM's resources and infrastructure. Based on this data, a checklist was designed to identify academic leaders' perception of the relation between infrastructure, material resources and the 2010 curricular model.
Third stage: A group of academic leaders, randomly selected from department heads and education coordinators of the biomedical, clinical and sociomedical curricular areas were invited to answer several questions regarding the above-mentioned data through a Google Forms link. These answers were later contrasted and analyzed in a Microsoft Excel 2010 spreadsheet.
Results: The results showed partial congruency between the curriculum and certain material resources and infrastructure, such as the following: learning, academic staff, technological, informatics and communication resources. Material resources that showed greater congruence are bibliographic and hemerographic, administrative, cultural, recreational and sport.
Conclusion: This research will set the foundation for any future 2010 curriculum modifications, and to make sure that learning, academic staff, and technological, informatics and communication resources are appropriate for a specific curricular model.

7HH4 (1913)
The emergency paramedics' viewpoints on the compliance of their curriculum with job requirements

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Presenter: Seyed Masoud Hosseini, Mashhad University of Medical Sciences, Mashhad, Iran

Background: Due to some rapid changes in medical knowledge, it is recommended that the curriculum of the health disciplines should be revised periodically. The medical care providers' viewpoints about the compliance of their curriculum with job needs can provide first hand data for curriculum developers. This study is carried out to get the emergency paramedics' viewpoints about their attained qualifications.
Method: This cross-sectional study is carried out on 89 Emergency Medical Services (EMS) paramedics in Mashhad University of Medical Sciences, Iran. Data were gathered by a questionnaire and then analyzed using SPSS software. The questionnaire's validity and reliability was approved before administering it.
Results: Of the participants, 52.3% had an associate degree and the others had BSc. (47.7%). Most of the participants agreed that the "Theoretical Courses" had a positive impact on their competencies, strongly. Also, the "Practical Courses" impact on job competencies were rated as 3.42±0.75 (of 5) by the associate degree and 3.56±0.83 by the BSc. degree holders. Most of the paramedics (65%) agreed that the curriculum need a revision, especially on the practical courses and some courses contents and devoted time should be extended to prepare the graduates for their actual job needs, properly. Many of the participants expressed that they had felt high degrees of stress in the emergency situations due to lack of knowledge and practical competencies, for example on disaster management and huge accidents.
Conclusion: Iran is located in an area with yearly several disasters such as earthquake and flood. It seems that some courses of emergency paramedic's curriculum need to be paid more attention and their contents should be tailored, for example on how to act in huge accidents and manage the emergency situations.
Take-home message: Needs assessment is an important part of any instructional design. Although there are many methods to identify the learners' needs, expressed needs by the graduates of a discipline should be considered as an important source to develop or revise any educational curriculum.

7HH5 (1541)
Exit interviews are a useful complement to traditional course evaluations

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Background: Written course evaluations are ubiquitous and give important information. However, what aspect of the course that resulted in a certain numeric result by the students can sometimes be difficult to understand. Short written comments are often not very informative. Exit interviews are prevalent in industry but rare in academia.
Method: The course in Clinical Medicine at our institution is 32 weeks and spans 2 semesters. At the midpoint of the course there are midterm interviews of the students performed by the course leader and another experienced educator. At the end of the course there is a comprehensive written course evaluation. In a project, starting in 2011 and continuing, we also introduced exit interviews at the end of the course after the final exam. An experienced educator with no connection to the course or prior knowledge of the students performed the interviews. Approximately 20 percent of students were randomly selected for these voluntary interviews.
Results: No student denied participation. The interviews were 20-30 min long. A structured analysis of the notes by the interviewer was performed. Clinical placements dominated the student's impressions from the course as they did in the written evaluations. In the midterm interviews the students were more positive than in the anonymous written evaluations at the end of the course. In the exit interviews students were more nuanced than in either of the previous evaluations and made obvious efforts to discuss both positive and negative experiences of the course.
The seemingly exact results from numeric course evaluations are hard to use for course development and midterm interviews by teachers complicated by tactical considerations by students. In the exit interviews the analysis of notes showed that a few areas dominated the student's impressions and experiences and could be discussed in a more nuanced form than in the two other forms of evaluations.
Conclusion: Exit interviews add cost and complexity but the outcome is worth the investment giving additional information for course improvement and, in our experience, was appreciated by the interviewed students.
Take-home message: Exit interviews are recommended for long clinical courses.

7HH6 (1118)

Applying the After Action Review (AAR) method to undergraduate medical curriculum development

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Background: In 2011, we completed a curriculum redesign for our student selected components (SSC), and subsequently implemented significant changes to student-choice, tutoring, and assessment.
After Action Review (AAR) is a reflective and structured debriefing method that is used in the military; and it has been adapted for use in emergency medicine and medical simulation. By comparing expectations of a scenario with subsequent experiences after the event, it is possible to identify operational problems and communication gaps.
We used a modified AAR to gather longitudinal feedback from the first cohort to experience our revised, 4-year, longitudinal SSC curriculum.
Method: 9 students engaged in a three hour session that was facilitated by 2 faculty members. Short written comments were collected from each student and coded to describe (1) initial expectations and (2) actual experiences of the domains of the curriculum, e.g. student-selection; career planning; tutor support; formative and summative assessment; documentation; and evidence-based-medicine (EBM). Comments were paired for each individual but collected anonymously.
Results: All students provided detailed comments about their expectations and experiences for most domains. The comments about expectations were compared with actual experiences and categorised as negative (if expectations were not met); positive (if experiences were met or better than expected); or mixed (if expectations had been partially met). Paired responses indicated that reflections were domain-specific, i.e. individual students reported some positive experiences and some negative experiences across the domains. The learning gain for EBM was a particular strength, whereas documentation was noted as an area for attention. Data from the study were disseminated to academic leads to use in further curriculum development.
The structured AAR debriefing provided data to support quality improvement and to manage student expectations as appropriate. This AAR was designed to include a small voluntary cross-section of the student cohort; limiting the generalisability of initial conclusions.
Conclusion: The efficient AAR method provided rich, qualitative data that complemented our annual student evaluations of teaching. This method allowed a thorough debriefing between faculty and medical students at the end of a significant redesign of the SSC curriculum at NMS.

7HH7 (1630)

What's the CATCH? Evaluation of a Curriculum Designed for Physicians to Capture and Translate the Learning from the Review of Adverse Events and 'Near Misses' in Hospital Settings

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Background: Clinical case reviews (traditionally known as morbidity and mortality rounds) have the potential to serve as an effective quality improvement tool as the culture of medicine shifts towards greater expectations of accountability, continuous learning and translation of learning to practice. A review of case review models reveals a lack of standardization.
Method: We aimed to create, deliver and evaluate a curriculum to facilitate the review of in-patient cases where an adverse event or "close call" had occurred. We called the new curriculum "CATCH": Case Analysis and Translation to Care in Hospital. We incorporated specific strategies to promote: 1) a safe, supportive environment, 2) a culture of professional learning, 3) mentorship of case presenters, 4) input from physicians involved, 5) a framework to support case analysis and discussion and, 6) synthesis of tangible actions to improve clinical care. The curriculum consisted of 3 components: 1) an introductory workshop, 2) a podcast & mentor meeting for presenters, and 3) monthly CATCH rounds. Impact of the educational intervention was assessed by pre/ post participant surveys of the CATCH intervention, individual sessions, presenter and physicians involved and feasibility. Paired t-tests and thematic analysis were used to analyze quantitative and qualitative differences.
Results: Twenty-one physicians and 4 mentors participated in the 16 month study. Preliminary results reveal: i) a preference for the CATCH model vs. previous case review model, ii) high levels of satisfaction with CATCH sessions, and iii) positive presenter, physicians involved, and mentor experiences. Participants report the CATCH conference model is feasible, engaging, promotes a supportive environment for professional learning, facilitates awareness of tools for case analysis and provides opportunities for translation of learning to clinical practice.
Conclusion: Physicians seek to deliver optimal patient care yet recognize that this does not necessarily go as planned. When presented with a safe, supportive, predictable atmosphere and specific tools to objectively analyze cases, motivation is high to learn, develop new insights and synthesize specific strategies to translate this learning to practice.
Take-home message: The CATCH conference curricular model has significant potential to transform clinical case reviews in hospital medicine.

7HH8 (74)
The more difficult subjects on biggest Med School in Mexico

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Background: Med School is complicated and demanding because medicine is a science that requires greater dedication to study its extensive content. At UNAM Med School in Mexico, as well as in other parts of the world, first year is the most complex because not all students can pass certain subjects.
Method/Results: Final grades of all subjects were analyzed from first to fifth year, school cycle 2010-2011 (School population 1,085 students). Most difficult subjects were identified.
In the first year, half of the subjects have a high rate of non-approval: Histology (49%), Anatomy (44%), Embryology (38%) and Biochemistry (28%). In the second year, a quarter of the subjects have a higher rate of non-approval: Physiology (3%) and Microbiology and Parasitology (3%). In the clinical cycles the phenomenon of failure is almost not observed, since third and fourth years of Med School reach an approximation of 1% of non-approval. Only 0.2% of students do not approve fifth year (Premed clerkship).
Subjects with higher rate of non approval are those having greater number of hours (higher curricular value): Histology, Anatomy, Embryology and Biochemistry. The subjects that are most approved are those that have less number of hours (lower curricular value) as Basic-Clinical Integration and Biomedical Informatics. Basic cycles´s subjects have a higher rate of non-approval compared to clinical cycles subjects. First year may be the most difficult due to the number of hours that students must devote to the study of those subjects among other factors.
Conclusion: More work must be done to avoid the high rate of failure in the first year. Qualitative studies are needed to better define the problem

7HH9 (2495)
Course alignment in a distributive model: student and preceptor expectations of clinical pharmacology knowledge and skills in a veterinary medical curriculum

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Background: Veterinary medical graduates are expected to be competent in clinical pharmacology. During clinical training, the assessment of student knowledge and skills in pharmacology is performed by third party preceptors. Understanding how students perceive these assessments is essential to maintaining course alignment and ensuring appropriately trained graduates. An earlier study explored how preceptors assess student competency in pharmacology.
The purpose of this study is to explore the STUDENT EXPERIENCE of being assessed in pharmacology. Are the students aware of what actions/behaviors preceptors use to assess pharmacology knowledge/kills? Do the students understand the expectations that are equated with competence? Students completed a survey regarding their expectations and experiences in pharmacology during Year 3 of the curriculum.
Method: A mixed methods approach was used to analyze the survey results and compare to previously developed themes. Student responses were highly variable on questions regarding actions and behaviors associated with competence. Students were also unaware of course and discipline expectations. Student and preceptor expectations were in alignment with how students were assessed (through rounds). But alignment was lacking in other areas.
Results: Student confusion on expected behaviors is consistent with the gaps discovered in our previous study. With only general guidance from course syllabi and inconsistent guidance from preceptors, it is no surprise that students are confused about expectations in pharmacology knowledge and skills. The results from this study provide foundational information that will be used to inform a systematic evaluation of the pharmacology program assessing the effectiveness of the current curriculum. Ultimately this will inform changes and improvements in the delivery of pharmacology content and development of clinical pharmacology skills.
Conclusion: Aligning assessment with course and curricular objectives optimizes student learning. This study demonstrates the negative effect malalignment has on student perceptions. It also emphasizes the need to include student perceptions in systematic curricular reviews to gain a fuller picture. By understanding the student experience, curricular designers and course leaders can maintain course and curricular alignment. This survey approach can be adapted to other disciplines and used as a routine part of curricular review.

7HH10 (3406)
Medical Students Perception of the Quality of their Medical Education. A change is necessary?

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Background: Evaluation is an essential and critical aspect of any learning process, acquiring more relevance when referring to medical curriculum design. A medical curriculum should constantly adapt in response to the needs of students, institutions and society. The purpose of the present study was to evaluate the student's opinion towards the current curriculum in "Luis Razetti" School of Medicine, as a part of the Curriculum Evaluation System that we are developing

Method: In order to collect data from students, we used a validated questionnaire (electronic survey), designed to evaluate the curriculum. The survey was anonymous and included a total of eleven (11) Likert-scale-type questions related to the student's perceptions of the program, as well as satisfaction with their learning.

Results: 46 questionnaires were completed by recent graduate medical doctors from the "Luis Razetti" medical school. Respondents indicated strengths and deficiencies in the current curriculum that also related to its competence. 52% of students considered that the quality of their formation was good overall.

Overall positive feedback was obtained in subjects like parasitology (97.8%), histology (91.27%), and surgery (80.4%). In contrast, we obtained negative feedback in subjects like public health (82.6%), legal medicine (71.7%), pathological anatomy (60.86%) and radiology (62.5%). We also observed difficulties acquiring skills in some areas. 73.9% of the students considered that the obtained education has allowed them to perform adequately during their practice. However, 86.7% also believe that a change in the current curriculum has to be made.

Students consider that the quality of their formation is good, allowing them to perform in an adequate way as medical doctors. This is supported by the strengths the current curriculum has. However, there are deficiencies related to acquired knowledge and skill acquisition in various subjects, this is why a significant proportion of students consider that a change is required in order to improve the actual curriculum program.

Conclusion: Continuous curricular evaluation provides valuable information on strengths and weaknesses, which will guide future efforts to optimize it,in order to improve the quality of the professionals that graduate from our school.

7HH11 (2509)
A survey to assess high school students' and medical students' perspectives on a research-focused medical curriculum and a seven-year integrated Bachelor of Science/Doctor of Medicine Degree (iBSc/MD) Program in Thailand

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Background: The majority of Thai medical students have limited knowledge and skills in research leading to lack of confidence among Thai physicians to create and execute research. The development of a new medical curriculum has been contemplated. The aim of this study was to assess the high school students' and medical students' perspectives regarding research-focused medical curriculum and a seven-year integrated Bachelor of Science/Doctor of Medicine Degree (iBSc/MD) Program.

Method: An online structured-questionnaire was used to assess students' interests in a research-focused medical curriculum and a seven-year Bachelor of iBSc/MD Program. Descriptive statistics was used for data analysis.

Results: There were a total of 682 responders including high schoolers who wanted to become doctors (82.84%), pre-clinical year medical students (5.42%), clinical year medical students (3.38%), and others (8.36%). Overall, 80.93% of them showed a positive viewpoint towards a research-focused curriculum. However, 5% of them were not aware of the needs for doctors to do research. About a seven-year iBSc/MD program, 80.93% of them showed interests in it. The reasons that appealed to them were the opportunity to learn and acquire practical research skills and to receive both iBSc and MD degrees, 85.2% and 46.6%, respectively.

Conclusion: Even though most students recognized a crucial role of research in medical profession, some of them did not. Adjusting students' attitudes toward research are important in order to improve quality of medical practices of future physicians through research. Most Thai students showed interests in a seven-year iBSc/MD program.

Take-home message: The majority of students, especially high school students, had a positive view towards gaining more research knowledge and skills and showed interest in a seven-year iBSc/MD program. Developing this new curriculum should be considered to improve research confidence and output among Thai medical graduates.

7HH12 (1753)

Factors influencing students' satisfaction: results of 10 years follow up

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Background: As a provider, it is essential for the university to have a valid teacher evaluation system, what -besides it's quality assurance role- a great opportunity to map the student's expectations. The main goal of this study is a data-mining approach of the students satisfaction based on an educational inventory and to provide educational management with an adequate tool as well.

Method: An in-house 16-items inventory was created to evaluate students' satisfaction. Altogether 21338 anonym questionnaires were processed by a multi-language questionnaire at the Medical Faculty. 13 568 items were analyzed after data cleaning and balancing based on academic years and programmes. First, a statistical validity analysis was used by Confirmatory Factor Analysis. Secondly, an Item-Response Theory (IRT) and CHAID decision tree models were created.

Results: Statistically valid (77-84%) models were created. Significant differences were found between the preferences of the first-year and the second-year students. In the first year, quality of the lectures and motivation for independent thinking were the most important influencing factors compared with that of the second year students who preferred the general quality of subject. This tendency remains unchanged in the third year. In the clinical modul of education, the quality of the practices is the predominant factor.

Conclusion: IRT and decision tree models whit an adequate questionnaire can be an efficient tool to explore the components influencing students' satisfaction. These factors change dynamically through the academic years. Based on the results, our method is a valid predictive and descriptive tool for measuring students' satisfaction concerning education.

Take-home message: It is feasible to develop statistical models that can help us to find optimal modifications in education to increase the students' satisfaction.

7HH13 (3483)

Dynamic patterns in student assessment outcomes in Algarve Medical School: Cohort Study

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Background: Medical schools and other education institutions are increasingly looking for methods of assessing their teaching and at same time the students learning. Integrated Master in Medicine of the University of Algarve (MIM-UAlg) is a recent and innovative course in the Portuguese context that has been in operation since 2009, open exclusively to people already with a degree. The evaluation system is based on the best evidence: the theoretical knowledge is evaluated in PPI (Personal Progress Index, McMaster), and by PBL assessments focused on the objectives of the clinical problems studied. Practical skills assessed through Objective Structured Clinical Examinations in all years of the course and through Case Based Discussions in the last two years by hospital clinicians. Attitudes and communication are evaluated weekly in the first and second year by tutors in Primary Care. This work focus on the characterization of the dynamics of student evaluation and academic achievements in this Medical School as prospective study for implementation of teaching and learning assessment methods.

Method: In this study, was analyzed the pattern of student's academic performance using statistical data visualization techniques on medical students' academic data of University of Algarve. The main purpose is to perceive, understand and characterize the dynamic process of academic achievements.

Results: In both learning areas, knowledge and clinical skills, the students' academic output showed an increase of performance throughout the curriculum but a relative homogeneous profile among all cohorts. Exception was the observation of a general increase of student clinical skills performance from 2013 cohort, which coincides with introduction of three evaluation moments instead of a single one.

Conclusion: With relatively simple statistical data visualization techniques, we were able to characterize student academic patterns and conclude that, key areas of medical student instruction are being assessed homogenously since the beginning of Medical School in University of Algarve, opening the door to the implementation of a learning performance assessment.

Take-home message: Techniques for statistical data visualization are suitable to understand student academic output data structure and an approach method to start monitoring student-learning performance.

7HH14 (2907)
How good was our curriculum? Sixth year students' self-assessment of their theoretical knowledge and practical experience when starting their internship

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Background: Are medical schools' curricula well-adjusted and efficiently taught, so that young doctors have the required knowledge (TK) and practical experience (PE)? We aim to identify whether recently-graduated doctors learnt what their medical school aimed to teach them and if what they were taught matches what they need the most, now that they have started their practice.

Method: Following a 6th year pilot study presented at AMEE_2017 conference, all 350 first-year residents (FYR) were asked to self-assess their TK and PE, when they first started working, as well the number of opportunities for skill practice offered in 6th- year curriculum clinical rotations.

Results: Evaluation of TK was higher than PE in all rotations. Paediatrics skills were reported as the best known and most practiced (55% reported high TK / 38% reported high PE); Surgical skills were the worst rated in both domains (49% reported low PE and 61% reported low TK). Paediatrics was also the area in which students had more opportunities to practice the defined curriculum skills (44% had more >10 opportunities to practice) while Internal Medicine was the area in which a higher

percentage of students had no opportunity to practice the respective skills.

Students considered they gained high TK on Internal Medicine, Emergency Medicine, Paediatrics, Obstetrics-Gynecology, and General Practice (reported by 10-55%, depending on the area). However, there is a gap between what PE students are expected to acquire and what they end up with (high PE reported by 8-38%, depending on the area).

Conclusion: The identified gap from curriculum in paper versus in practice needs to be addressed. Students feel more confident about their knowledge than about their practical experience, especially in General Surgery, with all students considering this problem is crucial due to the lack of opportunities to practice.

Take-home message: All students felt they did not have enough opportunities to gain the practical experience they were supposed to. Since most Paediatrics' practice goals are met, a similar teaching-learning process could be used as a model for other weak curricular rotations, particularly General Surgery and Emergency Medicine.

7HH15 (2879)
Student evaluation of medical semiology practical teaching at Faculdade de Medicina da Universidade de Lisboa (FMUL): Implications for future teaching

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Background: Medical semiology is a pivotal teaching area in student transition to the clinical years. Taught in the 3rd year under the subject 'Introduction to Clinic' in 2017-2018 this curricular area underwent a significant reform in terms of study guides, examination protocols, teaching structure, student-teacher ratio, etc.

Method: The evaluation of the curricular reform was proposed by one IC student who designed the first draft of a written questionnaire to be filled by all students (n=353). With the supervision of the IC Coordinator and Medical Education Department, a final survey was designed to identify how students perceived the implemented changes namely: Preparatory study guide sent to students before the practical classes; More opportunities to skills practice during the practical classes; Students' self-evaluation after the practical classes; Teachers' evaluation (global performance).

Results: The allotment of additional class time exclusively dedicated to the practical training as well as the participation of patients and student monitors (peer-teaching) were the major strengths reported by students

while the reformulation of some of preparatory material was the major suggestion for improvement.

The introduced changes were globally well perceived, namely the reduction of lecture time to increase practical training as well as the opportunity for higher teacher-student interaction. The lack of time given to skills practice was the strongest criticism in previous years while more patient intervention was the main request, because it's now accepted that students should have contact with patients as early and as frequently as possible, regardless of eventual logistic difficulties. The weakest aspects relate to some specific themes namely with some study guides needing objectives and content reformulation, to match students' expectations. Future maintenance of these changes was confirmed by the Coordinator.

Conclusion: A student-led initiative triggered the evaluation of a newly implemented reform highlighting its strong and weakest aspects. The support given from the Coordinator is essential to guarantee further improvement of IC curriculum.

7HH16 (445)
Measuring the educational environment across the curriculum in Physiotherapy: A Mixed Methodology approach

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Background: The educational environment (EE) has become relevant in the past decades due to its impact in learning process, social life and future professional work of the students. Our aim was to measure the perception of the EE among Physiotherapy undergraduate students at the Pontificia Universidad Católica de Chile (PUC).
Method: Mixed methodology was used. Quantitative component: Dundee Ready Educational Environment Measure (DREEM) questionnaire was applied to 1° to 4° year students. Postgraduate Hospital Educational Environment Measure (PHEEM) and Ambulatory Care Learning Educational Environment Measure (ACLEEM) were applied to 5° year students (clinical clerks). Qualitative component: based in two-open-questions in each instrument related to EE strengths and aspects to improve and focus group including 5° year students (clerkship).
Results: 334 students (83% of total universe) answered the questionnaires. The global mean of DREEM questionnaire was 135.74⍰19.15 revealing an EE "more positive than

negative". The major strength was the perception of the teachers' quality (73%) and the domain with lowest perception was the atmosphere (63%). Clerkship: PHEEM questionnaire was 105.55±20.19 (mean±SD) showing EE "more positive than negative, with room for improvement". The best evaluated domain was social support perception (69%) and worst evaluated was teaching perception (63%). ACLEEM questionnaire showed a mean of 152.87±16.71 revealing excellent EE perception. The best evaluated domain was clinical skills (86%) and the worst were protected time and clinical supervision, 62% each one.

Qualitative results gave specific information about basic science-profession relationship, homogenization of assessment criteria, expensive transfer between campi and students´ threatening by some tutors (clerkship). There were no differences in EE perception depending on student's sex.

Conclusion: EE measurements showed strengths and room for improvement depending on the different student curriculum stages allowing us to implement real actions on each step. Qualitative data complemented and enriched results with new topics like "professionalism", "curricula", "alumni profile" and "research".
Take-home message: A better EE will allow Faculty to form better Physiotherapist from professional and human point of view and this is fundamental for patient's care.

7HH17 (341)
Evaluation of the educational environment of a Singaporean Internal Medicine Residency program

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Background: The educational environment has been shown to be positively associated with better learning within residency programs. The Postgraduate Hospital Education Environment Measure (PHEEM) is a reliable and validated measure for evaluating the educational environment amongst junior doctors. Poor educational environments have been shown to be linked to burnout and a study showed residents in Singapore have higher burnout rates than those reported in Western literature. Therefore, we aimed to determine the educational environment amongst internal medicine residents (IM) in Singapore to investigate possible areas for improvement.
Method: We applied PHEEM to measure the learning environment of Singaporean IM residents across 3 teaching hospitals within Singhealth. Residents' perception was compared between gender, level of training, years of working experience and posting hospital. Internal reliability was assessed using Cronbach's alpha coefficient
Results: 136/153 (88.9%) of IM residents completed the questionnaire (51% male, 31% R1/37% R2/ 32% R3). PHEEM showed high internal consistency with Cronbach's alpha of

0.946. The educational environment was deemed more positive than negative, with room for improvement (mean PHEEM 112.2 ± 16.7). No significant differences in total scores or subscales were detected between gender, level of training, years of work experience or posting hospital. Although mean PHEEM scores were good, several significant differences in responses to specific questions were found between groups, and these offer unique opportunities to intervene. Examples include: Females perceiving less opportunities to acquire practical procedures p=0.03, R3 more likely to perform inappropriate tasks than R1 p=0.009, R1 perceiving less access to educational programs compared to other residency levels p=0.01, R1 perceiving receiving less feedback than other residency levels p=0.01, doctors ≥ 5 years training perceiving less blaming culture compared to less experienced doctors p=0.002, Singapore General Hospital doctors receive more inappropriate calls, p=0.03). Singhealth IM residents generally have a positive perception of the educational environment. However, differing responses to specific questions between groups highlight areas that could be improved.

Conclusion: This study highlights areas within a Singaporean IM residency educational environment that are suboptimal. These deserve further qualitative evaluation, offering potential interventions to improve the educational environment and possible burnout.

7HH18 (1114)
Journeys in Change Management: Two Differing Medical Educational Experiences

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Background: Change management in a medical curriculum can be considered as an oxymoron! The range of factors that exist are often complex ,culturally and historically problematic and the sheer ability to change at the individual, team and organisational levels can be highly problematic and personally daunting.
Through survey work of academic staff and preclinical year students, this work aims to develop a conceptual and useful way to consider and describe change in a medical curriculum.
Method: Based on student comment, together with academic staff interview and personal reflection , various key factors were identified for the process of successful change to take place. Both driving and resisting forces were considered. Two main change initiatives were investigated: Health and wellness and Ethics Integration. These two areas have been developed over the last three years at Notre Dame with varying results, and were chosen because they allowed for exploration of key change influences.
Results: Initial results suggest key individual, team and organisational factors need to be considered prior and during the change process. These include personal attributes, leadership and executive support, perceived relevance of course material, training provision for academic staff deliverers and the method of employed the change process itself.

Discussion & Conclusion: The complexity of change in a medical curriculum is worthy of major discussion and clarification. It is not feasible to simply have a good ideas but rather to understand the importance of the change process itself. The study survey initially points to key factors that support or hinder curricula change. Force field analysis and similar conceptual models can help in the identification of such factors. Importantly initial results provide a meaningful set of discussion points focusing on change in areas of health/wellness and ethics.

Take-home messages:
1. Involvement of key stakeholders including the executive is vital. Expertise of actual deliverers with appropriate resource provision is key to successful implementation.
2. Perceived course material relevance is central for actual student engagement.
3. A clear change model can guide and shape change effectiveness.

7HH19 (1593)
Unidimensionality, goodness-of-fit, and differential item function test of Korean version of Dundee Ready Education Environment Measure (DREEM) questionnaire

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Presenter: A Ra Cho, College of Medicine, The Catholic University of Korea, Seoul, Korea

Background: Dundee Ready Education Environment Measure (DREEM) questionnaire is a tool to evaluating teaching and learning environment of educational institute by students. It consisted of 50 items of 5-point Likert scale including 5 categories developed in 1997. In 2013, survey with Korean version was done in 40 medical schools. It aims at evaluating pyschometric properties of the Korean version of DREEM questionnaire such as unidimensionality, goodness-of-fit, and differential item function by gender based on item response theory for more stable application of the measurement tool.
Method: A total of subject was 12,035. Out of them 9,096 students responded to survey. Out of them incomplete data that contained equal to or greater than 10 missing items were removed. Number of responses included in the analysis was 8,975. We tested unidimensionality of whole items and items of each 5 categories with POLYDIM. Goodness of fit and differential item function by gender

were tested with Winsteps where partial credit model was applied.

Results: P-value of unidimensionality test of whole 50 items was less than 0.0001.Those of 5 categories were more than 0.99. Infit means square of goodness of fit test of 50 items were all more than 0.5 and outfit means squares were all less than 2.0. At the test of each category, two items' outfit mean square value exceeded 2.0; however, the values were less than 2.01. There was no differential item by gender in the test of 50 items and each category.

Although unidimensionality of whole 50 items were rejected, that of each category was accepted. Goodness of fitness test results were all in acceptable range. Above psychometric properties of DREEM Korean version showed that it can be adopted to medical schools in Korea with concrete psychometric stability.

Conclusion: One thing we should consider is that survey itself is not unidimensional; therefore, the presentation and interpretation of simple total score should be cautious. The interpretation according to the result of each category is recommended.

7HH20 (2044)
Why we need mixed methods to explore the construct validity of scores from learning environment (LE) assessment tools: the UCEEM as a case-example

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Presenter: Pia Strand, Lund University, MedCUL, Lund, Sweden

Background: Reviews of tools for assessing LE's in medical education suggest that only a subset of validity evidence is utilized to explore the construct validity of scores. We applied a mixed methods (triangulation) design to examine the construct validity of scores from the Undergraduate Clinical Education Environment Measure (UCEEM).

Method: We conducted tests of internal structure of UCEEM-scores from clinical placements (at affiliated hospitals of a Swedish medical program) and analyzed data from focus groups and interviews with various stakeholders to examine response processes, the relations of scores to other variables (assessing similar domains), and the consequences of use.

Results: We found evidence based on internal structure, response process and relations to other variables supporting previous results of a high degree of construct validity of UCEEM-scores. However, qualitative data suggested that the stakeholders interpreted scores in different ways, and the consequences of use were sometimes inconsistent with what was intended.

Discussion & Conclusion: The UCEEM is currently used to measure clinical LE's in several medical education settings in Europe and Asia. Our study illustrates the need for continuous psychometric evaluation in the different settings with appropriate and varied methods as well as

contextual information when making inferences about the construct validity of scores.

The literature on LE assessment tools seldom presents or discusses evidence of response process, relations to other variables or consequences of use. Our study illustrates why mixed methods designs are necessary for examining construct validity of scores. More research is needed to understand how to turn scores into meaningful feedback.

Take-home message: A mixed methods study design is necessary for understanding response processes, the discourses around the feedback provided by LE assessment tools and the many facets of consequences of use. The extent to which measurement scores are valid is an epistemological issue as well as a matter of psychometric adequacy.

7HH21 (2046)
No such thing as a silly question: Overcoming the perception of humiliation in the learning environment for medical students. Does providing a safe environment for medical students to ask questions improve the learning environment?

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Presenter: Lakhbir Kaur, University of Central Lancashire (UCLan), Preston, UK

Background: Teaching by humiliation is an approach that has been recognised since the 1980s and some doctors continue to use it to this day. This culture can create a negative learning environment with many studies suggesting that such an environment can result in adverse consequences on both health and confidence[1].

The aim of this study is to assess different methods of creating a safe learning environment whereby medical students can ask questions anonymously in order to reduce the possibility of humiliation and improve the student-teacher relationship. The objectives of this study are to assess first and second year medical students' confidence in asking questions during teaching sessions and their perception of the learning environment.

We will be conducting plan, do, study, action (PDSA) cycles.

Method: The first method we will use involves creating a box that students can post questions into anonymously. Each month we will run a panel-style meeting that medical students can attend, where their questions will be answered. The second method we will assess involves setting up a meeting with faculty members and using interactive technology to allow the medical students to ask anonymous questions and receive answers in real time Currently, there does not appear to be a validated tool available that can be used to assess medical student's self-confidence. Therefore, we have created a questionnaire using Bandura's 13 concepts of self-efficacy.

Results: Results are pending, ethical approval has been sought.

We hope that we can provide a platform through which students who normally do not feel confident asking questions in the learning environment can ask questions comfortably. We hope that this platform can be replicated across other medical schools.

Conclusion: A culture change is required in terms of the teaching approaches used with medical students, and effort should be made to create environments in which medical students feel they can safely ask questions.

Scott, K. M., Caldwell, P. H., Barnes, E. H., & Barrett, J. (2015). "Teaching by humiliation" and mistreatment of medical students in clinical rotations: a pilot study. The Medical Journal of Australia, 203(4), 185.

7II: Posters: Problem Based Learning/Team Based Learning

Location: Hall 4.u, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

7II1 (1907)
Student experiences in multilingual problem-based hybrid curriculum

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Presenter: Nina Peitsaro, University of Helsinki, Finland

Background: At University of Helsinki, the preclinical curriculum is offered in the two official languages of Finland, Finnish and Swedish. Upon graduation, all students are required to be able to practice in both languages. The enrollment to language tracks is through a substance-knowledge based entrance exam in the respective language. The language tracks differ only in the language of the problem-based learning (PBL) sessions; lectures are almost exclusively in Finnish and textbooks in English for both tracks. During the first-year course Genome and Development, students have an opportunity to volunteer for PBL in English.
Method: An electronic questionnaire was sent to all 202 course participants to explore their experiences of the multilingual curriculum on their substance learning and language skills, with reference to their language background.
Results: Annually 20-25% of the students apply for English-speaking PBL-groups. In 2017-18, 30 students volunteered for PBL in English, 34 studied in Swedish, and 138 in Finnish. Many students had bi- or multilingual background. The summative course exam was available in all three languages, and the students were allowed to answer in any of them. In the exam, 40% of students studying in English, 85% of students studying in Swedish and all students studying in Finnish used the respective language. The possibility to attend PBL-sessions in English was appreciated, reasons varying from wishes to brush up oral language skills to an opportunity to use one´s school language. Some students participating in PBL in Swedish, attending lectures in Finnish and reading course books in English experienced that the multilingual learning environment impaired their learning outcomes.
Discussion & Conclusion: Content and language integrated learning (CLIL) has widely been implemented in higher education (Cenoz, 2015. Language, Culture and Curriculum 28:8-24) and PBL has been seen as a meaningful way of acquiring language competencies (Jaleniauskiene, 2016. Procedia – Social and behavioral sciences 232:265-275). However, the increasing diversity in student´s language backgrounds should be acknowledged and the effect of multilingual learning environment to students´ learning monitored.
Take-home message: Multilingual approaches support students´ language skills, however, care must be taken not to complicate their content learning.

7II2 (2754)
Implementation and evaluation of PBL tutorial introducing simulated patients in Japanese medical school

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Presenter: Naoki Hiroi, Center for Medical Education, Toho University, Tokyo, Japan

Background: Problem-based learning (PBL) has been widely acknowledged as an effective teaching method in medical education. Since the first introduction of PBL at our university in 2006, however, it has been a challenging task to use PBL to facilitate affordances of medical knowledge use and foster the critical skills required by physicians. The biggest difficulty we have found has been how to avoid PBL classes' becoming stereotyped or routine. This study was performed to investigate the effectiveness of the use of simulated patients (SPs) in PBL in this sense and in general.
Method: In January 2016, we conducted a clinical reasoning PBL tutorial with SP or without SP as part of regular classes for medical school students. All student experienced PBL both with and without SPs. Feedback of student was collected twice by questionnaire (once after each PBL), using closed questions and interviews. For the statistical analysis, a pairwise comparison (Wilcoxon signed-rank test) was performed using IBM SPSS Statistics version 22.
Results: On comparing the evaluations of PBL with and without SP, we found that the average of the student's evaluation was higher for the setting without SP and there was no statistically significant difference in the satisfaction derived from the PBL tutorials. However, the reasons for deriving satisfaction were different.
Conclusion: A feeling of tension in PBL with SP was cited as the reason for deriving satisfaction, and it appeared that the participation of SP led to a reduction of student's demotivation. Depending on the purpose of the PBL, it was speculated that SP participation could be a one of methods of PBL program practice. PBL with SPs seems to have potential as a one of useful methods to reduction of student's.

7II3 (2850)
Dispelling some common misconceptions of PBL facilitation at a Graduate Entry Medical School

Authors
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Deirdre Mc Grath

Presenter: Diane O Doherty, Graduate Entry Medical School, University of Limerick, Ireland

Background: The integrated curriculum for years 1 and 2 at the Graduate Entry Medical School at the University of Limerick is delivered though problem-based learning (PBL). This study investigated the experiences of PBL tutors and our findings address several common misconceptions that exist regarding PBL facilitation, including: That facilitating PBL requires little input or effort from the tutor. That PBL tutors are required to be content experts.
Method: A mixed method study was completed with tutors based at the Graduate Entry Medical School at the University of Limerick (n=33). Tutors took two online surveys with an 89% response rate. Two follow-up focus groups took place with 13 participants. A descriptive quantitative analysis and thematic analysis was completed.
Results: Facilitating PBL was associated with considerable effort and input from experienced tutors. Survey results show that tutors spent more than >120 minutes preparing for each case and that a majority reported having to offer 'some' or 'quite a bit' of input to help students to generate the relevant learning objectives. This effort was associated with an overall 'positive' or 'very positive' attitude by 93% of tutors. Facilitating PBL was rewarded by a beneficial effect on clinical practice (77%). Supportive qualitative discussions deepened our understanding of the role of a PBL tutor.
Tutors reported that their input is needed to maintain good group dynamics, ensure successful collaboration of the group and that the students meet the required learning objectives for each case. The majority of tutors reported that facilitating PBL in the basic sciences had a positive effect on their day-to-day clinical practice which included improving their listening and communication skills, reflection and revision of basic sciences aiding clinical reasoning. The results of this study will inform practices and procedures with regard to training and support to enhance the experience of PBL for tutors and students.
Conclusion: Facilitating PBL is an active and demanding role, even for medically-qualified, content-expert tutors. However, the effort required is rewarded by an enjoyable, positive experience and the benefits that tutoring in the basic sciences can bring to clinical practice.

7II4 (2356)
5-step PBL tutor training program - a practical faculty development experience to share

Authors
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Presenter: Ling-Yu Yang, Department of Pediatrics, School of Medicine, National Yang-Ming University, Taipei Veterans General Hospital, Taipei, Taiwan

Background: Problem-based learning (PBL) has been widely accommodated as a learning format in curriculum. The tutors may not be content experts of the cases but they are required to be familiar with the PBL tutoring skills. Regarding a comprehensive training for new tutors, a basic tutor workshop training may not be enough.
Method: We have built up a 5-step PBL tutor training program and every new PBL tutor has to work through the 5-step process, including (1) attending the basic 1-day PBL workshop, (2) co-tutor training for two cases, (3) attending half day advanced PBL workshop, (4) tutoring under direct observation by senior tutors (5) formal independent tutor.
Results: In the past ten years, we have successfully trained 157 new PBL tutors. Ninety-one percent of them were quite satisfied with the 5-step training program. Eighty-five percent of them felt confident in their tutoring skill. And 88 % got good feedbacks (4.3/5 in Likert scale in average) from their students.
Most PBL tutor trainings are designed for one-day or two-day workshop. Continuous step-by-step training format is not widely applied in every institution. The customized guidance, experiences sharing, direct observation and immediate feedback from the senior tutors are all important in transmitting tutoring skills to the new tutors. 5-step PBL tutor training program is proved to be an effective model for training new PBL tutors. The trainee tutors' and PBL students' response are good. The training model makes the new tutors competent and confident in PBL tutorial and they are more engaged in PBL teaching after the program.
Conclusion: A 5-step PBL training program is a quality assuring and comprehensive model for continuous faculty development. The faculty feels confident and gets good feedback from peers and students after the 5-step training process. It can be introduced as a practical model for new schools to implement PBL in the curriculum.

7II5 (2833)
Problem based learning (PBL) tutors' perceptions of factors affecting student engagement with PBL

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Presenter: Helena McKeague, University of Limerick, Ireland

Background: The integrated curriculum for years 1 and 2 at the Graduate Entry Medical School (GEMS) at the University of Limerick (UL) delivered though problem-based learning (PBL). This study investigated the experiences of PBL tutors. Several issues influencing student engagement in PBL were identified including the use of mobile device technology, unauthorised access to learning objectives and PBL cases, and how engagement can vary with different milestones of the academic year and between Years 1 and 2 of the course.
Method: A mixed method study was completed with PBL tutors based in GEMS, UL (n=33). Tutors took two online surveys with an overall 89% response rate. Two follow-up focus group discussions took place with 13 participants in total. A descriptive quantitative analysis and a thematic analysis was completed.
Results: One of the most serious factors negatively affecting student engagement with PBL identified was some students' unauthorised access to the cases and learning objectives in advance. Tutors discussed the different milestones in the academic year that influence students' engagement with the PBL process including the mid-semester changeover between groups and tutors and the pre-exam periods. Differences in the experiences between facilitating first and second year groups were noted. Year 1 tutors reported considerably more positive experiences with their groups than year 2 tutors, (50% versus 27.% had very positive experiences) greater discussion of cases and greater satisfaction with group dynamics. Tutors reported that banning the use of mobile electronic devices in PBL had improved student engagement.
One of the novel findings identified by this study was the issue of students' prior access to PBL cases and learning objectives and its influence on student engagement. Different times of the academic year affected attention and attendance. Banning the use of mobile electronic devices improved engagement. This study identified that there were differences in engagement between first and second year groups.
Conclusion: It is important that tutors and faculty recognise and address factors influencing engagement with PBL, group dynamics and participation. These factors may introduce variance in research studies on PBL.

7II6 (1867)
Course observation to facilitate skill development for inter-professional problem-based learning (PBL) tutors

Authors
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Presenter: Mong-Wei Lin, National Taiwan University College of Medicine, Taipei, Taiwan

Background: Inter-professional PBL was designed to encourage inter-disciplinary communication and learning as early as possible. PBL tutors with different training backgrounds need a coordinated training program to facilitate professional development. This pilot study, based on community of inquiry, sought to use peer course observation as a coordinated platform for inter-professional PBL tutors to enhance tutoring practice.
Method: Fourteen PBL tutors from Departments of Medicine (DM), Pharmacy (DP), and Nursing (DN) volunteered to select at least 1 session of scenario discussion from DM PBL courses, facilitated by senior DM tutors, in the second (humanity/society), third (anatomy/physiology), or fourth (pathology/pharmacology) school years to observe. Tutors' observations and feedback were collected by a semi-structured questionnaire.
Results: Most tutors agreed that course observation provided them a rich opportunity to learn from peers. They were able to reflect upon their own tutoring and obtained new insights in how to facilitate group dynamics, employ cognitive strategies and provide structured feedback during scenario discussion. Content experts were considered critical, especially by DM and DP tutors, in scenario design and facilitation of the students' learning process. As more and more students used social media before scenario discussion to organize their prior knowledge and discussion, tutors may take a more active role in participating in these media to observe the students' self-directed learning process.
Conclusion: PBL tutors should be considered as active learners in the observation process. Explicit learning goals for the observing tutors may enhance the effectiveness of observation. More interactions before and after the scenario discussion between the observing and the observed tutors are needed for better understanding of how individual tutorial groups functioned. Tutors should be encouraged to observe PBL courses at different DM school years to appreciate the students' progress in self-directed learning.
Take-home message: Training of inter-professional PBL tutors should be designed at team and organizational levels to enhance cohesiveness among tutors from different disciplines.

7I7 (1635)
PBL in primary care: Is it feasible?

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Presenter: Gustavo Romao, UNAERP (University of Ribeirao Preto), Ribeirao Peto, Brazil

Background: When compared to traditional methodology, Pbl presents several advantages and promotes acquisitions of essential medical abilities such as team working, critical reasoning, analysis, research and problem solving. Although this methodology is widely used for cognitive learning in class sessions, there is little experience about its use in settings of clinical practice.
Method: In January, 2017, Pbl was firstly implemented in primary care settings from the first to the fourth year of the medical course in University of Ribeirao Preto. Activities are developed according to pbl steps in small groups of 8 to 10 students supervised by a trained facilitator. A report from a real patient attended in primary care drives the peer discussion. At the end of the first meeting, knowledge gaps are identified and learning goals are defined. After a two weeks period of self-directed study, the small group meet again to finalize the discussion and to stablish a care plan to the patient. Following the second meeting the care plan will be used by students in patient care under the supervision of a general practitioner. In December 2017 the medical students' perceptions about this activity was evaluated through the Dundee Ready Educational Environment Measure (DREEM) in a 0 to 4 Likert scale.
Results: 374 students answered the questionnaire. The total DREEM score was 122,6 and the average scores for activity, atmosphere, teachers, academic and social self-perception subscales were 25,55; 31,34; 19,7; 30,64 and 15,89, respectively. According to their perceptions the activity is student-centred (2,53), emphasizes long-term learning (2,38), develops problem-solving skills (2,54) and relevant competences to the healthcare career (2,80). Teachers are knowledgeable (2,45), provide constructive criticism (2,75), feedback (2,72) and adopt a patient-centred approach to consulting (3,27). The internal consistency (Cronbach´s alpha) was 0,92.
Conclusion: PBL In primary care promotes contextualized learning and can enhance acquisition of medical competencies in settings of clinical practice. Our results demonstrated that the overall students` perceptions of this educational environment was more positive than negative.
Take-home message: PBL is feasible, satisfactory and promotes acquisitions of essential medical abilities when applied in primary care settings

7I8 (236)
The impact of problem-based learning on internship doctors' performance: a cross sectional study

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Background: Internship program is a mandatory requirement for physician who recently graduated in Indonesia. The aims were to practice and perform on their first contact with community as medical doctor, and continuing professional development on health services. The performance of doctor can be affected by several factors; one of them was experiential learning process. Therefore, this study aims to determine the correlation of previous learning process with problem-based learning (PBL) implementation with the perception of physician performance.
Method: Fifty-eight respondents were internship doctor who graduated from Faculty of Medicine, Universitas Sebelas Maret, selected by consequtive sampling method that has been adjusted with inclusion and exclusion criterions. Respondents were filled out two questionnaires, perception on PBL implementation (Patria, 2015) and internship doctor (ID) performance by Ministry of Research, Technology and Higher Education. The data were analyzed by Pearson correlation and multivariate regression test.
Results: There was a significant positive correlation between perception of PBL Implementation and the perception of ID performance (p=0,000; r=0,785). From multivariate linear regression test, there are three domains that showed great impact on ID performance; patient problems (p=0,000), self-directed learning (p=0,004), and student-centered learning/SCL (p=0,040).
PBL was a learning method which creating as self-directed learner, and has good clinical reasoning. The impact of PBL could be seen at the time of the doctor's first contact with the community or patient. Doctor-oriented patient problems have been demonstrated in the internship program, by always being a self-learning person and clinical problem-oriented. SCL's perceptions support the professional development process. Thus, the clinical reasoning of the physicians has been well as he trained during the previous PBL education.
Conclusion: Medical education continues to grow dynamically, and then the PBL method is also continuously evaluated to the continuing professional development phase. This study can be used as a reference that PBL process can give positive influence to train students in SCL, SDL and patient problem orientation. However, this study needs to be continued by comparing other learning methods, for example outcome-based, social re-constructivism, essential learning, or others.

7II9 (3644)
Evaluating 2nd year graduate students' expectations and feedback in a problem based learning setting to improve student experience

Authors
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Presenter: Alexandrina Roman, Bath Academy - University of Bristol, UK

Background: At the University of Southampton, the graduate entry program (GEP) includes problem based learning (PBL) group sessions with a facilitator. Barrows (1985) proposed that the main role of the PBL facilitator was to keep learning on target using non-directive stimuli, quizzical language and comments[1].
Method: The aim of this study was to establish students' expectations of facilitators and the detailed feedback facilitators received to help improve student experience. Two questionnaires utilising a mixture of open and dichotomous questions was created. The first questionnaire regarding student expectations of facilitators was distributed to students in their first session and the second feedback questionnaire was completed at the end of the term.
For the 2nd semester in 2017, a total of 40 2nd year GEP students were asked to complete the questionnaire. 40 students complete the introductory questionnaire and 31/40 (77%) completed the feedback form.
The open questions of expectations were recorded and the most common was for the facilitator to keep the discussion on track/ stimulating appropriate conversation 34% followed by adequate time keeping (19%).
All facilitators had taken on board students' expectations.
Results: With respects to positive comments, 21% of responses included students' appreciation of facilitators sharing pre-existing knowledge and a further 21% valued the positive learning environment created and the encourage natures of the facilitators. 61% (19/31) commented on areas for improvements and these included: better time keeping, more resources, more involvement from the facilitator in the games and further integration of the group.
Conclusion: Students have a range of expectations from facilitators, and feel the facilitators met all their expectations. Students have suggested areas for improvements that will help to improve their learning experience. Further work will trial how these will be implemented and improve their learning experience.
Take-home message: Students' expectations do not always match up with the role of the facilitator. Student feedback includes positive aspects but also of areas for development that can be used to guide improve student experience.
[1] Barrows, H. (1985). How to design a problem-based curriculum for the preclinical years. New York: Singular.

7II10 (2844)
Do Prior Experiences of Teamwork Influence Students' Case Based Learning Experience?

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Background: Whilst the majority of students appear to evaluate their experiences of Case Based Learning (CBL) positively, some students are less enthusiastic about this method of working and learning with others. Although students may choose a medical school based on a perception of their learning preferences and the kind of curriculum delivery that medical school offers, medical schools record little about each student's prior experiences of teamwork and will not normally take this into account in planning individualised learning. Despite this, successful teamwork is frequently assessed at interview and prescribed as a desirable characteristic by the Medical Schools Council. This student led study allows students to honestly and anonymously discuss their experiences of teamwork prior to university and how they relate to their participation in CBL.
Method: Year 1 Medicine students at the University of Bristol were randomly selected. Using constructivist grounded theory, different teamwork experiences of students both prior to and at university were explored. We conducted 10 interviews which were audiotaped and transcribed. Thematic analysis was performed through the theoretical framework of social cognitive personality theory, including the work of Bandura, in order to interpret the way in which students had modified their own expectations and behaviour based upon their prior experiences.
Results: Honestly reported negative prior experiences of teamwork are unlikely to arise in a high stakes admissions interview context, and a wide range of different experiences was reported, including those drawn from participation in sports and hobbies as well as academic and workplace contexts. There were several negative experiences which subjects were able to relate to their later studies at university, whilst positive teamwork also appeared to influence later enjoyment of group work.
Conclusion: Whilst teamwork is a valued quality of entrants to medical school, there appear to be difficulties in validly assessing prior success at working in teams, as well as an effective way of applying the knowledge gained about an individual's prior experiences to their future learning.
Take-home message: Prior experiences of teamwork can affect the way students work in groups at university.

7II11 (2827)
What Makes a Fantastic Case Based Learning Group?

Authors

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Presenter: Anna Beak, University of Bristol, UK

Background: The way a Case Based Learning (CBL) group is able to work together, sharing ideas and the discoveries of learning is crucial to the success of this method. The University of Bristol adopted a CBL approach in 2017, and this student-led project aims to explore the experience of CBL from a student perspective. We realised that formal evaluations were hampered in their ability to capture a true reflection of positive experiences of CBL as a student, and wanted to analyse why some groups worked so well together and enjoyed the process of learning so much. Group dynamics and the formation of group and professional identities are complex and subjective: we wanted to use grounded theory to explore qualitative experience in order to analyse what makes some groups such positive environments for learning.
Method: Using feedback from Y1 Medicine group members and facilitators we identified groups which learned and worked well together. Using constructivist grounded theory approach, we explored the different experiences of students in those groups, identifying key inputs, conversations and relationships which had contributed to the group's success. We conducted 1 focus group discussion and 10 interviews. Discussions were audiotaped and transcribed. Thematic analysis was performed through the theoretical framework of theorists such as Lewin, Schutz, Tuckman and Hackmann.
Results: Initial analysis of results highlights the ways in which developing interpersonal relationships and the survival of Tuckman's 'storming' phase can lead to a successful group dynamic. Other results indicate the importance of a developing sense of group purpose and goals, as well as the capacity of a group to offer each other support and encouragement, and activities which have facilitated trust to develop between group members.
Conclusion: Although diverse personalities can sometimes make group work a challenging process, there appear to be common features of successful groups which institutions could learn from and foster more deliberately, preparing students better for productive teamwork in their later careers.
Take-home message: Institutions using small group work should consider how students can best be prepared for their new roles as happy and successful group learners.

7II12 (320)
Uncover it, students would learn leadership from Team-Based Learning (TBL): The effect of guided reflection and feedback

Authors

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Dean X. Parmelee
Elizabeth Peyton
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Presenter: Dean X. Parmelee

Background: Little is known about best practices for teaching and learning leadership through Team-Based learning™ (TBLTM) with medical students. We hypothesized that guided reflection and feedback would improve shared leadership and shared leadership capacity, and enhance team decision quality in TBL teams. We used the Kolb experiential learning theory as the theoretical framework.
Method: The study was conducted at Tehran University of Medical Sciences. Three TBL sessions with 206 students (39 teams) participated in the study. Using a quasi-experimental design, one batch received guided reflection and feedback on their team leadership processes (n¼20 teams) and the other received only TBL (n¼19 teams). Observers measured shared leadership using a checklist. Shared leadership capacity was measured using a questionnaire. Scores on a team application exercise were used to assess quality of team decisions.
Results: Evidence did not support our first hypothesis that reflection and feedback enhance shared leadership in TBL teams. Percentages of teams displaying shared leadership did not differ between intervention and control groups in sessions 1 (p¼0.6), 2 (p¼1) or 3 (p¼1). The results did not support the second hypothesis. We found no difference in quality of decision making between the intervention and control groups for sessions 1 (p¼0.77), 2 (p¼0.23), or 3 (p¼0.07). The third hypothesis that the reflection and feedback would have an effect on shared leadership capacity was supported (T¼ 8.55, p>0.001 adjusted on baseline; T¼ 8.55, p>0.001 adjusted on gender).
We found that reflection and feedback improved shared leadership capacity but not shared leadership behaviors or team decision quality.
Conclusion: Adding structured reflection and feedback on leadership improves students awareness of leadership and identity to become team leaders and willingness to share leadership and collaborate as followers. Medical educators who apply TBL, should provide guided exercise in reflection and feedback so that students may better understand the benefits of working in teams as preparation for their future roles as leaders and members of health care teams.

7II13 (3208)
Express Team-Based Learning (eTBL): Educational Effects of a Modified TBL Approach

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Background: Team-based learning (TBL) is a student-centred instructional strategy that promotes active learning. After piloting TBL in our medical programme, student evaluations were positive but TBL was perceived as time-consuming. The individual and team readiness assurance tests (RAT) take up a significant amount of class time, but were rarely highlighted by students as helpful. By omitting the RAT, we designed a modified and time-efficient TBL method we have called Express TBL (eTBL). In this study, we examined what effects eTBL had on student learning as assessed in a summative examination.
Method: Neuroradiology for third year medical students has previously been taught in two 1.5 hour didactic lectures in CT and MRI diagnostics. Using a cross-over study design, the students were divided into two groups. One group undertook teaching in CT diagnostics by a 1.5 hour didactic lecture and MR diagnostics by a 45-minute eTBL session. The other group undertook teaching in CT diagnostics by a 45-minute eTBL session and MR diagnostics by a 1.5 hour didactic lecture. To compare effectiveness of the two teaching methods, we compared results on the neuroradiology part of the end-of-year written examination.
Results: The group which received teaching using eTBL in MRI diagnostics scored slightly higher on MRI questions in the examination (mean 2.34 vs. 2.24, of a total of 4 points), but the difference was not significant (p=0.415). The group which received teaching using eTBL in CT-diagnostics scored slightly higher on CT-questions (mean 3.69 vs. 3.58, of a total of 4 points), but the difference was not significant (p=0.182). The results suggest that teaching method (lecture vs. eTBL) had little impact on student performance as measured on the end-of-year examinations.
Conclusion: eTBL reduced in-class teaching time from 1.5 hours to 45 minutes, but did not lead to inferior student performance. By omitting the RAT, content learning was moved to out-of-class preparation, leaving in-class time to be spent on application exercises. Shorter sessions may ease implementation of TBL in the curriculum and allow for more frequent sessions.

7II14 (3096)
Surveying learning outcomes of students with different learning style by combining flipped classroom and team based learning

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Background: The development of flipped classroom and TBL provide many advantage in modern medical education. According to Kolb's argument, effective learning entails the possession of four different abilities and reflective observation. Kolb also identify four basic learning styles: converger, diverger, assimilator, and accommodator. This study tried to analysis the learning effect of different learning style after exposure in modern digital learning environment and new teaching method.
Method: We combined team-based learning with flipped classroom as a new model to teach the curriculum of Family Medicine for 4th grades medical students and Pediatric Nursing for 3th grades nursing students at a medical university in Eastern Taiwan from Feb. through Jun. 2016. Kolb's Learning Style Inventory was used to exam students' learning styles before curriculum. Questionnaire and deep interview were completed to after curriculum to survey their learning experiences of the new teaching method.
Results: There are 56 medical students and 231 nursing students included. The distribution of learning style in medical students is similar, but most nursing students are Diverger (40.3%), followed by Accommodator (26.0%)、Assimilator (25.1%) and Converger (8.7%). Students have higher satisfaction for learning material in films than in reading. The proportion of pre-class self-learning are accordance with the attitude of the materials, self-efficacy, peer and teacher norms, and learning atmosphere at classroom(p<.05). Students with different learning styles have no significantly different learning outcomes with different types of self-learning materials.
Conclusion: The model of combination of team-based learning and flipped classroom can indeed transfer boring educational lessons into practical and interesting lessons. It can enhance students' interest in learning, cultivating students' self-learning ability, communication skills, problem-solving skills and team corporation ability. It can also help students to apply their learning skills to the future clinical care ability.
Take-home message: TBL integrated different types of self-learning, classmate-interactive learning, using inductive and reasoning ability to solve the practical problems in one educational approach. So it can be applied to any kinds of learning styles of students and help them to achieve better learning outcomes.

7II15 (3420)
Is Team-based learning an effective method of acquiring paediatric clinical skills in an undergraduate medical program?

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Background: Individual learning has always been the usual method of learning in medical education. Team-based learning (TBL) was introduced a decade ago in medical schools, yet there are few reports of the use of TBL for learning clinical skills. We describe the effectiveness of team-based learning (TBL) in learning skills of measuring and interpreting child's growth and developmental milestones and how it benefited our first year medical students.
Method: 86 Qatar University year 2 medical students participated in a team-based learning activity. After providing relevant resources for self-directed learning prior to the session on measuring child growth parameters, students completed an individual readiness assurance test (IRAT). This was followed by a team readiness assurance test (TRAT) which involved intra-group and inter-group discussions. The session was concluded with student feedback being requested.
Results: The mean scores obtained in the IRAT and TRAT were 44% and 85% respectively for the 10 item test. Over 2 academic years feedback was completed by 15/ 46 students of cohort 1 and 33/ 73 students of cohort 2. Students' overall satisfaction with the session was 83.3 % in Cohort 1 and 91.3% in Cohort 2. Ninety eight % of the students rated the teaching method as good or excellent. Free text comments reported the session to be interactive and well received.
Scores improved after participating in the team-based discussion. This improvement supports TBL as reinforcing students' learning. Cumulative students' qualitative and quantitative feedback suggests team-based learning helps students learn skills in measuring and interpreting child's growth parameters and developmental milestones. Learning these clinical skills in a team-based learning session was enjoyable to students.
Conclusion: TBL enhances learning of skills in measuring and interpreting child's growth parameters and developmental milestones. Introducing TBL strategy at this early stage in the undergraduate medical programme for clinical skills acquisition adds benefit to the students' education. Combining individual based learning with the TBL strategy provides a forum to allow students to reinforce their learning.

7II16 (3017)
Validation of a Peer Assessment Method for Team-based Learning in a Medical School Histology Course

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Presenter: Lukas Richards, Mayo Clinic, Rochester, Minnesota, USA

Background: Team-based learning (TBL) is an instructional method that promotes active learning and has equivalent or improved academic outcomes compared to traditional techniques. The ability to evaluate peers has been identified as a core competency of medical graduates. Currently, peer assessments of TBL are holistic and lack behavioral criterion. Therefore, we aimed to develop and validate the content and internal structure of a new, criterion-based TBL peer assessment method.
Method: We conducted a cross-sectional study of all Mayo Clinic Medical Students (N=52) during the first year Histology course. Histology is a 6-week course that utilizes a TBL approach (13 teams of four students). Short briefing sessions are followed by laboratory time (teams explore virtual microscopy assignments). Daily formative feedback based on clinical applications of histology is delivered using an audience response system. To assess TBL, we developed a new criterion based, 12-item peer evaluation instrument (Team Education Assessment Measure; TEAM). Content was derived from extensive review of the literature on team learning and peer evaluation and iterative revision by the co-investigators. Items were created to assess perceptions of teamwork concepts including preparation, contribution, interest, respect, and professionalism. All students completed the TEAM-12 instrument on their three team members at the end of the course.
Results: 52 medical students completed a total of 156 TEAM peer assessments. Factor analysis revealed a two-factor survey (7 items - Team Engagement, 4 items - Professional Behavior). One item loaded ambiguously and was dropped. Cronbach's alpha were excellent: 0.81 (Team Engagement), 0.83 (Professional Behavior), and 0.83 (11 items overall). Item mean scores (standard deviation) ranged from 4.69 (0.49) to 4.90 (0.32) on a 5-point scale.
Conclusion: We report a criterion-based peer assessment of TBL. Content validity was derived from the published understanding of team learning and iterative revision. Internal structure validity is supported by a two-dimensional model including engagement and professionalism. Future study should determine if associations exist between TEAM scores and student variables including assessments of knowledge and professionalism.
Take-home message: We report a new, criterion-based peer assessment of team-based learning with strong content and internal structure validity.

7II17 (1386)
Integration of basic-clinical sciences: an experience of Team-Based Learning (TBL) vs. traditional method among undergraduate dental students

Authors
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Background: In most dental schools, basic science course is delivered in the first two years, hence the relevance of it with clinical sciences remains unclear for undergraduate students. A range of educational methods was used to improve the learning capacity of undergraduate dental students and enhance the application of basic sciences in the clinical decision making.
The purpose of the present study was to evaluate the effectiveness of Team-Based Learning (TBL) sessions compared with lectures on dental students learning during the basic science course.
Method: A non-randomized controlled study was conducted in Tehran, Iran. A series on TBL sessions was designed to deliver Anatomy, Microbiology and Dental Material subjects. 237 students attended TBL sessions in addition to lectures in the school of dentistry, Tehran University of Medical Sciences. In the comparison group, 114 students attended traditional lecture course in the school of dentistry, Shahid Beheshti University of Medical Sciences. Students' feedback on their satisfaction on TBL sessions was collected using a 21-item questionnaire. For evaluating the change of knowledge between groups a pre- and post-test MCQ test was conducted. Data was analyzed using repeated measure (ANOVA) test in SPSS version 24.0.
Results: A significant difference between pre- and post test scores was found between lecture-based and team-based learning in Anatomy ($p = 0.047$) and Dental material ($p = 0.00$) courses. But enhancement of final score in Microbiology was not significant ($p = 0.26$). Students generally enjoyed and appreciated the TBL sessions and reported that the TBL classes were very useful in clarifying the application of the topics.
Conclusion: Application of TBL in the basic science course was successful in improvement of students' learning.

7II18 (1028)
Team-Based Learning in physical examination skills: a pilot study

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Presenter: Jiska Patiwael, VU Medical Centre, School of Medical Sciences, Amsterdam, Netherlands

Background: Physical examination skills training for medical students consists of two parts: a clinical skills teacher first provides students with background knowledge on how to use these skills and on normal and possible pathological findings, students then practise physical examination skills. Students seem to adopt a relatively passive attitude during the first part of the training. In his dissertation, Duvivier suggests that a student based approach might be more suitable for teaching physical examination skills because it actively engages students. Team-Based Learning (TBL) is such an approach. A new teaching format, based on TBL principles, has been designed for the first part of the training. To investigate how students value this new teaching format, a pilot study was performed.
Method: The new teaching format consisted of 4 steps: 1. preparation at home; 2. individual readiness assurance test (iRAT); 3. team readiness assurance test (tRAT); 4. plenary team discussion. Students complete the training by practising physical examination skills.
All students at VUmc School of Medical Sciences, Amsterdam, Netherlands, who participated in this training at the start of their Master's program, were asked to provide written feedback by means of a tip and a top for each step of the training.
Data were analysed using open coding. Consensus on themes was achieved through iterative discussion amongst three members of the research team. Data were collected and analysed until sufficiency was reached.
Results: A total of 115 feedback forms were returned (100%) during the period June-September 2017. The main themes that were valued positively by students were: interaction, thinking for themselves, competition, testing prior knowledge and preparation. Tips concerned time management, completeness and structured overview of background material.
Using TBL principles in training physical examination skills is valued positively by students. They report that they prepare better and feel more actively engaged in the training. Future research will focus on how teachers value this training.
Conclusion: We conclude that TBL seems to actively engage students when training physical examination skills. TBL principles seem to stimulate active learning, prior to and during training physical examination skills.

7II19 (1048)

Team-based learning strategy in Biochemistry: perceptions and attitudes of faculty and first-year medical students

Authors
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Presenter: Namrata Chhabra, SSR Medical College, Belle Rive, Mauritius, Curepipe, Mauritius

Background: Team-Based Learning (TBL) strategy has been widely adapted by medical schools all over the world, but the reports regarding the perceptions and the attitudes of faculty and undergraduate medical students towards TBL approach have been conflicting. The study aimed to introduce TBL strategy in curriculum of Biochemistry after evaluating its effectiveness through perceptions and attitudes of faculty and first- year medical students.

Method: 150 students of first professional M.B.B.S and five faculty members participated in the study. Team based learning was introduced as a teaching strategy to the First -year Medical students to cover the topics of "Study of Vitamins". Four TBL sessions were conducted to cover these topics. TBL sessions were held twice a month and each session lasted for 2 hours. The questionnaire-based feedback was collected from the students after the second and fourth TBL sessions to compare the differences in the perceptions and attitudes of the students regrading learning styles, behaviors, impact of team building and professional development. Faculty feedback based on questionnaire, focus group discussions, reflections and in-depth interviews was collected after the fourth TBL session.

Results: Majority of the students expressed satisfaction with team approach and reported improvement in the academic scores, learning styles, and development of problem solving, interpersonal and professional skills. The faculty, however, recommended a modified TBL approach to benefit all sections of the students for the overall success of this intervention.

Conclusion: TBL is an effective technique to enable the students to master the core concepts and develop professional and critical thinking skills, however, for the first -year medical students a modified TBL approach might be more appropriate for the effective outcomes.

Take-home message: Team-based learning is an effective teaching learning strategy to promote increased engagement within the classroom, appreciation of value of teams by students, acquisition of knowledge, and development of professional and critical thinking skills. A modified Team-based approach as an instructional technique might be the appropriate approach for the benefit of first-year medical students.

7II20 NOT PRESENTED

7JJ: Posters: Clinical Teaching 2

Location: Hall 4.u, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

7JJ1 (490)
Peer observation: a quality improvement tool for clinical teaching

Authors
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Presenter: Pick Fong Chee, Tan Tock Seng Hospital, Singapore

Background: Peer observation of clinical teaching was initiated to improve the quality of teaching among the clinical instructors (CIs). It involved peers providing feedback using a standardised tool and giving verbal and written narrative comments. The teaching activities included skill supervision and assessment, small group teaching and case discussion sessions.
Method: Twenty-nine peer observation sessions were completed over an eight-month period. All written narrative feedback provided by peers and comments documented by the CIs in the standardised tool were reviewed and analysed.
Results: All peer observers provided feedback specific to the teaching activities. 100% of the narrative feedback identified the strengths of the CIs and 41% highlighted areas for improvements with suggestions. All the comments documented by clinical instructors post-observation demonstrated reflective practice. Three CIs expressed stress being observed by their peers.
All CIs have received formal training in providing constructive feedback to students. The findings have demonstrated application of knowledge and transfer of learning during peer observations. The constructive feedback provided is a source of motivation and allowed reflection for improvement despite reported stress. The findings show that peer observation is useful as a quality improvement tool for clinical teaching. Constructive feedback specific to actual observed behaviours facilitates reflective practice for improvement in teaching and enhances professional as well as personal growth.
Conclusion: Peer observation among the CIs is strongly encouraged but not mandatory. More work needs to be done to promote this activity in view of its benefits. Barriers such as perceived stress being observed by peers, not wanting to be scrutinised and time constraints need to be addressed.

7JJ2 (518)
Experiential Learning through Clinical Observerships in Premedical Education: Benefits and Challenges

Authors
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Marco Ameduri, Weill Cornell Medicine, Doha, Qatar

Presenter: Rachid Bendriss, Weill Cornell Medicine, Doha, Qatar

Background: Adopting ontological and epistemological assumptions of an interpretivist paradigm, this study aims to explore the benefits and challenges of an experiential learning program as reported by participants. According to Mack (2010), "ontological assumptions of interpretivism are that social reality is seen by multiple people [who] interpret events differently leaving multiple perspectives of an incident" (p.8). Sometimes referred to as constructivism, interpretivism's epistemological assumptions claim that "knowledge is gained through personal experience" (p.8). When premedical students at Weill Cornell Medical-Qatar (WCM-Q) expressed their interest in participating in clinical experience early in their education, the premedical education division implemented the Clinical Observership Program (COP) partnering with the two largest hospitals in Qatar (HMC and Sidra). Although COP was open to all foundation and premedical students, it was optional and did not affect their marks.
Method: Students shadowed a practicing physician for a week-long period to expose them to the healthcare system of Qatar, learn about the daily practice of a medical professional, and get familiar with the various medical specialties. COP aimed to help participants in their career exploration and to experience challenges that physicians face on a daily basis. To avoid conflict with their busy schedule of classes, participants could choose only one session from three offered during the winter break. To receive a certificate of completion, students were asked to turn in an attendance sign-in sheet, write a reflection paper, and complete a survey.
Results: Out of 29 students who participated, five were foundation, 14 were first-year, and 10 were second-year premedical students. They observed physicians in the following specialities: internal medicine, radiology, pediatrics, general surgery, emergency medicine, and psychiatry. Using a mixed-methods approach (reflection papers, surveys, focus groups), the study revealed that students benefited more from learning about doctor-patient interactions than techniques and tools used in medicine. Students reported learning humanistic, soft skills like professionalism, collaboration, compassion, empathy, kindness, patience, and time-management, among others. Challenges included system chaos and communication setbacks, thereby necessitating program enhancement.
Conclusion: Early exposure to clinical experience engages premedical students beyond the classroom and strengthens their commitment to medicine.

7JJ3 (3000)

Can Emergency Response Team (ERT) training by paramedic students improve basic life support quality in undergraduate students and university staff in Mahidol university?

Authors

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Presenter: Jaruwan Pruktayanunt, Ramathibodi Hospital, Bangkok, Thailand

Background: Sudden cardiac arrest is one of the leading causes of death in Thailand. Once cardiac arrest has occurred, early recognition is critical to enable rapid activation of the EMS and prompt initiation of bystander CPR. In Mahidol university, there are no CPR training for undergraduate student and university staff. Emergency Response Team(ERT) training aimed to train undergraduate student and university staff in Mahidol university to know how to do basic lift support and used of automatic electrical defibrillator(AED). This study aim to evaluate the effectiveness of Emergency Response Team(ERT) training in undergraduate student and university staff in Mahidol university by paramedic student.

Method: We conducted a 1-day ERT training, consist of lectures and workshop. Before and after the course, participants had been tested for BLS knowledge and confident in BLS by using the standard 20 items MCQ exam. Data were analyzed by using the Wilcoxon Sign Ranks Test.

Results: There were 1000 participants enroll to Emergency Response Team(ERT) training, male 415(41.5%), mean age were 29.5±15.2 years old. For BLS knowledge, the Pre-course evaluation was 12.3±3.5, and the score of Post-course evaluation was 17.5±2.2 and p-value < 0.05. For BLS confident of chest compression and use of automatic electrical defibrillator (AED), totally 5 points, the Pre-course evaluation was 1.5±0.5 , and the score of Post-course evaluation was 4.5±0.4 and p-value < 0.05

Conclusion: Emergency Response Team (ERT) training by paramedic student can improve competency of undergraduate student and university staff to BLS performance significantly in both MCQ and confident score. BLS training in undergraduate student can do by paramedic student.

7JJ4 (3527)

Team Based Practice (TBP) - the new team based learning system of clinical clerkship at the surgical department - suitable for shy Japanese students

Authors

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Background: It seems to be more difficult for Japanese medical students than the other countries' students to raise their aggressiveness and autonomy during the bedside training. Japanese nature is shy and they don't have sufficient training to obtain autonomy in the primary and secondary education. And they didn't have enough training for getting autonomy even in the early grade of medical university. When they start the clinical clerkship, they get realized the necessity to train by themselves, and bewildered. They can receive the good training if there are good instructors in the ward, however there are very few good instructors in the very busy surgical wards. To solve this problem, we developed the TBP for the students who come to our department for the first time, to make their training meaningful. TBP is a team-based learning system, consists of 4 domains - history taking, anatomical assessment (surgical indication), physiological assessment (tolerability), and operation - which are considered as essential evaluation and planning before surgery, and students can learn and act according to TBP. It is an excellent system to make the surgical clinical clerkship useful, and to foster the students' autonomy and activeness. We herein introduce the TBP and indicate the effectiveness of it.

Method: The survey was conducted to 104 students who came to our ward as a trainee of clinical clerkship for the first time, and answers obtained from 101 students who agreed to the survey were used for analysis. The parts of the answer data of the open-ended questions were classified by similarity, and achievements were divided into three categories - cognitive (C), affective (A) and psychomotor (P) domains - following Bloom's taxonomy. Training evaluations are also carried out.

Results: Top three Achievements were as follows: knowledge, understanding, and diagnosis of disease: 22 (C), knowledge of assessment of tolerability: 16 (C: 15, A: 1), knowledge and understanding of operation: 16 (C: 15, A: 1). Training evaluations revealed that 67/93 (72%) students considered TBP as a favorable system for surgical clerkship.

Conclusion: TBP is a useful system for clinical clerkship in gastroenterological department.

7JJ5 (43)

Assessing shared decision-making skills of 3rd year medical students

Authors

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Presenter: Lucille Ong, Academic Medical Centre, department of Medical Psychology, Amsterdam, Netherlands

Background: Around 70% of patients wants to be involved in their care. Shared decision-making (SDM) meets this need. Furthermore, it has a positive effect on patient: satisfaction, participation and adherence to treatment. Also, it diminishes decisional conflict in patients, as well as overtreatment.

Method: We teach our 3rd year medical students a 5-phase SDM model. The five phases are:
1. Start 2. Informing 3. Deliberation 4. Preference. 5. Decision. During two intensive classes with only 6 students, all students practice this SDM model with (trained) simulation patients. At the end of their third year, assessment of SDM skills takes place.
Assessment procedure: video recordings of students conducting SDM consultations with simulation patients are made and uploaded in students' portfolio. Furthermore, students provide written reflections on self-selected events in their consultation. Students both provide and receive peer-feedback (reflective portfolio assignment). Also, the recorded SDM consultations are assessed by trained teachers. Summative assessments are categorized as: below expectations (4-5), meets expectations (6-7-8), and above expectations (9-10).

Results: Results of this year's assessment are described below. A semi-structured rating list was developed to assess SDM skills of 360 medical students. The average assessment was 7,0 (out of 10). 24 students (7%) failed, whereas 22 students (6%) performed above expectations. The majority of students (87%) performed at 'meets expectations' level. All students fulfilled their reflective portfolio assignment.
SDM skills are essential for good (clinical) practice. When practised effectively, SDM can determine the treatment option which best fits patients' needs and expectations. Practising SDM however, is a challenge for most clinicians. Ideally, SDM training should be implemented in their medical education. In our hospital therefore,we offer a 4 hour SDM training for residents, medical specialists, and nurses.

Conclusion: Our 5-phase SDM model can be used to teach shared decision making skills. Students manage well with this model. We also conclude that shared decision making skills can be assessed using a semi-structured rating list. Shared decision-making skills can be taught and assessed.

7JJ6 (37)

Interviewing clinicians as a group assignment is an effective method to facilitate transformative learning in teaching Health Economics in Thailand

Authors

Win Techakehakij

Presenter: Win Techakehakij, Lampang Hospital, Lampang, Thailand

Background: Owing to the costs associated with rising healthcare demands, interest in health economics (HE) teaching in medical education has increased to promote cost consciousness and efficiency in clinical practice. However, provision of knowledge alone may not be enough to enable medical students to utilize HE theories to solve real-life economic-related medical problems. Thus, an HE group assignment (GA) was designed to be used alongside the knowledge-based study guide.

Method: Groups of 4-5 fifth-year students were assigned to interview medical specialists about their experiences in making clinical decisions related to efficiency or financial issues. The students used a list of 8 questions during the interview as a guide to extract relevant information concerning the influence of economic-related issues on decision making. These questions explore: 1) problems and context; 2) patients and choices of interest; 3) stakeholders; 4) information used in making clinical decisions; 5) other relevant information; 6) unknown information; 7) decision analysis relating to perspectives and insurances; and 8) students' own decisions. Results from the interviews were presented in class for discussion with classmates and the facilitator. After classes, students were asked to complete a questionnaire to reveal their perceptions of the GA activity.

Results: With a 100% response from 62 students, results demonstrated that: 88.7% stated that the GA helped them understand how to utilize the principles of HE in clinical practice; 88.7% reported that the GA emphasizes what they still don't understand about the topics; 82.3% agreed that the GA stimulated their interest in the effect of economic issues on clinical decision making; and 88.7% indicated that they would integrate the principles of HE into their clinical practice after doing the GA.

Conclusion: Using the GA appears to enhance students' understanding in HE and encourages them to apply the principles of HE in making clinical decisions. The GA also highlights what elements of HE they don't know and should learn more about. The GA is thus a promising tool to promote transformative learning in HE.

Take-home message: The GA proves to be an effective tool to promote transformative learning in HE.

7JJ7 (629)
Employing role-play and peer review to improve the attitudes toward patients and the communication skills of clerkship students during student-oriented hospital ward rounds

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Presenter: Hajime Kasai, Health Professional Development Center, Chiba University Hospital, Chiba, Japan

Background: Clinical clerkship (CC) is an essential experience for medical students to obtain clinical skills. Evaluation of and feedback on student performance during CC is usually completed by attending physicians. While role-play and peer review are used in training and evaluating communication skills in preclinical education, they are less likely to be used during CC. Thus, we evaluated the effect of role-play and peer review during student-oriented ward rounds during CC.
Method: Clerkship students conducted medical interviews with, and performed physical examinations on, their patients, which were reviewed by five peer students. Peer students observed the performance of the clerkship students while role-playing as senior physicians or patients' families. Peer students playing the roles of senior physicians were required to check (1) the medical interviews, (2) physical examinations, and (3) psychosocial aspects of the patients. The peer reviewers then provided feedback to the clerkship students. The performance of the clerkship student was then evaluated based on a four-point Likert scale. The performance was compared to a round of the hospital ward by a medical student with an attending physician, and a student-oriented round of the hospital ward. After receiving feedback, the students responded to questionnaires about the rounds.
Results: Forty-seven students completed the round, and the duration of each round was 39.3±7.7 minutes. The attitude and communication abilities of the students towards their patients showed significant improvement from before the round (2.7±0.5 vs. 3.4±0.8, p<0.001 and 2.8±0.5 vs. 3.5±0.5, p=0.001, respectively). There was also improvement in performance of medical interviews and physical examinations. Additionally, the round recognized the importance of multilateral viewpoints in patient care and improved self-directed learning.
Conclusion: Combining role-play and peer review with hospital rounds in CC improves the clerkship students' attitude towards patients and their communication performance. The student-oriented rounds also promoted the students' awareness of the importance of multilateral viewpoints in patient care. The study could encourage both comprehensive patient care considering the patient's bio-psycho-social aspects and an increase in learning motivation.
Take-home message: Role-play and peer review during student-oriented hospital ward rounds can improve the attitude and communication performance of clerkship students.

7JJ8 (2448)
A Critical Review of Bedside Teaching in Medical Education

Authors
Abhilash Balakrishnan

Presenter: Abhilash Balakrishnan, Singapore General Hospital, Singapore

Background: About fifty years ago, more than 75% of skills such as taking a good focused history and a thorough physical examination, was taught by the patient's bedside. Today, this traditional modality constitutes less than 25% of clinical teaching. The aim of this study is firstly to identify the reasons for the decline in bedside teaching, secondly to both review perceptions of the principal stakeholders and reinforce the known strengths of bedside teaching and finally to suggest strategies to overcome barriers to this form of teaching and re-introduce it back into medical education.
Method: The author reviewed the published literature from 1960-2017, using seven databases to understand the reasons for the decline, what the principal stakeholders (patients, learners and teachers) felt, and the known advantages of bedside teaching. The search was confined to full text, peer-reviewed journal articles in English while books, dissertations, and grey literature were excluded.
Results: There are several suggested causes for the decline, including teacher's lack of time, unfamiliarity with this method of teaching, learner's duty hour restrictions, their comfort with learning in a class room and greater use of technology and perceptions that patients may find it demeaning with the changing role of hospitals today. Surprisingly, evidence to the contrary was found. More than 90% of learners and teachers thought bedside teaching was an effective way to teach clinical skills. The author suggest methods to optimize this unique teaching tool and how to overcome the existing barriers to revive its use to the pre-eminent position it once held . This will help to produce better trained physicians to meet the future challenges of an ever-changing healthcare landscape.With the current push towards cost-effective medicine, it seems common sense to train our young doctors to develop sound clinical skills that will enable them to order only appropriate laboratory and imaging investigations
Conclusion: By championing bedside teaching, the author is not attempting to promote essential clinical skills as being superior to technology. Both are essential for best outcomes for our patients and deemed to be synergistic and not in competition.

7JJ9 (1925)
Medical students' perception of discharge planning

Authors
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Fang-Yih Liaw
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Presenter: Chiung-Hsi Tien, NDMC (National Defense Medical Center), TSGH (Tri-service General Hospital), Taipei, Taiwan

Background: Continuity of care is facilitated by a physician-led, team-based approach to health care. Effective discharge planning is crucial to care continuity. The study aimed to explore the medical students' experience and perception while participating discharge planning (DP) in the family medicine clerkship.
Method: The DP course was delivered to 5th-year medical students during their core family medicine clerkship in this hospital. It included one-hour briefing, three-hour DP bedside visit, and one-hour group discussion. Students were supervised by family physicians and DP case managers. Every student had to complete reflective writing at the end of family medicine clerkship. The format was adopted Terry Borton's three stem questions: "What," "So What," and "Now what." A thematic qualitative analysis was used to explore the students' experiences and perceptions.
Results: The analysis identified four major themes in the context of continuity of care and it contained several domains of holistic care. (1) Teamwork is necessary: Students knew the team members, addressed their bridging roles and acknowledged the importance of teamwork. (2) The role of a doctor: Students realized the doctor's responsibility of providing continuous care. They began to think the service they could provide during the internship. (3) The patient needs following discharge from hospital: Students identified patient needs and recognized the importance of DP. They realized that patients might encounter new problems following discharge. (4) The help for patients/families: Students understand the role of case managers and their works of providing information for patients. They recognized that effective DP supported holistic care and doctor-patient relationships.
Conclusion: In the students' reflective writings, we could see many positive feedbacks to this DP course. This course allowed medical students to understand the works of DP and the operation of DP team, identify the patient needs after discharge, and recognize the supportive function of DP to the continuity of care.
Take-home message: We provide a useful learning experience for medical students on the topic of "Medical students' perception of discharge planning " by using modified Terry Borton's three stem questions.

7JJ10 (1960)
What did students learn during bedside teaching?

Authors
Chao-Huei Chen
Wei-Ting Hung

Presenter: Chao-Huei Chen, Taichung Veterans General Hospital, Taichung, Taiwan

Background: Bedside teaching is a common workplace teaching and learning method. Medical knowledge, patient care, communication skills are the main education themes. As we encountered more complex patients, the knowledge and skills of interprofessional collaborative care(IPC), quality improvement(QI) and long-term care also become essential. We used an electric recording system to document and analyze the learning themes during bedside teaching.
Method: An electronic recording system for bedside teaching was developed in a teaching medical center. After bedside teaching section, medical students could check the learning themes on the recording system and write down their reflection. We collected and analyzed the data from the system from January 2017 to December 2017.
Results: Total 1270 recordings were collected. Five hundred seventy-five recordings were from internal medicine, 270 from surgery, 98 from obstetric-gynecology, 116 from pediatric department and 211 from other departments.
The learning themes included: 90% on physical care of the patients (including history taking(HxT), physical examination(PE), interpretation of laboratory test(LabT), differentiate diagnosis(DDx) and drug prescription etc); 59.2% communication skill; 38.2% shared decision making, 25.6% medical ethics, 33.8% IPC, 33.3% QI, 40.8% social need of the patient and family (including home care, discharge planning, family and culture issue).
The pediatric teachers taught more on HxT, PE, LabT (83.0%). Internal medicine teachers emphasize not only the above items but also the DDx(40.3% and 37.6% sepeately). Internal medicine doctors also taught more on communication skills, IPC, QI and social need compared with other disciplines.
Conclusion: With this system, we could remind the clinical teachers to teach not only the physical care, but also IPC, communication skills, social issue and QI. The students could also use it to reflect what could be learned during bedside teaching. We are developing a mobile app for a more instant feedback to both teachers and students.
Take-home message: An electronic recording system could help teachers and students reflect on the education themes during bedside teachings.

7JJ11 (2070)
Witnessing death does not necessarily relieve death discomfort: analysis of the relationship between religiosity and thanatophobia in medical undergraduate students

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Presenter: Patricia Cury, FACERES Medical School, São José do Rio Preto, Brazil

Background: It is known that very few issues related to death and religiosity/spirituality are discussed during medical graduation. Learning to cope with death is still a problem and students facing terminally ill patients feel uncomfortable with these questions.

Method: After Ethics Committee approval, two validated questionnaires were applied to undergraduate medical students from one Brazilian medical school: The Duke University Religion Index (DUREL) and the Thanatophobia Scale. Nonparametric statistical analysis was performed.

Results: From 542 students, 332 (61.2%) answered the questionnaire. 90.4% agreed that it is important to address the theme of death and religiosity. 90.1% believed in God. 68.5% of Internship program students had witnessed death, and 52.5% had discomfort dealing with terminal patients. On the other hand, in the first year students, 31.3% of them answered feeling uneasy with terminal patients, although only 34.6% had already seen someone dying (P=0.031). It was observed that those who had contact with death were less likely to work with terminal patients (p = 0.033). High levels of intrinsic religiosity (23.8% of the students) associates with less discomfort when dealing with terminal patients compared to those with low intrinsic religiosity (p = 0.032).

Most of the students have some kind of religiosity and consider important to approach the theme of death and religiosity during the course. Higher rates of intrinsic religiosity seems to protect from thanatophobia, and religiosity seems to have a more powerful impact than the own experience of facing death.

Conclusion: Even with greater contact with death, first year students feel more uncomfortable with terminally ill patients than beginner students, reinforcing the importance of an appropriate approach to the topic throughout the course. Using empathy as a toll to use to deal with these questions could be a strategy.

7JJ12 (1691)
Evaluation of Training Scenario Validity: Analysis of Debriefing from the Viewpoint of Competence

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Presenter: Yoshitaka Maeda, Jichi Medical University, Tochigi, Japan

Background: In Japan, scenario-based simulated training prepares novice nurses for multitasking experiences. Scenarios are based on clinical events so that novices can experience the 7 competencies of nurses' multitasking, including risk management of turnover accidents, communication, and prioritization of tasks. In our scenarios, novice nurses experience all competencies through 3 patients: replacing drip devices, toileting assistance, and treating sudden coughing. Although training success depends on the scenario, the method of evaluating scenario validity is not clear. We propose a method to evaluate scenario validity based on the content of trainees' debriefing immediately after training.

Method: A total of 121 trainees were divided into groups of 6 to 8 and they discussed "their own behaviors in each patient's treatment" and "improvement points" immediately after training. This content was written on a white board for each patient. Next, the trainees sorted the contents of each discussion from the viewpoint of competence. The number of discussions per competence were compiled to verify the comprehensiveness of the scenario.

Results: An average of 30.7 items were discussed by the groups, and all the competencies were discussed by all groups, which confirmed the comprehensiveness of the scenario. This method also clarifies that competencies emphasized by the trainees varies depending on patients. For example, many discussions on risk management of turnover accidents have been conducted in debriefing for patients requiring toileting assistance.

Conclusion: This method confirmed the comprehensiveness of the scenario and clarifies which competence the trainee was exercising for a specific patient. Thus, this method clarifies the relevance between scenario and competence, as well as a new kind of performance evaluation criteria of trainees, such as "In this scenario, it is desirable for trainees to be aware of this competence at this timing."

Take-home message: Training scenarios can be validated by measuring how trainees sort out their debriefing contents from the viewpoint of competence. Given that this method makes it possible to clarify the relevance between the scenario and the competence, it can be implemented as a new performance evaluation criteria for trainees.

7JJ13 NOT PRESENTED

7JJ14 (1526)
Teaching Medical Students the Elements of an Effective Patient Handover during the Clinical Years

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Presenter: Meenakshy Aiyer, University of Illinois College of Medicine, Peoria, USA

Background: Giving or receiving a patient handover to patient care responsibility is one of the 13 Entrustable Professional Activities (EPAs) for Entering Residency defined by the Association of American Medical Colleges.
Method: Three schools collaborated in the development, implementation and assessment of the patient handovers during the M3 clerkship and M4 subinternships (SI).
At McGovern Medical School, the Obstetrics-Gynecology clerkship created a video module for the students to review and practice observing handovers. After watching the video, students are observed at least once during the clerkship performing a patient handover. During surgery clerkship, students are broken into small groups and given a patient scenario to practice the handover elements to other group members. Students are required to observe two patient handovers in the clinical setting during clerkship.
At Virginia Commonwealth University, students are introduced to handoffs using an active learning exercise focusing on rationalizing and prioritizing information important to convey to oncoming provider. Students are then introduced to the handoff framework and practice writing a written handoff using a case-based scenario. During the SI orientation, students are trained to use I-PASS through a mix of didactic, video example, and case-based scenarios in which they apply knowledge and skills to provide a verbal handoff with directed feedback. Students must have 2 observed direct observations on the wards using a standardized checklist template.
At University of Illinois, students are introduced to handoffs during clerkship orientation using active in class learning exercise. Students apply their recently acquired knowledge and skills to review a video handover using a standardized handover template. Students are expected to observe at least two handovers in each of their 6 core clerkships. The students then practice verbal handover to the residents where they provide and receive feedback on verbal handover on a standardized patient scenario.
Conclusion: Creating a common approach to patient handovers is challenging. Distilling the process into key elements helps the learner and faculty recognize what needs to be included and recognize handover is a multifactorial process.

Take-home message: It is feasible to implement and assess a patient handover tool across multiple institutions while still responding to institutional needs.

7JJ15 (658)
Relationships Matter: Enhancing Trust and Trainee Development with a (Simple) Clerkship Curriculum Reform

Authors
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Presenter: J. Kevin Dorsey, Southern Illinois University School of Medicine, Springfield, USA

Background: The relationship between a supervisor and a trainee engaged in the performance of a clinical task is an essential component of medical education. Our school implemented a curriculum change for third-year clerkships that involved one-on-one pairing of faculty and students in addition to decreasing lectures and other activities that removed students from the clinical setting and fragmented the clerkship experience. Exploring the nature of this relationship in the context of this reform offered a natural experiment to understand its impact on trust and trainee development.
Method: The number of procedures performed by students in the traditional versus revised obstetrics clerkship served as a proxy for trust and meaningful participation. Survey comments from 48 students and a focus group of ten faculty members were qualitatively analyzed using a grounded theory approach to reveal themes influencing student participation in clinical work. Subsequently, eleven "rich picture" discussions with students and faculty were analyzed to identify themes of trust development and the nature of the supervisor-trainee relationship.
Results: Students in the single-mentor (revised) clerkship model delivered twice as many babies and performed twice as many pelvic exams compared to the traditional fragmented clerkship.
While student participation was found to be peripherally influenced by contextual factors (busy service, patient preference, competition with other learners) and characteristics specific to the student (engagement, being proactive, growth over time) and faculty (propensity to teach); both students and faculty recognized the nature of the relationship as being central to all entrustment decisions.
Discussions of "rich pictures" drawn by students and faculty revealed that good relationships are reciprocal and are influenced by: early alignment of goals, candid feedback based on frequent observation, and the engagement and positive attitude of both parties.
Discussion & Conclusion: Revision of clerkships to enhance supervisor continuity promoted mutual trust and resulted in more meaningful student participation. If "progress is made at the speed of trust" then optimizing the supervisor-trainee relationship is likely to accelerate student development towards competence.

Take-home message: A simple curriculum reform that improves the nature of the supervisor-trainee relationship can result in a more meaningful clerkship experience.

7JJ16 (3137)
The Clinical Teaching Practicum: An Important Learning Methodology for Instructional Development

Authors
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Presenter: Daniel Panisko, Department of Medicine, University of Toronto, Canada

Background: A Clinical Teaching Practicum [CTP] is a useful teaching and learning instrument in a longitudinal faculty development program. Each participant is required to present 20 minutes of their clinical teaching, followed by 20 minutes of class discussion and feedback, on 3 different occasions over the 2 year duration of our program. Each presentation must demonstrate a different teaching modality (large group, seminar, "chalk talk", bedside, simulation, procedural, podcast, ambulatory care, or one-on-one teaching, etc.). Presenters are encouraged to demonstrate areas of their teaching that "work well", in addition to areas where they encounter difficulty or feel that their teaching is sub-optimal. The other program participants provide feedback and useful insights to problem solve with their colleague. This helps participants to develop their peer review and teaching-coach skills. Participants can also ask questions on medical expert and clinical content of the presentation.
Method: We catalogued the content topics, teaching and learning methodologies, innovation instances, nature and content of feedback, and participant satisfaction from CTP presentations in our program over 2 years (n=27 participants).
Results: A variety of content topics and teaching methodologies were encountered across the cohort years. Feedback was provided on visual presentation, choice of teaching and learning style, interactivity techniques, and strategic choices of teaching methodology. Some participants chose to apply elements of a clinical teaching framework to structure their analysis. The sessions accrued a high degree of participant satisfaction. The consideration of the medical clinical content in the presentations amplified the relevance of the exercises to the participants and contributed to their utility.
Conclusion: CTP's provide a high degree of classical face validity to an instructional development program. They illustrate the triumphs and dilemmas of teaching in the moment and facilitate class participant bonding and cohesion, as the group works together toward teaching solutions. A wide spectrum of teaching styles and a large opportunity for teaching analysis and peer coaching are provided by these sessions.
Take-home message: Clinical Teaching Practica can be strongly considered as a valuable component of an instructional development program.

7JJ17 (2314)
Development and validity evaluation of learning self-efficacy scale toward clinical skills

Authors
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Presenter: Chien-Chih Wu, Taipei Medical University Hospital, Taipei, Taiwan

Background: The purpose of this study was to develop a universal scale of learning self-efficacy regarding to clinical skills (SESoL-CS). Learning self-efficacy that is based on self-efficacy reflects how confident a learner is about learning capacities in specific subjects within particular learning contexts. Relevant findings of learning self-efficacy in medical education were often confined to either a particular domain or skill, meaning they were not generalizable to the understanding of medical students' learning self-efficacy at a broader scope. Moreover, no comprehensive scale is applicable to measure medical students' overall learning self-efficacy in clinical practices.
Method: Two steps for the SESoL-CS development and verification were content validity index (CVI) and item analysis. The SESoL-CS that was based on Bloom's taxonomy of educational objectives was verified by expert penal survey for content validity evaluation in the first step. Eight experts from healthcare, medical education, and education evaluated the SESOL-CS by using a 4-point Likert scale. In the second step, 235 medical students filled the SESoL-CS pilot version that was passed expert panel survey by using a 4-point Likert scale also.
Results: The SESoL-CS consisted of 12 questions after expert consensus that showing no difference among professionals ($\chi2$ were between 0.000 and 6.857) in the first step. The second step, 12 items performed good discriminatory validity (t-values were between 11.719 and 24.175), good convergent validity (correlation coefficients were between .640 and .780), and good reliability (Cronbach's $\alpha > .90$). Moreover, no difference was observed between male and female (t = -0.049; 95% CI, -.115 to .109).
Conclusion: The SESOL-CS is the first verified scale of learning self-efficacy for clinical skills. The scale differs from previous tools in other studies [20-22] that measuring medical students' confidence on specific clinical skills or performance. Those scales cannot be easily transferred to different skillset. Although the SESOL-CS is a verified universal scale, further examination in relevant educational settings is needed.
Take-home message: The SESoL-CS is a short, well-constructed, and verified scale that can serve as a generic assessment tool when measuring medical students' learning self-efficacy toward clinical skills.

7JJ18 NOT PRESENTED

7JJ19 NOT PRESENTED

7KK: Posters: Leadership and Management

Location: Hall 4.u, CCB
Date: Tuesday 28th August
Time: 1015-1200 hrs

7KK1 (1179)
Senior Leadership Needs Assessment

Authors
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Victor Shewchuk
Louanne Keenan

Presenter: Mia Lang, University of Alberta, Edmonton, Canada

Background: To design an effective leadership training program for senior leaders of the Faculty of Medicine & Dentistry, University of Alberta, Canada, an institutional ethnography study was done via: 1) a validation study of Lieff's et al. 2013 Academic Medicine study of Department Chairs, 2) group discussion, and 3) 1:1 interviews.
Method: Senior leaders were sent an on-line survey (open and closed questions) based on the 5 main themes and 19 subthemes identified by Lieff et al. A group meeting of these senior leaders (n=60) was held with discussion around leadership support needs, followed by one-on-one interviews with twelve senior leaders.
Results: 25 of 60 respondents to the survey had high levels of agreement with all sub themes, the highest rated sub-themes were strategic development, mentorship, cultivation of leaders, conflict management, understanding the system (rules), and engagement with/of others. Group discussion themes and 1:1 interviews validated these survey themes further.
The needs of senior leaders at our Faculty were similar to the five main themes identified in Lieff's 2013 study: 1) Network of support; 2) Infrastructure; 3) Interpersonal skills; 4) Cultural and structural awareness, and; 5) Ability to influence. New senior leaders expressed vulnerability in institutional knowledge and strategic vision. Listening to senior leaders in a variety of settings (on-line survey, group discussion, focused interviews) enabled a rich understanding of senior leadership needs that will better inform how a senior leadership support program is designed.
Conclusion: Senior leaders need support with skills in conflict management, human resource issues and strategic development. Mentorship and a community of leaders may help to meet some of these needs, especially for leaders new in their role.

7KK2 (1977)
A driver for individual and organizational change - The AO Foundation (AO) Leader Education Program (LEP)

Authors
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Tatjana Topalovic
Miriam Uhlmann

Presenter: Tatjana Topalovic, AO Foundation, Basel, Switzerland

Background: Based on the need for leaders within the organization to develop, the AO (a medically guided, not-for-profit organization led by an international group of surgeons specialized in treatment of trauma and disorders of the musculoskeletal system) developed a leader education program, for the organization to progress based on its leaders and shared values.
Method: The LEP, as a forum for exchanging ideas and therefore as a driver for change has been offered five times (globally). Quantitative methods, as well as qualitative methods (including feedback and commitment to change as evaluation instruments) guided us during our data collection process of the LEP participants (~80 participants).
Working through specific examples (eg, communication, sharing a vision, creating an environment of trust, etc.) highlighted the learners' experiences on what is going well and what needs to be done differently. This process led to de-veloping a cohort of leaders who learn together and work with a common purpose based on shared values.
Discussion: Through practices such as (self-)reflection and self-assessment encouraged/taught at the LEP, as well as additional evaluation instruments we are assessing learners' standpoints, strengths and weaknesses, and whether this process leads to improved team building, leadership and management competencies, therefore creating opportunities for change.
Conclusion: Over the last thirteen months and based on assessment data from various evaluation instruments collected (quantitative and qualitative) we have identified that the LEP serves as a driver for change. Mentioned barriers to overcome are eg, time constraints; resistance to change; channelling new strategies upwards and therefore change can be slow.
Take-home message: Change is possible; getting a group of people together and building a community that works and learns together has proven to be successful. Leadership and its value are critical to move the organization forward; enabling change through practice and development and with the LEP as a forum for exchanging ideas, as well as sharing concerns.

7KK3 (1647)
Exploring Outcomes of the Dartmouth-Hitchcock Leadership Preventive Medicine Program

Authors
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Alicia Zbehlik, Dartmouth-Hitchcock Medical Center, Lebanon, NH, USA
Stephen K. Liu, Dartmouth-Hitchcock Medical Center, Lebanon, NH, USA
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Presenter: Tina Foster, Dartmouth-Hitchcock Medical Center/Geisel School of Medicine, Lebanon, NH, USA

Background: The Dartmouth-Hitchcock Leadership Preventive (LPM) residency is a graduate medical education (GME) program which combines Preventive Medicine (PM) training with other residency and fellowship programs to develop clinicians with population health and improvement skills who can lead change in today's complex health care environment. We interviewed graduates to explore our outcomes: what was learned, effect on careers, and connection to PM.
Method: 31/64 graduates were interviewed by phone. Interviews were conducted by an individual (MC) not affiliated with LPM using an interview guide developed by the program directors (TF, SKL, AZ) and interviewer. Telephone interviews were conducted between August 1 and September 29, 2016; interviews lasted 30-45 mins and were transcribed. An educational researcher (MT) performed qualitative analysis of the transcripts and prepared a report to the program.
Results: Interviewees included graduates from 2005 through 2016. 14/31 were Board-certified in PM and at least one other specialty. Themes included the unique skillset developed in the program, including reflection, strategic thinking, influencing culture change, and technical quality improvement skills. Important curricular aspects included the practicum experience, leadership and writing seminars, and courses/sessions on measurement and analysis. Skills relevant to leadership included the ability to deal with chaos, lead with confidence, and apply population health training. Graduates felt connected to PM by their work in prevention and health promotion, leading change, population management, and improving care delivery systems. Several reported the program made them attractive to employers and/or contributed to career advancement, and many are currently in leadership positions.
Discussion & Conclusion: Outcomes in GME are challenging to measure and traditionally captured primarily by Board pass rates and job titles/locations. These interviews help us understand the knowledge, skills and attitudes developed in the program, and how they are playing out in graduates' professional lives as long as a decade after graduation. Graduates also offered helpful advice on curriculum. A significant limitation was our inability to interview all graduates. Overall, the analysis

confirmed positive professional identity development and self-efficacy in leading others as outcomes of our program.
Take-home message: In-depth exploration of graduates' perceptions provides valuable insight into program strengths and opportunities.

7KK4 (2277)
Summative Assessment of Team Leader Performance: a Randomized Controlled Trial after Advanced Life Support Courses

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Presenter: Sabine Nabecker, Department of Anaesthesiology and Pain Therapy, University Hospital of Bern, University of Bern, Switzerland

Background: Even though advanced life support courses today teach leadership, summative assessments after these courses still mainly focus on the adherence to current cardiac arrest life support guidelines. This study's goal is to determine whether and to which extent two currently used summative assessment methods test leadership.
Method: With Ethics Committee review (Req-2017-00578), University of Bern medical students participate after their mandatory advanced life support courses in this ongoing study. We randomize students to one of two different summative assessments of standardized cardiac arrest scenarios: 1) "American Heart Association (AHA)" – the assessed student leads 3 other students forming together the cardiac arrest team, but only the team leader is assessed, versus: 2) "European Resuscitation Council (ERC)" - the assessed student leads a "cardiac arrest team" that is simulated by only one instructor. All assessments are videotaped, 2 experienced instructors not involved in the assessment, analyse independently the videos using the "Concise Assessment of Leader Management" form (L. Nadkarni et al., Simul Healthc 2017).
Results: Preliminary 10 AHA and 10 ERC assessments were analysed. Neither announcement of the leader's role, nor engagement of team members in decision making was observed in any assessment. Comparable team leader performance was found (all p>0.05) for: acting as a leader and leadership style, appropriateness of voice, explicit addressing of people, reinforcement of closed-loop communication, assignment and prioritizing of tasks,

global view and periodical reassessment of patients, the next steps in patient care and the global performance of participants.

AHA type assessment showed significantly more often how leaders assign roles and balance the workload of team members (p<0.01). In the ERC type assessment more students periodically summarized the cases (p<0.01). At the conference we will provide the complete data set.

Conclusion: After life support courses, these two assessment methods provide comparable evaluations of: leadership and communication skills, medical management, and global performance of participants. However AHA type assessment seems to evaluate team management skills better than the ERC type assessment.

Take-home message: According to our preliminary results, team management skills may be better assessed by the AHA type assessment.

7KK5 (1831)
Students as change leaders in medical education: current condition and perspectives for further development of medical education in Poland

Authors
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Presenter: Lukasz Adamus, Medical University of Lodz, Poland

Background: Medical students are becoming active change-agents in their education. Our project explores Polish students` perceptions of current condition of Polish medical education and roles they might employ to influence its further development.

Method: The qualitative methodology was applied to explore students' understandings of excellence and reality of medical education, including their own engagement as change leaders.

The maximum variance sampling was applied to identify medical students from 15 Polish medical schools to share during the focus group interviews their educational experiences, reasons for their involvement in medical education and how their own universities encourage students' engagement. Their narrations were recorded, transcribed and coded using Atlas.ti software.

Results: Students defined the perfect medical school as an institution educating good doctors, integrating theoretical knowledge and practical skills, following the student-centred strategies, and encouraging to learn in a good educational climate.

Many of the modern methods used in medical education trends were identified as not fully implemented at participants' universities yet. Currently, students feel being figure-head type members of curriculum committees. They want to become real change leaders but active encouragement and support from the university is seen as a condition to fully engage in medical education.Ideas of

required changes, e.g. improvement of evaluation methods and more educational guidance during clinical rotations were indicated.

Discussion: There is often a vicious circle of students not feeling ready to participate actively in medical education and their school not providing them with appropriate support for such activities. Consequently, some students present unrealistic expectations towards possible development of curricula due to the lack of their knowledge in medical education. Moreover, students complain about lack of such knowledge amongst faculty

Conclusion: members. Summarizing, both students and faculty should further develop their knowledge in medical education in order to act together as a change leaders and implement informed educational changes. This process should be formally encouraged and endorsed by universities.

Take-home message: Joint efforts of faculty and students to broaden their engagement and knowledge in medical education should form a way to further develop students' role as change leaders in medical education.

7KK6 (595)
Leaders In Medicine Program: How Well Do Students Perform And Where Do They Go After Graduating?

Authors
Wayne Woloschuk, Cumming School of Medicine, University of Calgary, Calgary, Canada
Paul Beck, Cumming School of Medicine, University of Calgary, Calgary, Canada

Presenter: Wayne Woloschuk, Cumming School of Medicine, University of Calgary, Canada

Background: The 3-year MD program at the Cumming School of Medicine, University of Calgary, offers a Leaders in Medicine (LIM) option that allows students to work jointly towards an MD and a graduate degree. This study sought to examine the academic performance of LIM students compared to their non-LIM peers and which residency programs LIM students entered after graduating.

Method: Demographic, undergraduate performance and Medical Council of Canada Qualifying Exam Part 1 (MCCQE Part 1) data of recent LIM graduates (Classes 2012-2017) were compared to data of non-LIM graduates. Career choice of LIM and non-LIM graduates was also examined.

Results: Of the 993 MD graduates, 72 were LIM students who also received MA (1), MBA (1), MSc (38) and PhD (32) degrees. 55.6% of LIM graduates were female compared to 56.4% of non-LIM graduates, p >.05. At graduation the age of LIM students (M=30.07) differed from the age of their non-LIM (M=28.4) peers, p < .05. There were no statistically significant differences between the two groups on various performance measures (clerkship MCQ exams, in-training evaluation reports, clerkship OSCE and MCCQE Part 1). Family medicine (30.6%) was the most popular residency program of LIM graduates followed by internal medicine (23.6%) and neurology (11.1%). 55.4% of non-LIM graduates entered family or internal medicine residency programs.

At graduation LIM students were older than their non-LIM peers in part, because they typically stepped out of the MD program to attend to their graduate degree requirements. Although many LIM students interrupted their MD training their academic performance remained strong. More than half of LIM graduates became family and internal medicine residents which was similar to their non-LIM peers.

The academic talent of LIM and non-LIM students was comparable. Career preferences of both groups demonstrated a primary interest in generalist disciplines.

Conclusion: The LIM program at the Cumming School of Medicine, University of Calgary can successfully accommodate students who wish to pursue joint degrees.

7KK7 (2920)
Developing a resident programme "Leader in clinical education"

Authors

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Erik Myrberg, Dept of Rheumatology, Sahlgrenska University Hospital, Gothenburg, Sweden

Mats Wahlqvist, Education Unit/ Research, Development and Innovation, Sahlgrenska University Hospital, Gothenburg, Sweden

Catharina Tennerhed, Education Unit/ Research, Development and Innovation, Sahlgrenska University Hospital, Gothenburg, Sweden

Anders S Johansson, Education Unit/ Research, Development and Innovation, Sahlgrenska University Hospital, Gothenburg, Sweden

Presenter: Hanna Lernbrink, Bramaregarden Health Center, Primary Health Care, Gothenburg, Sweden

Background: In 2014, "Leader in clinical education" a special leadership course for eight residents started in the Västra Götaland Region, Sweden. The longitudinal programme comprised 1 d/week during 2.5 year. Main areas were Leadership and professional development, Higher education and workplace learning in medicine and Quality improvement in health care. Evaluation results from the first group of residents showed an overall positive outcome and also identified some gaps.

Method: In the following programme of 2016, learning objectives and learning methods were modified and aligned to formative and summative assessment. A new introduction term was formed with a start-up residential course and a mandatory external week of group training. Half-time evaluation materials from eight participants included formative assessment reports with participants' reflection on reaching learning goals, a summary of their logbook and an individual action plan. Learning methods in the quality improvement course were also developed by a graduated teacher (CT).

Results: The second group comprised eight residents. An altered sequence and learning process created an initial focus on group dynamics and development, self-reflection and leadership issues. Analysis of half-time assessment and evaluation materials displayed an eager-to-practice approach. Participants expressed that they wanted to be more active and involved in leading group meetings, to co-teach and assist in clinical tutors introductory courses.

Discussion: Repeated analysis of both assessment and evaluation results was fruitful when developing a new resident programme for leaders in clinical education. Support from the Region Västra Götaland also compensated loss of income during specialist training.

Conclusion: Our results suggests that early leadership and group development stimulated participants to practice their training skills.

Take-home message: An early focus on leadership, group development and reflection on the learning process was helpful when training leaders in clinical education.

7KK8 NOT PRESENTED

7KK9 (3023)
Training undergraduate medical students in leadership

Authors

Maaike Matilewicz
JJS van de Kreeke
MC de Bruijne
MC Mak- van der Vossen
O El Tahir
K Reefman

Presenter: Maaike Matulewicz, VU University Medical Center, Amsterdam, Netherlands

Background: In practising medicine, physicians demonstrate leadership on a daily basis: they lead care teams, support and guide colleagues, delegate tasks, motivate patients, supervise students, etc. Undergraduate students in medicine are expected to become competent in leadership, one of the seven CanMED roles; as junior doctor they should be able to manage an inpatient ward from the start. How do we train undergraduate students in leadership?

Method: VU University Medical Center developed and implemented training in leadership in the medical master's program. In 2015 symposia were implemented throughout the medical master's curriculum to teach and train students in integrated competencies[1].

Each symposium contains two themes in a morning and an afternoon program structured around medical and societal themes addressing various competencies. A symposium is attended by a 150 students on average. Leadership was programmed in two different symposia: 'Personal leadership' in the first master's year and 'Leadership in clinical wards' in the third (final) master's year. In each program, students can select two out of five workshops, e.g. Managing colleagues, Negotiating, Visibility in the workplace, Work-life balance and Speaking up.

Results: Evaluations show a high level of student appreciation for the symposia on leadership. Both programs were considered interesting and useful for professional development, with workshop scores ranging from 3.8 to 4.2 on a 5-point Likert scale (response rate ranging from 78% to 83%). Trainers report that the workshops meet the needs of students since they match with leadership tasks students carry out during clerkships.

Conclusion: Although the leadership symposia are highly appreciated, the value of two daypart programs should not be overestimated. In the future we will further develop the leadership role by clarifying the development of students' leadership qualities during clerkships (e.g. in portfolios).

Take-home message: Allowing students to participate in symposium workshops on leadership is much appreciated by students and offer a suitable opportunity for training undergraduate medical students in leadership.

[1]*Reefman, K., Daelmans, H.E.M., Klumpers, U.M.H. et al. Perspect Med Educ (2017) 6: 429. https://doi.org/10.1007/s40037-017-0379-4*

7KK10 (676)
Challenge of a Third Medical School in an Institution: Tutors' Perspective

Authors

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Mingyue Li, KK Women's and Children's Hospital, Singapore
Limin Kam, KK Women's and Children's Hospital, Singapore
Heng Hao Tan, KK Women's and Children's Hospital, SIngapore
Rajeswari Kathirvel, KK Women's and Children's Hospital, SIngapore

Presenter: Jill Cheng Sim Lee, KK Women's and Children's Hospital, Singapore

Background: KK Women's and Children's Hospital (KKH) is the leading training centre in Obstetrics and Gynaecology (O&G) in Singapore, caring for over 14,000 women annually. Singapore currently has 3 medical schools: Yong Loo Lin School of Medicine (YLL-NUS), Duke-NUS, and the latest addition, Lee Kong Chian School of Medicine (LKC). Students from all three schools rotate through KKH for clinical experience in O&G. There is however a finite number of O&G clinicians within a single institution.

Method: We surveyed 51 O&G clinicians from the Division of O&G at KKH about the presence of three medical schools within a single clinical campus. Participants consisted of 22 Consultants, 10 senior residents and 19 junior residents. Data were analysed using Microsoft Excel.

Results: 37 (72.5%) of participants taught students from more than 1 medical school. 94.1% believed it was important for KKH to be involved in the teaching of O&G for all 3 medical schools. 76.5% agreed that students and tutors will benefit from sharing of teaching and learning materials. 84.3% agreed that by teaching all 3 medical schools, both students and tutors can be exposed to new teaching methods. 49% believed there may be limited supervision of students by tutors. Only 27.4% and 29.4% respectively believed that there may be lack of research and elective opportunities for students.

Discussion: Change and additional responsibilities are challenging. Formal training and updates have been conducted for clinicians by each school to ensure tutors are well-prepared as educators and remain motivated to teach. The role of junior residents as near-peer tutors has been extended to jointly mentor students with senior faculty, conduct small group tutorials and supervise clinic attachments. Students from multiple schools are jointly invited to tutorials. Provision of protected time for teaching by the Division supports teaching activities and recognises tutors for their contributions.

Conclusion: Tutors believe it is important to undertake clinical rotations in busy tertiary centres. Careful planning of rotations and supportive departmental leaders within such centres can maximise teaching capabilities allowing both students and tutors to benefit from collaborations with multiple medical schools.

7KK11 (801)
Challenge of a Third Medical School in an Institution: Medical Students' Perspective

Authors

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Presenter: Mingyue Li, KK Women's and Children's Hospital, Singapore

Background: KK Women's and Children's Hospital (KKH) is the leading training centre in Obstetrics and Gynaecology (O&G) in Singapore as it caters for over 14,000 women every year. Singapore currently has 3 medical schools: Yong Loo Lin School of Medicine (YLL-NUS), Duke-NUS, and the latest addition of Lee Kong Chian School of Medicine (LKC). Students from all the three medical schools rotate through KKH for their clinical experience in O&G. The first batch of LKC students commenced their clinical O&G rotations in August 2016.

Method: We surveyed 91 students from the three schools at the start of their O&G rotation to determine their views about training in KKH in the presence of three medical schools within a single clinical campus. The survey findings were analysed using Microsoft Excel.

Results: 95.6% of participants agreed that it is important for KKH to be involved in the teaching of O&G for all three medical schools. 83.5% of the students agreed that they will benefit from sharing of learning materials from the other medical schools and 73.6% agreed that there will be opportunities to collaborate between medical schools. However, 75.8% felt that they may have limited exposure to patients and 60.4% felt that there will be a lack of learning spaces.

It was reassuring to note that majority of the students felt positive about the presence of students from 3 schools in a single institution. Their concerns were taken into account and the rotations were planned in collaboration with the three school co-ordinators and carefully organised to ensure that only students from one school was present in a particular clinical area at any one time. Junior residents were recruited as near-peer clinical tutors to enable students to have easier access to small group tutorials and resident clinic attachments on a one-to-one basis.

Conclusion: Students believe it is important to undertake clinical rotations in busy tertiary centres. Careful planning of rotations within such centres can maximise the number

of students who can benefit from such attachments and develop early opportunities for inter-university collaboration.

7KK12 (862)
Analysis of formal and informal physical learning spaces in a university hospital: A case study

Authors
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Carlos Gutiérrez-Cirlos, National Institute of Medical Sciences and Nutrition "Salvador Zubirán", Mexico City, Mexico
Melchor Sánchez Mendiola, UNAM, Faculty of Medicine, Mexico City, Mexico

Presenter: Andrea Flores, National Autonomous University of Mexico (UNAM), Mexico City, Mexico

Background: There is an increasing emphasis on the role of formal and informal learning spaces in medical education, mainly in developed countries. The evidence suggests that the attributes of learning spaces can facilitate or hinder educational activities in medical schools and hospital settings. There are no published studies about this theme in developing countries medical schools.
Method: The objective of the study was to explore the characteristics of formal and informal physical learning spaces, in a university hospital that trains undergraduate and graduate medical students. The setting was the National Institute of Nutrition and Medical Sciences "Salvador Zubirán", one of the training sites of UNAM (National Autonomous University of Mexico) Faculty of Medicine, in Mexico City. The methodology used was the case study approach, with site visits, focus groups of the different stakeholders, and application of the Learning Space Rating System instrument (LSRS, https://www.educause.edu/eli/initiatives/learning-space-rating-system).
Results: The different types of learning spaces have particular characteristics, for example the pedagogical potential offered by a corridor or cafeteria is different from a traditional classroom or a hospital ward. The structures in the physical spaces can affect the learning of important skills that future medical professionals must master. There is ample room for improvement in the design and use of formal and informal spaces in our university sites.
Conclusion: It is fundamental for university hospitals to identify the attributes that learning spaces have and its potential effects on learning, as well as the relationship that exists between formal and informal learning spaces. It is crucial to involve medical education scholars and trainees in the design of university and hospital buildings.
Take-home message: The formal study of learning spaces in hospitals and universities can inform the design and building process, and could improve the educational experience of teachers and students.

7KK13 (3560)
History of the feminization of the medical profession in Switzerland: what are the lessons ?

Authors
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Aude Fauvel, Institute of Humanities in Medicine-CHUV, Lausanne, Switzerland

Presenter: Lucie Begert, Institute of Humanities in Medicine-CHUV, Lausanne, Switzerland

Background: One professional change and development in medicine that can't be ignored is the feminization of the medical profession. It raises now many questions, since the feminization is not equally visible in the various fields and levels of the profession. In this context, it is important to look back at the beginning of this phenomenon. In Zürich in 1867, Nadejda Suslowa was the first women in the modern world to be awarded a medical degree after completing a fully co-educated pre-graduate medical education in a recognized university with high standards. It all began as a pedagogic experiment.
Method: This historico-sociological work focusses on both quantitative aspects of the "pedagogic experiment" of the first female physicians in Switzerland, as well as the study of the dynamics of the feminization. The quantitative part is based upon primary sources (archives), for example the list of students or the the list of awarded diplomas from the various universities'archives. The study of the dynamics is worked from the graphs we created and from the study of the socio-historical context with primary and secondary sources.
About the quantitative aspects, inclusion of women was a success; indeed, between 1902 and 1908, the majority of medical students in Switzerland were women (with a maximum of 70% of female medical students). However, since very few of them were swiss themselves and the laws at that time forbid non-swiss physicians to exercise, the phenomenon was not at all observed in post-graduate education nor the exercise of the profession, where Switzerland was somehow "late" compared to other countries. For example only 3% of swiss physicians were women in 1923. It changed slowly after the 1960's.
It is thus a combination of both socio-historical aspects of that time at most of swiss universities and the personality of the pioneer female physicians that permit the pedagogical experiment to be a success.
Conclusion: Faced with the challenges that offers the young generation of physicians, we can learn from the various aspects of a change in order to re-use them efficiently.

7KK14 NOT PRESENTED

7KK15 (2061)
Service Motivation and Motivation to Lead

Authors
R. Stephen Manuel, UMMC, Jackson, USA
Nicole Borges, UMMC, Jackson, USA
John Smith, UMMC, Jackson USA

Presenter: R. Stephen Manuel, University of Mississippi Medical Center, Jackson, MS, USA

Background: Health professions programs have many factors important to them when choosing the next generation of health care providers. While leadership and service may be among the factors evaluated during the application and interview process, what do these factors look like for students who are actually entering the profession? Do accepted students in a health professions degree program have one or both factors—or neither? The purpose of this study is to investigate the relationship between service motivation, the desire to serve others through a career, and motivation to lead in health professions students. Motivation to lead is based the theoretical framework regarding leader behaviors and individual differences, such as personality, self-efficacy, values and the quantity and quality of leadership experience. (Chan & Drasgow, 2001). Motivation to serve others and its relations to career development are drawn from the vocational psychology and career assessment literature (Duffy & Raque-Bogdan, 2010).

Method: The Motivation to Lead instrument and the Service Motivation Scale were given to 38 (95% response rate) matriculating first year dental students at a US medical school during orientation. The Motivation to Lead measure has three elements, the social- normative measures leadership due to a sense of responsibility or duty, the affective measures leaders who like to lead others and the non-calculative measures those that do not weight the benefits or costs of leading. The 6-item Service Motivation Scale captures one's desire to serve others through one's career.

Results: No significant correlations existed between service motivation and any of the three elements of motivation to lead: Affective (p =.78), Non-Calculative (p=.19) and Social-Normative (p=.80). Overall, students scored higher on the Non-Calculative subscale (M=38.18, SD=4.32) and lowest on the Affective (M=31.63. SD= 4.47).

Conclusion: Dental students who desire to serve others do not chose to lead due to a sense of duty or responsibility to others. Future studies will seek a larger sample and include additional health professions students (i.e. medical, nursing, pharmacy).

Take-home message: The reasons that dental students chose to lead is varied and does not correspond to a desire to serve others.

7KK16 (1557)
Does workload affect quality of delivery of undergraduate medical education in primary care?

Authors
Tal Wasty, University of Manchester, Manchester, UK
Andy Conway, University of Manchester, Manchester, UK

Presenter: Tal Wasty, University of Manchester, UK

Background: There exist increasing workload pressures in primary care in the UK which poses a threat to practices having the capacity to deliver high-quality community undergraduate placements. This will perpetuate the problem of general practice (GP) workload by failing to recruit students if they aren't exposed to or experience good GP placements. We wanted to explore any relationship between GP workload and quality of educational delivery.

Method: Information was gathered from existing teaching practices on their practice size and number of full time equivalent (FTE) GPs. This was used as an index for their level of clinical workload and correlated against the number of undergraduate teaching days they committed to and their evaluation scores for that year.

Results: 49 practices returned the information requested. A wide range existed for number of FTE GPs per 10,000 patients (2.3-9.3). Commitment to undergraduate education did not correlate with clinical workload of a GP. Evaluation scores for placements did not correlate with their combined clinical and educational workload.

Discussion: Practices may worry about their clinical workload in being able to offer high-quality undergraduate placements. Our results show that this may not be the case given that evaluation scores didn't correlate with clinical and educational workload of a practice. Confounding factors need to be explored further.

Conclusion: Experiences of clinical placements can influence future career choices. To reduce the well-recognised GP workforce crisis in the UK, it is vital that medical students are offered high-quality placements to motivate them towards a career in general practice. Practices may feel unable to offer these in an increasingly busy working environment. Our results suggest that, probably by careful planning, educational quality can still be maintained despite this.

Take-home message: Increasing GP workload poses a threat to capacity for, and quality of, community placements for medical students. This could perpetuate the current GP workforce crisis in the UK. Despite the increasing workload, practices have continued to deliver high quality placements. Furthermore, quality doesn't appear to correlate with combined clinical and educational workload, but confounding factors need to be explored further.

SESSION 8: SIMULTANEOUS SESSIONS

Tuesday 28th August
1400-1530 hrs

8A: Symposium: Playing Devil's Advocate: Research that challenges how we think about Clinical Supervision

Location: Event Hall
Date: Tuesday 28th August
Time: 1400-1530 hrs

Presenters:
Chris Watling, Western University, Canada
Mark Goldszmidt, Western University, Canada
James Brown, Eastern Victoria GP Training & Monash University, Australia
Sayra Cristancho, Western University, Canada
Tavis Apramian, Western University, Canada
Olle ten Cate, Utrecht University, Netherlands

Summary: Clinical supervision is widely recognized as a linchpin of work-based medical education. However, the last systematic review of clinical supervision concluded, almost two decades ago, that supervisory practice in medicine has very little empirical or theoretical basis, and the authors called for more robust empirical research into supervision in practice settings (Kilminster & Jolly, Med Educ. 2000 Oct;34(10):827-40). The 2007 AMEE Guide (Kilminster et al, Med Teach. 2007 Feb;29(1):2-19) offered a framework for clinical supervision, but acknowledged that much remained unknown including the influence of context, the variability of supervisory relationships, the implications of teams, the role of judgment, and the practice of observation. This symposium asks: a decade after the AMEE Guide, what are the big new insights and ideas about clinical supervision from empirical research? This symposium will present highlights from research into clinical supervision in the past decade, and discuss their implications for medical education. Speakers have been selected to represent research into clinical supervision in a range of medical contexts (e.g., internal medicine, general practice, surgery), supervisory situations (e.g., inpatient teaching team, ambulatory clinic, operating room) and learner levels (e.g., medical students, residents, fellows); their work also represents a range of theoretical perspectives. Using a TEDTalk style of presentation, each speaker will offer ONE BIG IDEA from their empirical research that elaborates or challenges our current way of thinking about clinical supervision:
1. What we see is not real: the impossibility of authentic observation (Chris Watling)
2. What we struggle with is not 'students these days', but 'systems these days' (Mark Goldszmidt)
3. What we assess is not independent: the challenge of coupled performance (Lorelei Lingard)
4. What we judge as 'competent' is a reflection of individual supervisor preferences (Tavis Apramian)
5. How we supervise compromises, rather than supports, trainee identity formation (James Brown)
6. Discussant to play devil's advocate, asking the implications of these BIG IDEAS (Olle ten Cate)
Each presenter will draw out ONE BIG IMPLICATION of their idea for current concerns in medical education, such as competency-based training, entrustment, coaching, and performance assessment. The discussant's role is both to try to apply these ideas but also to play devil's advocate, challenging the speakers to explain how their idea helps us understand (or completely rethink) a common clinical supervision scenario. We intend to use at least one clinical supervision scenario on video to engage the audience and apply the 'BIG IDEAs' to it, to get into dynamic debate with the audience about both the affordances and the drawbacks of these research insights for our approach to clinical supervision.
Who should participate in the symposium? This symposium will be of interest to clinical teachers, medical learners, educational leaders and researchers studying clinical teaching and learning.
What will they gain from participating? Participants will participate in a provocative discussion intended to challenge our assumptions and advance our understanding of a fundamental practice in medical education: clinical supervision. They will take away knowledge from new research regarding clinical supervision, and be able to critically reflect on how these 'big ideas' might cast their own clinical supervisory practices in new light. They will also come away with a sense of what remains to be explored regarding the nature and implications of clinical supervision in medical education.

8B - Developing consensus-based guidelines and education for Emergency Medical Teams for limb injuries in disasters and conflicts

Location: Montreal, 2nd Floor, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

Presenters
Ian Norton, WHO
Elhanan Bar-On, Sheba Medical Center
Jane Wiedler, AOEI
Stefanie Hautz, AOEI
Harald Veen, WHO

Summary: The main goal of this project was to improve outcomes for patients suffering limb injuries during disasters and complex emergencies. To ensure this, we provide the first open access training material platform for Emergency Medical Teams (EMT) to train EMT´s for limb injuries in disaster situations. All material is based on a competency-based curriculum. On this platform, EMT´s cannot only find a downloadable specific field guide, but

also topic-related learning videos, and a collection of available resources.

Outline - Why: As medical science improves and trauma rates decrease in high-income countries, well-intentioned surgical teams can find themselves unprepared for the realities of austere settings. To develop a limb surgery educational curriculum for global medical disaster responders' support and endorsement was granted by the AO Foundation, Switzerland. The project is run in collaboration with the AO Foundation, the International Red Cross and the WHO, with input from other partners and representatives of humanitarian response agencies, academic institutions, and surgical experts from low and middle-income countries (LIMC).

Process - How: To realize this project, an expert meeting with 30 international participants was held in December 2015 in Davos, Switzerland. Also, a core group consisting of surgeons as well as Sheba Medical Center, WHO, and AOEI staff from different backgrounds and different parts of the world was created to work constantly on content, look and feel of the physical field guide and the contents of the Website. After a period of one year, the constant iterations resulted in the launch of the first consented field guide on this topic on December 16, 2016. Based on the topics defined during the consensus meetings, educationalists, surgeons and other disciplines drafted and developed a competency-based curriculum for disaster limb injuries to go with the filed guide.The possibility to present such a product is due to the effort of many international world experts, working as volunteers together with the Sheba Medical Center, WHO and AOEI.

Symposium Topics: This symposium will present key lessons learned, demonstrate examples of the newly defined content adapted to the austere environment, and promote the exchange of opinion between panelists and participants.

Good intentions are not enough: why responding to disaster and conflict situations demands specific training.
Capturing best practice in an "evidence-free zone": building consensus among disaster and conflict opinion leaders to update guidance on the management of limb injuries in disasters and conflicts.
Developing EMT training materials that are up-to-date, accessible and attractive to the new generation of responders, especially national EMTs in disaster-prone countries.

Who should participate in the symposium? Whoever is interested in the methodology of a consensus process of large bodies and across countries and/or with an interest in developing shared results such as guidelines or even curricula.

What will they gain from participating? Participants will learn more about how the process of how a consensus can be reached on a topic affecting all parts of the world, various interests and opinions.

8C - Stimulating medical education and medical education research: the dean's perspective

Location: Sydney 2nd Floor, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

Presenters

Norman Beauchamp, Michigan State University, East-Lansing (MI), USA
Richard Hays, University of Tasmania, Australia
Vishna Devi Nadarajah, International Medical University, Kuala Lumpur, Malaysia
Albert Scherpbier, Maastricht University, Maastricht, Netherlands
Monica van de Ridder, Michigan State University, Grand Rapids (MI), USA

Summary: Over time, the tasks of Deans have changed and have become more complex. (1) Deans do not only deal with educational challenges, such as curriculum management, interprofessional education and funding the educational mission, they also deal with challenges related to clinical care (e.g. health care reform, programmatic development), administration (e.g. space management, strategic planning, financial operations), and research (incentivizing research, funding new research initiatives). (2) The working environment is complex: research, clinical care and education have often-competing missions.
(1) Many faculty in medical schools don't feel acknowledged. They are of the idea that the Dean's office does not know how hard they are working; they feel invisible and not listened to. Furthermore, they feel the attention mostly goes to departments that bring in high amounts of research money, which is not so much the case in medical education. The many developments taking place in medical education which require greater collaboration and the engagement of a wider arrange of stakeholders including students, might have led to a gap between perception and understanding between deans and staff. The goal of this symposium is to explore and discuss with the audience and the panel a) the gap in perception and understanding between deans and faculty, and b) solutions and best practices how medical education and medical education research can be stimulated and made more visible. The topics for discussion will be derived from a questionnaire sent out to the audience prior to the conference.
1. Rich EC, Magrane D, Kirch DG. Qualities of the medical school dean: insights from the literature. Academic medicine : journal of the Association of American Medical Colleges. 2008;83(5):483-7. 2. Buckley PF. The medical school dean: leadership and workforce development. Academic psychiatry : the journal of the American Association of Directors of Psychiatric Residency Training and the Association for Academic Psychiatry. 2014;38(1):82-5.

Who should participate in the symposium? Both the leadership (associate deans, department chairs), and faculty, staff and students who are interested in how to make medical education and medical education research more visible in medical schools. To match the international audience of AMEE, the deans invited to

participate on the panel are from Asia, Australia, Europe and Northern-America.

What will they gain from participating? After a short introduction of the topic and the outcomes of the questionnaire (10'), the deans will give a seven-minute introduction about themselves, their medical school, and a best practice of how they stimulate medical education and medical education research (30'). This will be followed by a discussion with the audience and panel (40'). The best practices to stimulate medical education and medical education research will be summarized at the end of the meeting (10'). The outcomes of the discussion should be:

- A better understanding of the gap between deans and medical school faculty and staff;
- Examples of best practices provided by the deans, that can be used in other medical schools.

8D - What is the Value of Accreditation?

Location: Singapore 2nd Floor, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

Presenters
William Pinsky, Educational Commission for Foreign Medical Graduates (ECFMG), Philadelphia, USA
Lorna Parkins, Caribbean Accreditation Authority for Education in Medicine and Other Health Professions (CAAM)
Geneviève Moineau, Association of Faculties of Medicine of Canada, Ottawa, Canada
Moderator: John (Jack) R. Boulet, Foundation for Advancement of International Medical Education and Research (FAIMER), Philadelphia, USA

Given the rapid expansion of medical schools throughout the world, potential students need some assurance that the educational programme is of sufficient quality. The accreditation of undergraduate medical education (UGME) programmes is considered to be a valuable step for improving the quality of medical schools and the graduates they produce. The accreditation process, buttressed by external review, allows medical school staff to reflect on programme strengths and weaknesses and evaluate the school's performance with reference to defined standards. If these standards can be met, stakeholders, including students, can be assured that the educational process is "fit for purpose".
The goal of this session is to provide the medical education community with an update on the rationale for, and importance of, UGME accreditation. The panel session will cover the evolution of medical education accreditation standards, the current status of UGME accreditation, and research demonstrating the value of accreditation. In addition, the World Federation for Medical Education (WFME) recognition programme, developed to evaluate compliance of accrediting agencies with pre-defined criteria, will be discussed. This recognition programme ensures that accreditation of medical schools worldwide is at an internationally accepted and high standard.

The panelists will explore the value of, and challenges associated with, UGME accreditation from global, regional, and local perspectives.

8E: Research Papers: Career Trajectories & Mentorship

Location: Delhi, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

8E1 (47)

Are efforts to attract graduate applicants to UK medical schools effective in increasing the participation of under-represented socioeconomic groups? A national cohort study.

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Introduction: Attracting graduates was recommended as a means of diversifying the UK medical student population. Graduates now make up nearly a quarter of the total medical student population. Research to date has focused on comparing the socio-demographic characteristics of applicants to and/or students on traditional and graduate entry programmes (GEMs), yet GEMs account for only 40% of the graduate medical student population. The broader picture of whether graduates and non-graduate applicants to medicine differ on a range of socio-demographic variables is relatively known. The Selecting for Excellence Final 2014 Report highlights that 'it is hard to determine whether graduate applicants have any significant impact on widening participation.1 Thus, we aimed to compare the socio-demographic characteristics, particularly those associated with widening participation2, and outcomes of graduates and non-graduate applicants across a range of programmes.

Methods: This was an observational study of 117214 applicants to medicine who took the UK Clinical Aptitude Test (UKCAT) from 2006 to 2014, and who applied to medical school through Universities and Colleges Admissions Services (UCAS). We included applicants' demographics and contextual markers, UKCAT total scores and offers in our analysis. Applicants were assigned as graduates or non-graduates on the basis of their highest qualification. The socio-economic status (SES) of the candidates was determined by parental National Statistics Socio-Economic Classification (NS-SEC) and Index of Multiple Deprivation (IMD), an area-based measurement of material deprivation. Multiple logistic regression was used to predict the odds of receiving an offer, after adjusting for confounders.

Results: Irrespective of graduate or non-graduate status, most applicants were from the highest socio-economic groups and were from a white ethnic background. Graduates and non-graduate applicants from top 20% affluent neighbourhoods (IMD 1) obtained better UKCAT scores than applicants from the 20% most deprived areas

(IMD 5). Receiving an offer was related to gender and ethnicity in both graduates and non-graduates. After adjusting for UKCAT score, the odds ratio of an offer for graduates vs. non-graduates was approximately 0.5 (OR=0.48, 95% CI 0.46-0.49).

Discussion: Unlike previous studies in this area, we compared a larger sample of graduate applicants with non-graduates, rather than comparing by course (traditional versus GEM). This allowed us to capture the characteristics of a broader group of graduate applicants compared to earlier studies. Our results show that graduate and non-graduate applicants to UK medical schools are very similar on a range of socio-demographic markers, including multiple markers of socio-economic status. Overall, we found that graduates were proportionally less likely to receive an offer than non-graduate applicants, and those graduates who were offered places had significantly higher UKCAT scores than their non-graduate equivalents.

Conclusion: Our study recognises the problem of allocating graduate applicants to an occupational group that depends on their family circumstances (area, parental occupation). However, the findings indicate that the aim of diversifying the medical student population on socio-economic grounds by attracting graduates has been only marginally successful. Graduate applicants from widening access backgrounds are less likely than others to be offered a place at medical school. Different approaches must be considered if medicine is to attract and select more socially diverse applicants.

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8E2 (154)

Differences in Learning Experiences and Outcomes of International Health Elective Program Participants Who Visited Low-Middle Income or High-Income Countries: A Cross-Sectional Survey of Japanese Medical Graduates

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Introduction: There is a growing interest in global health experiences for medical students with opportunities for learning in different social and cultural contexts to enhance students' awareness of social accountability. Prior literature shows that students who visited low-middle income countries (LMICs) were more interested in choosing careers in primary care and/or working for the underserved1. However, the educational effects of

overseas electives are often evaluated only using self-reported ratings or essays shortly after the program. There are only few studies reporting mid- to long-term impact on medical graduates. While more than 90% of medical schools in Japan have international health elective (IHE) programs, only 2-3% of students participate in the experience, and among them 80% go to high-income countries (HICs). This study explores differences in learning experiences and outcomes among IHE participants by graduation year (1985-2006 and 2007-2017) and by elective site (LMICs and HICs).

Methods: We developed and administered a survey to three organizations known for a history of providing IHE programs for medical students (one medical school, two foundations) in March 2017. We identified 362 medical graduates who participated in any of those three programs and invited them to complete an electronic or paper-based survey. Data were examined using descriptive statistics and regression analysis.

Results: The response rate was 163/362 (45%). Respondents were 54% male, age range 24 to 56 (median age 37); 68% participated in IHEs in HICs. Respondents who visited LMICs rated higher their learning about preventive medicine, health inequality, doctor's social roles, resource-limited care and social determinants of health (SDH) (all p=.001). Participants who went to HICs recognized lack of their clinical skills (p<.05) and faced difficulties in receiving effective teaching (p<.05) and organizing transportation (p<.001). When asked about topics from the list of global health competencies2, respondents in the LMIC group felt more comfortable in listing SDH (p<.05) and roles of World Health Organization (p<.001). The earlier graduates were more aware of doctors' social roles in health inequality (p<.05). Factors that positively influenced greater understanding of global health competencies included participation in IHE at LMICs (β=.18, p=.018) and active involvement in professional organizations (β=.25, p=.003). Overall, the odds of LMIC respondents working in remote areas was 3.11 times (95% CI 1.29-7.48) greater, and their willingness to work in international organizations was 2.10 times (95% CI: 1.03-4.26) greater than in HIC respondents.

Discussion: This study revealed significant differences between students' learning experiences when participating in IHEs in LMICs and HICs. Graduates who had electives in HICs recalled learning more in areas of clinical medicine, while social issues were more often recognized in the LMIC group. Since SDH exist in any country, regardless of resources, there may be missed opportunities for learning during overseas electives in HICs. Although electives in LMICs are considered more challenging, graduates experienced fewer difficulties, possibly due to better preparation because of this assumption.

Conclusions: Our survey showed strong association between learning experiences in LMICs and willingness to work in remote areas and/or work in international organizations. Whilst this could be due to a predisposing global orientation in students who went to LMICs, these experiences also provide a valuable opportunity to enhance their sense of social accountability. This implies the need to work closely with host organizations at LMICs to help maintain their educational resources and to establish sustainable and reciprocal relationships.

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8E3 (61)
Perceived Organizational Support and Career Intentions: The Stories Shared by Early Career Doctors

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Introduction: Early medical careers decision making is a complex process involving weighing up job-related and personal factors. It is critical to understand this process given many early-career doctors are choosing to leave clinical medicine or work in contexts other than those in which they were trained.

Emerging evidence indicates that the experience of working in a supportive culture during early postgraduate years of medical training is a highly influential factor in terms of training preferences in early career doctors1. Additionally, residents/trainees place a lot of value on positive working environments and professional development when considering where they want to work. However, we do not understand what supportive culture and positive working environments actually mean to early career doctors and how perceived support may influence their career intentions. Therefore, our aim was to explore residents' (trainees) experiences of support in the workplace, and how this impacted on their career intentions. We targeted a group of doctors at a critical point in early medical careers decision making – the time when they are expected to apply for specialty training.

Method: This was a qualitative study using semi-structured interviews incorporating a narrative inquiry approach for data collection. The interview questions were drawn from the literature and informed by data from two focus groups.

Interviews were carried out in two UK locations (which differed in terms of locality and participant demographics), then transcribed for analysis. Initial data coding and analysis of the transcribed interviews was inductive, using thematic analysis to generate a non-interpretative coding scheme which was used to code all data and elicit themes and narratives.

On scrutinising these initial themes and stories, we were struck that many of the issues related to the relationships our participants had with the organization they worked for, and the people they worked with. We then used the social theory of Perceived Organizational Support (POS)2 as a theoretical framework underpinning secondary, deductive data interpretation, to aid conceptual generalizability.

Results: Twenty-one interviews were carried out in total: thirteen from one region, eight from the other. Eleven

interviewees had applied for specialty training, while ten had not. We examined the narrative data through the POS lens to identify common themes across the collected stories, as well as to illustrate the unique aspects of each story. Support from senior staff and colleagues influenced participants' job satisfaction and engagement. Positive relationships with senior staff and colleagues also seemed to act as buffer which helped our participants cope with challenging situations. Feeling valued (in terms of acknowledgement of efforts, and respect) was very important to participants. On the other hand, perceiving a poor level of support from the organisation and its representatives (supervisors, colleagues) had a detrimental impact on participants' intentions to stay and work within the NHS.

Discussion & Conclusion: Overall, this is the first study to explore directly how the experiences in postgraduate training can have a critical impact on the career intentions of trainee/resident doctors. We found perceived support in the early stages of postgraduate training was a pivotal factor in whether or not doctors applied for specialty training, and/or intended to stay working in the NHS. These findings can be used to inform workforce policy and planning nationally, and have transferable messages to other contexts which are struggling to recruit and retain junior doctors.

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Eisenberger R, Huntington R, Hutchison S, & Sowa D. Perceived Organizational Support. Journal of Applied Psychology, 1986; 71, 500-507.

8E4 (175)
Mentor, coach and assessor: how faculty perceive their role in a multiple role mentoring system in undergraduate medical education

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Introduction: Programmatic assessment (PA) has been introduced to support student learning and evaluation of students' competence development over time and across various contexts. The success of PA hinges on a member of faculty fulfilling the role of 'mentor'. The mentor is tasked with coaching the student and stimulating their competence development through use of a portfolio. Both the mentor and an external assessment committee judge whether the student's development meets the required competency standards over time. As a consequence, the mentor role entails the potentially conflicting roles of coach and assessor. Given the pivotal role of mentors in

PA, we set out to investigate faculty's conceptualization of their mentoring role in a multiple role mentoring system and to explore the extent to which mentors experience role conflicts.

Methods: We conducted a qualitative study rooted in constructivist grounded theory, to elaborate an explanatory theory of the conceptualization of mentoring and possible role conflicts in a multiple role mentoring system in undergraduate medical training. We purposively sampled 12 physician-mentors in a PA system (Maastricht University undergraduate medical school) for semi-structured interviews. Using the constructivist approach, we specifically acknowledged existing experiential (SM) and theoretical (MG, RS) background in theories of programmatic assessment and mentoring in a multiple role mentoring system, which influenced the interview guide. Data collection was done iteratively, meaning data analysis occurred alongside data collection. Data was collected until saturation was met. By constant comparison and our explicit search for contradictory findings, themes were constructed.

Results: Conceptualizations of the mentor role could be grouped into three dominant mentoring styles: 1) empowering student development, 2) checking whether goals are met, and 3) directing student learning behaviour, where the empowering style was most common. Each style was influenced by the mentor's focus and practice in mentoring and encompassed different types of mentor-mentee relationships: 1) partnership, 2) instrumental and 3) faculty centred. Furthermore, faculty's personal objectives with mentoring and how they perceived their responsibilities with regard to students' development could be related to their inherent mentoring style.
Most of the interviewed mentors did not experience any debilitating role conflicts and felt that the support of the assessment system and their personal aim to empower lifelong learning, assisted them in being a good mentor. Notably, mentors that were identified as having a directive style reported experiencing role conflict which seemed to be related to their mistrust in the assessment system and their feeling personally responsible towards students' success. When experiencing a role conflict, these mentors used various coping strategies including deviation from assessment guidelines.

Discussion & Conclusions: Mentors' conceptualizations of their role could be categorized in three dominant mentoring styles and, in parallel, three different mentor-mentee relationships. The empowering mentor style seemed to be the most constructive style within a PA system as it foregrounds the development of students. Few mentors experienced role conflicts, but those that did, seemed to favour the directive mentoring style which is most at odds with the PA system and its focus on development. Faculty development for mentors in a PA system is recommended to create awareness about the potential mentoring styles, and to highlight those aspects of mentoring that focus on students' competency development over time. A longitudinal research design is warranted to understand the development of mentoring styles and relationships within a PA system over time.

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8F: Doctoral Reports 2

Location: Helvetia 1, 1st Floor, Swissotel
Date: Tuesday 28th August
Time: 1400-1530 hrs

8F1 (21)
Clinical Supervision in Postgraduate Medical Education – Theory and Practice

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Presenter:
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Introduction: Postgraduate medical education (PGME) provides opportunities for trainee doctors to learn their craft through supervised practice. Trainees learn as they work in tandem with more experienced doctors. Supervisors are central to many work-related activities of trainees, and the supervisory relationship plays a significant role in how trainees experience and learn from clinical experiences, including adverse outcomes in patient care. The 'apprenticeship model' partially underpins the development of trainees through engagement with a supervising expert. However, contemporary trainee supervision extends beyond the traditional apprenticeship model to compensate for the current complexities of modern health care and training structures. This doctoral research programme aimed to 1) develop a realist theory of clinical supervision that takes into account the complexity of the clinical environment and 2) explore how workplace- and specialty-specific culture and practice impact on clinical supervision.
Methodology: Two approaches within the critical realist paradigm, Realist Synthesis and Multiple Case Study, were used to address the research aims. Realist review is a theory-driven approach to synthesising research evidence and translates the findings of empirical studies into context, mechanism and outcome (CMO) configurations, which state that in a particular context a particular mechanism generates a particular outcome. Theory is generated, tested, and refined through this process. The theory developed from the realist review was used as a framework for the case study research.
Case study research guides holistic study of a complex phenomenon to increase understanding through critical analysis and clarification of contextual factors. Four medical departments were purposefully chosen to investigate clinical supervision in different contexts regarding organisation and specialty. By a two-step qualitative data analysis procedure, the findings from fieldwork were analysed through pattern-matching and cross-case analysis, within the case and across cases.
Results: Realist Synthesis of literature on clinical supervision in PGME generated a realist theory describing three interrelated processes; Supervised Participation in Practice, Mutual Observation of Practice and Dialogue

about Practice. These processes are underpinned by interconnected mechanisms which are led by the supervisor, trainee or both; Entrustment, Support Seeking, Monitoring, Modelling, Meaning Making, and Feedback. The theory also describes the contextual factors which influence these mechanisms.
For the case study, the starting point was the realist theory of clinical supervision. Fifty consultant and trainee participants representing a range of disciplines and training levels were interviewed. All proposed theoretical mechanisms were experienced across all four cases, and the results of cross-case analysis illustrated the organisation and specialty-specific circumstances which impact on trainee supervision. The findings of the case study provided an enriched, more nuanced theory and understanding of the circumstances pertaining to specific workplaces and medical specialties that shape clinical supervision and, therefore, the professional development of doctors-in-training.
Discussion and Conclusions: The most noteworthy outcomes of the research were 1) a theoretical framework of clinical supervision and 2) findings on how workplace and speciality related conditions shape clinical supervision. The findings provide an accessible framework to allow supervisors/senior doctors and trainees to conceptualise and maximise their own contribution to clinical supervision. The results identified critical contextual factors which promote and inhibit clinical supervision useful for supporting the design and planning of clinical learning environments for postgraduate medical education.
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8F2 (29)
Predictive Validity of the Selection Procedure for Admission in Medicine and the Role of a Bonus System in Relation to Performance During Graduation and Selection for Medical Residency

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Introduction: Aiming at inclusion and seeking diversity that reflects the population, several changes have been implemented in Brazilian higher education, but there is a debate about the performance of students who benefited from affirmative action (AA) programs. In 2004, the State University of Campinas initiated the Affirmative Action and Social Inclusion Program (Paais), a bonus system applied in the second phase of the college entrance exam (CEE), offering 30 points for public high school students and 10 points for self-declared blacks, browns, or indigenous people. Objectives: To evaluate the influence of the sociodemographic characteristics, the receipt of the bonus and the student scholarship on the predictive validity of

the performance in the college entrance exam in relation to the performance in medical graduation, and in the selection for the Medical Residency Programs (MR).

Subjects and methods: A retrospective cohort study was carried out with a secondary analysis of the data of the students enrolled in the 1st year of the Medical Graduation course between the years 2005 and 2008, comparing the performance in the CEE with the coefficient of performance in the sixth (GPA6) and in the twelfth (GPA12) periods, and in the selective process for admission to MR. One-way ANOVA and Tukey's Post-hoc test, Pearson's correlation, Chi-square (X2) and Student's T-test were used for analysis, adopting 95% confidence interval, the effect size was calculated with eta-squared. 417 medical students were included, and 84 (20.1%) used bonuses.

Results: The median age was 20 years (ranging from 17 to 33), with a predominance of females (55%). Four articles are presented in the results, the first one being a bibliographical review on the topic of affirmative actions (AA) in access to higher education. The second article shows that the grade of the first phase of the college entrance examination were associated with the performance during the graduation and that the overall performance in the CEE justifies 18% in the variation of the performance at the end of the course and 10% in the selection for MR, while Portuguese correlates moderately with GPA12 and mainly mathematics, physics and geography, with the performance in the MR exam. The third article shows that scholarship students had lower family incomes and improved academic performance during the medical course. The fourth article shows that bonus participants at medical school admission were older, had lower income and schooling of their parents, and presented lower GPA6, but similar performance for GPA12 and in the MR selection exam. Factor associated with GPA6 and GPA12, but not MR included maternal schooling, scholarship, lower age and most subjects for medical school admission.

Conclusion: Students receiving bonus at medical school selection exam completed the course under equivalent conditions to others and similar chances of admission to MR. It is suggested that the involvement with activities that allow the scholarship to be received during graduation, particularly for scientific initiation, contribute to the observed recovery among lower-income students.

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8F3 (30)
Is the grass always greener on the other side? A qualitative study on the expectations of migrating physicians compared to reality

Authors

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Introduction: "Mass migration" is a term that has recently emerged in the medical education literature to reflect the magnitude of the migration phenomenon of health care professionals in general and physicians in particular. This form of migration has significant impact on the healthcare systems in source as well as in destination countries. Studies one so far concentrated mainly on the integration process itself, namely that of the target country's patients and physicians and the degree of satisfaction or dissatisfaction with migrating physicians.

This study focuses on the other side of the coin; the perspective of the migrating physicians and compare their expectations before and after migration. This 2 phase study is one of the few studies that compares the situation before and after migration; we explored the driving forces behind physicians' migration to Germany and compared them to the reality experienced after migration. We also explored barriers and facilitators of integration.

Methods: This qualitative study is based on social constructivism epistemology; we explored the situation of foreign physicians as "being constructed through social interaction". Focus group discussions and personal interviews were conducted in 2 phases:

Phase 1 (February till Mai 2017 in Egypt): Physicians attending the "preparatory course for German medical language examination at the Goethe Institute and the Medical Syndicate were invited to focus group discussions. For logistical reasons this phase included Egyptian physicians as it was very difficult to reach other nationalities of migrating physicians while they were still in their home countries.

Phase 2 (July 2017 till September 2017 in Germany): Foreign physicians working in different locations in Germany were invited for focus group discussions and interviews. This phase included physicians from Egypt, Iran, Syria, Jordan and Palestine.

After being audio- recorded, data was transcribed, translated and analyzed using framework analysis. For construction of the framework, we drew upon a priori items as well as emergent issues raised by the study participants. Coding was done using ATLAS-ti (a computerized indexing system).

Results: In phase 1, five focus groups were held a total of 18 participants from Egypt; 12 residents from different hospitals and geographic locations and 6 undergraduate medical students. In phase 2, one focus group discussion and 9 interviews were conducted with a total of 14

migrating residents working in different geographic locations in Germany.

Analysis of phase 1 data showed that the most significant driving force of migration to Germany was the relatively easy re-accreditation procedures. This adds a novel dimension to the already described in the literature such as the financial, professional and general pull and push factors

Analysis of phase 2 showed that almost all the expectations of the migrations physicians have been successfully met; however there was some disappointment regarding professional aspects; unequal learning opportunities and variable quality of training depending on the size and location of the hospital, the specialty and the personal connections with hospital staff.

Discussion & Conclusions: Egyptian physicians' migration is significantly shaped by medical licensing requirements in destination countries in addition to the so far reported pull and push factors. There is need for supporting integration program of foreign physicians with emphasis on cross-cultural training in the healthcare setting.

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8G: Short Communications: Surgical Simulation

Location: Helvetia 2, 1st Floor, Swissotel
Date: Tuesday 28th August
Time: 1400-1530 hrs

8G1 (757)
Establishing valid procedural competency in virtual reality robotic simulation

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Background: The use of robotic surgery for minimally invasive procedures has increased considerably over the last decade. Robotic surgery has potential advantages compared to laparoscopic surgery but also requires new skills. Virtual reality (VR) simulation can be used to facilitate acquisition of these skills through proficiency-based training—and this is dependent on solid validity evidence. This study aims to systematically collect validity evidence according to Messick's framework of validity for a simulation-based test for procedural competency in VR robotic simulation and establish a credible pass/fail standard for future mastery learning.
Method: Eleven novice gynaecological surgeons without prior robotic experience and 11 experienced gynaecological robotic surgeons were recruited. After familiarization with the VR simulator, participants completed six repetitions of the module 'Guided Vaginal Cuff Closure'. Validity evidence was investigated for 18 preselected simulator metrics (e.g. time, path length and errors). Internal consistency was assessed using Cronbach's alpha and a composite score from 0 to 100 was calculated based on the metrics with significant discriminative ability between the two groups. Finally, a pass/fail standard was established using the contrasting groups' method.
Results: The experienced surgeons significantly outperformed the novice surgeons on 6/18 metrics. Internal consistency (Cronbach's alpha) was 0.58. The experienced surgeons' mean composite score for all six repetitions were significantly better than the novice surgeons' (76.1 vs. 63.0, respectively, p<0.001). A pass/fail standard of 75/100 was established. Four novice surgeons passed this standard (false positives) and three experienced surgeons failed (false negatives).
Discussion & Conclusion: Only a minority of the built-in metrics could discriminate between novices and experienced surgeons, emphasising the need to collect validity evidence when setting standards in simulation-based skills training. The established pass/fail standard resulted in failing 3/11 experienced surgeons. However, it is important to use a representative sample of proficient robotic surgeons, otherwise the established standard could be either unachievable or too low. In conclusion, we have systematically gathered validity evidence for a simulation-based test for procedural robotic surgical competency and established a credible pass/fail standard for future proficiency-based training.
Take-home message: Validity evidence is important for standard setting in simulation-based skills training.

8G2 (3092)
Validation and Transferability of the SIMULATE Ureterorenoscopy Training Curriculum: A Multicenter International Study

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Presenter:
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Background: There have been considerable developments and subsequent use of simulation models in urology. However, utilising different modalities within a curriculum is suggested to be much more effective. The international SIMULATE curriculum for ureterorenoscopy (URS) employs the most evidence-based validated training models, in a structured fashion. The aim of this study is to assess the validity and transferability of the SIMULATE URS training curriculum.
Method: Junior urology trainees with less than 10 URS experience (n=46) were invited for training using the curriculum on five separate occasions in Manchester (n=15), Salzburg (n=15), Hokkaido (n=5), Guangzhou (n=9) and London (n=4). Participants performed cases on the URO Mentor VR simulator (Simbionix) and also the Uro-Scopic Trainer (Limbs & Things) and Advanced Scope Trainer (Mediskills) bench models. The first cohort were also given the opportunity to use fresh frozen cadavers with fluoroscopy. Performances were evaluated throughout the sessions using OSATS, by endourology and education specialists, all of whom were also invited for an evaluation survey following training. Construct validity was

assessed using a One-way ANOVA test to evaluate the level of progress throughout the curriculum. Trainees were followed up at their institutions and assessed for technical skills, using OSATS to evaluate transfer validity. Participants rated that the training significantly improved their skills (mean: 4.2/5) and that they gained transferrable skills (mean: 4.2/5). A One-way ANOVA test revealed significant improvement in both semi-rigid (p=0.0005) and flexible URS (p=0.0266) skills, with consecutive cases throughout the curriculum and the first OR performance (n=13). Furthermore, there was no difference in OR performance between the cadaveric (n=9) and non-cadaveric groups (n=12; p=0.6872). Of the used modalities, dry-lab models scored the highest with regards to instrument handling, laser stone fragmentation and stone extraction whilst C-arm control was the most highly rated aspect of fresh frozen cadavers (mean: 4.7/5).
The SIMULATE URS curriculum revealed face, content, construct and transfer validity. Participants are currently being followed up in the operating room for 25 URS procedures and will compared to an arm with no simulation experience, as part of the on-going SIMULATE randomised controlled trial.

8G3 (243)
Diving In Hands First – A New Approach to Training in Undergraduate Medical Education

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Presenter:
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Background: Clerkship students do not currently benefit from formalized hands-on training during their OB/GYN rotation at University of Toronto; however, they participate in multiple procedures. It has been suggested that incorporating technical skills practice into teaching sessions is not only superior to traditional lectures for delivering the material, but can also improve patient care and safety at the bedside. As a result, we aimed to introduce a perineal repair (PR) workshop with instruction on instrument and hand knot-tying into our curriculum. We piloted a PR workshop for clinical clerks in order to demonstrate perineal anatomy, laceration repair as well as suturing and knot-tying. Prior to the workshop, students' (n=82) baseline knowledge was assessed with a pre-test and their knot-tying speeds were recorded. Students were then given a tutorial on perineal anatomy and laceration repair as well as knot-tying. Following a small group demonstration, students practiced their skills on an inexpensive perineal model (that we created) and were provided with individualized instruction and feedback. Knowledge and knot-tying speeds were then reassessed. There were statistically significant improvements in both knowledge of perineal anatomy, lacerations and repair techniques (51.0%, 71.0%, p<0.05) as well as technical skills

with respect to knot-tying speeds (259s, 197s, p<0.05) after the workshop. Importantly, 94% of students agreed or strongly agreed that this method of learning was more enjoyable than and superior to traditional methods of teaching.
Results & Discussion: Increased need for practical skills and hands-on training has led to a movement towards incorporating simulation into undergraduate medical education. Patients have also been shown to be significantly more accepting of medical students performing procedures on them if the students have had previous practice with simulation. Our results support that hands-on practice in a simulated environment may bridge the gap between formalized teaching and clinical practice.
Conclusion: This highly reproducible and inexpensive teaching model ensures that the workshop is feasible for other health professionals (ie. Midwifery, family practice). It can be easily duplicated and incorporated into teaching curricula locally and internationally for the purposes of education and ultimately improved patient safety.

8G4 (404)
Breaking professional barriers - simulation based teamwork training for professional OR teams

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Presenter:
Cecilia Escher, Center for Advanced Medical Simulation and Training, Karolinska University Hospital, Stockholm, Sweden

Background: Increasing task complexity demanding more specialized staff and advanced equipment is a challenge to teamwork in multi professional operating room (OR) teams. Studies have pointed at non-proficient non-technical skills as a cause of adverse events and simulation based teamwork training as a possibility for improvement. The aim of this study was to find out how OR staff perceived a simulation based teamwork-training course and explore possibilities for transfer of learning from the training to the OR.
Method: In a prospective qualitative intervention study 32 experienced OR staff including 5 professions (surgeons, anaesthetists, OR nurses, nurse anaesthetists and nurse assistants) took part in a full day simulation based teamwork-training course with non-technical skills training goals. Data was collected during 5 focus group interviews

that were recorded. Transcripts were analyzed with thematic analysis.

Results: The screen between the sterile field and anaesthesia was related to as physical barrier and a metaphor for a divided OR team. Non-technical skills taught during the training were mentioned as a possibility to reduce this barrier.

"It seems like a time-out is a very good method to reduce the barrier between anaesthesia and surgery" (nurse anaesthetist).

Participants appreciated training in their own professional roles in a full authentic team. They expressed that team skills learned during the course would be possible to transfer to their workplace. Barriers to transfer of learning included organizational factors at the OR department and the fact that not all staff participated.

Discussion: The results indicate that OR staff perceive OR teams as divided into sub-teams which is in line both with Makary´s findings of diverse views on quality of collaboration by the OR professions and an ongoing discussion about the adverse effects of the prevailing professional silos in healthcare organizations and training.

Conclusion: A divided team can imply inferior conditions for good teamwork and a risk to patient safety. Experienced OR staff describe the screen between the sterile field and anaesthesia as a communication barrier indicating a possible risk to patient safety. Simulation based teamwork training offers a possibility to reduce the barrier.

8G5 (546)
Sustainable Open inguinal hernia repair simulation model: from residency training to global surgery – a 10 year learning curve

Authors

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David R. Farley, Mayo Clinic, Rochester, USA

Presenter:
Parvathi Balachandran, Mayo Clinic, Rochester, USA

Background: The cost of simulation models available for practicing open inguinal hernia repair (IHR) is ~$500. The technical and economic sustainability of IHR models is very low in training surgery residents. We built a cost and resource-efficient open IHR model and introduced it into our education curriculum.

Method: We used low-cost fabric, yarn, and tubing to build anatomically accurate, reusable open IHR models. An instructor-led session of open IHR using the models with 30 surgical interns was conducted early on in each academic year. Thereafter, the models were available to trainees for practice. We biannually assessed the residents' knowledge of groin anatomy and surgical skills to accurately complete an open IHR. With proven benefits from this pilot project, we used the model to help train surgeons in Ghana, Africa.

Discussion: The materials cost less than $3 per model and took 20 minutes to create. On serial assessments, residents showed significant improvement in groin

anatomy knowledge (mean change 18%, p<0.01) and open IHR skills (42%, p=0.04). We used this model in 2017 in a comprehensive workshop to effectively assist 35 surgeons in Ghana learning the Lichtenstein IHR.

Conclusion: Inguinal hernia is a global health problem; it is crucial for all surgery trainees to be proficient in repairing inguinal herniae. A sustainable, reusable, low-cost model is essential for hands-on training and practice. We propose our model of IHR for surgical education programs, especially those with low resource availability.

Take-home messages: Simulation groin models allow trainees to improve their knowledge and skills in open IHR. Low-cost simulation models can assist worldwide surgical training for IHR.

8G6 (923)
Teaching in the robotic environment: Use of alternative approaches to guide operative instruction

Authors

Courtney A. Green
Simon Chu
Emily Huang
Hueylan Chern
Patricia O'Sullivan

Presenter:
Courtney Green, University of California San Francisco, USA

Background: The rapid growth of robotic-assisted surgery has prompted surgical residency programs to develop appropriate curricula. However, the unique learning environment in robotic operating rooms challenges educators to determine the most appropriate ways to instruct surgical residents. As a needs assessment for faculty development, we observed attending surgeons' instructional language and behaviors as they guided residents through robotic dissection of live tissue.

Method: In June 2017, six senior surgical residents participated in a four-hour operative session using live porcine tissue and the da Vinci Surgical System (Intuitive Surgical, Sunnyvale CA). Academic robotic surgeons provided instruction and were restricted to teaching without manipulating the operative console. Three observers documented the language, gestures and behaviors occurring at three different stations, and at a fourth station, obtained video and audio recordings of the instructional interaction. Afterwards, instructors and residents met in separate focus groups. We used qualitative content analysis to summarize the type and frequency of teaching behaviors. Focus group information helped to clarify this analysis. We compared these results to an existing taxonomy of 16 operative teaching behaviors in open and laparoscopic surgery.

Results: The instructors came from four different specialties with up to eight years of experience. They used 11 of the 16 open and laparoscopic teaching behaviors. These 11 behaviors did not vary by surgical specialty or experience, but frequency of use differed due to both relevance and need to expand use of behaviors than observed in laparoscopic and open surgical instruction. Additionally, robotic-specific behaviors were identified

that involved disengaging the resident from the operative console for either onscreen direction or for gesturing with verbal instruction. These unique disengaging behaviors were highlighted by the focus groups as essential for guiding operative performance with the robot.

Conclusion: Robotic instruction uses a different set of instructional approaches compared to open and laparoscopic surgery, relying extensively on verbalization to address a learner at a console. In this study, additional behaviors emerged impelled by the physical separation of the robotic environment. Future faculty development in this area will need to emphasize specific verbal and physical instruction.

8H: Point of View 2

Location: Kairo 1, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

8H1 (2444)
The burnout epidemic: Who is accountable for creating safe physician work-environments and cultures that reduce burnout and promote resiliency?

Authors
Charlene M. Dewey
Teri Turner

Presenter: Charlene Dewey, Vanderbilt University Medical Center, Vanderbilt University School of Medicine, Nashville, USA

Background: Burnout has no borders and is prevalent in physicians in the United States, Canada, and Europe as well as other countries. Maslach identifies six sources of burnout as work overload, lack of control, values conflict, insufficient reward, unfairness and a breakdown of community. Maslach acknowledges the root of burnout is the mismatch between the nature of the job and the nature of the person who does the job. While the literature continues to grow identifying rates of burnout from students to physicians, few papers focus on the accountability of the healthcare system or the institution. The Center for Professional Health and the new National Academies of Medicine pose models that identify the opposing systems that increase burnout. The intrinsic/internal system of the individual and its relationship with the extrinsic/external system or culture/work environment is the center of this mismatch. Both play significant roles in causing or reducing burnout. We believe individuals can be coached to reduce risk for burnout and to build resiliency to improve their overall well-being, but this can be useless if the culture/work environment is unhealthy. Shanafelt outlined nine system approaches to combating burnout for physicians, but none have been adequately research. So our questions are these: Who or what is the underlying cause of an unhealthy culture/work environment? How does it develop? Who is accountable for the culture? What measures are used to assess it? Who do physicians hold accountable for assuring a safe work environment that builds resiliency and reduces burnout? Is it the state, government, national or other world health organizations? And lastly, how do we as physicians go about changing an institutional culture? In this session we pose possible solutions but look to the greater audience for answers that reach across borders to all practicing physicians.

8H2 (538)
Second Victim..What does it Mean and How I Help My Learners Not Become One?

Authors
Geeta Singhal, Baylor College of Medicine, Houston, USA
Satid Thammasitboon, Baylor College of Medicine, Houston, USA
Teri Turner, Baylor College of Medicine, Houston, USA
Jen-feng Liang, Taipei University, Taipei, Taiwan

Presenter: Geeta Singhal, Baylor College of Medicine, Houston, USA

Background: The concept of "second victim" refers to a care provider who directly or indirectly contributes to the occurrence of an adverse event which leads to psychological effects that disrupt the provider's professional and personal life, and the ability to deliver high-quality, safe care. Anxiety, depression, sleep disturbance, fear and worry are reported have been reported as well as shame, guilt, loss of self confidence, and feelings of incompetence and worthlessness. The severity of these effects is related to the degree of patient harm and the clinician's experience of the investigation process; they are more pronounced with more serious incidents. Stress, anxiety and sleep disturbance may affect clinical decision making, job performance and peer relationships. This point of view aims to address these concepts and offer strategies to mitigate negative feelings that care providers may experience after an adverse event. This interactive and fast paced point off view will offer: personal experiences from the moderator; encourage reflection from participants; and review state-of-the–art programs globally to support care providers and, finally, review strategies for participants to help themselves and others when they are feeling that they are a "second victim."

Learning Objectives:
- Participants will be apprised of the "second victim" concept.
- We will cover the concept via large group discussion, review of the literature and reflection. Outcome will be raised awareness of these concepts.
- Reflect upon how second victim has impacted the participants on a personal level.
- Outcomes are enhanced personal awareness of this concept. This will be covered in a facilitated small group format.
- Review of national initiatives across US hospitals to address the needs of second victim.
- The outcome will be to update participants about national initiatives and programs to address the concept. The objective will be met via interactive discussion and showcasing of national programs.

8H3 (1251)
Care, learning and assessment by the patient. Can they go together in a longitudinal relationship with a junior doctor?

Authors
Duncan MacKinnon Australian National University Medical School Canberra Australia
Katrina Anderson Australian National University Medical School Canberra Australia

Presenter: Duncan MacKinnon, Australian National University Medical School, Canberra, Australia

Background: In junior doctor training whether at resident or more senior levels patients have traditionally not been considered an important contributor to learning and assessment. The paternalistic nature of the doctor patient relationship has not acknowledged patients as part of the teaching team. With recent developments in work place based assessments patients have started to be involved in structured feedback but in a de-identified way.
In the hospital environment where patients are acutely unwell junior doctors conventionally do not have ongoing relationships with patients. In this environment patients tend to be very sick and therefore compliant, often passive and even submissive. In the community environment the balance of power can be quite different and patients are active participants in the doctor patient relationship.
In 2018 we have implemented a pilot trial of allocating patients with complex chronic disease to a conditionally registered junior doctor for 6 months. This is taking place in a supervised General Practice environment where we have asked the patient to be both patient and assessor. This is a new and novel approach that seeks to measure if this is a valid and acceptable model as part of training. The discussion in this "point of view" will explore the concept of patients having a formal role in the assessment of junior doctor performance. We would like to get opinions around the ethics, pitfalls and validity of this concept and hear form others who may have already implemented similar models**.**

8H4 (2438)
Using prescription stimulants to combat fatigue: How did we end up here?

Authors
Taryn Taylor, Centre for Education Research & Innovation, London, Canada

Presenter: Taryn Taylor, Centre for Education Research & Innovation, London, Canada

Background: Existing efforts to address trainee fatigue have fallen perilously short of our expectations. Duty hour restrictions have proven insufficient, partly because they represent an over-simplified solution to a complex problem. This complexity is compounded by our collective reluctance to talk openly about fatigue, especially fatigue-related impairment from sleep deprivation. Embracing our own personal vulnerability lies outside the professional ethos. We have created the perfect storm, leading some trainees to rely on prescription stimulant use to cope with their exhaustion or maintain productivity. Often this is done discretely, perhaps even shamefully, making it difficult to empirically study the frequency of this practice. What little evidence we do have likely underestimates its prevalence, owing to social desirability bias.
While it is tempting to dismiss prescription stimulant use as an exceptional circumstance involving few trainees, we do so at our own peril. This should instead prompt us to reconsider our approach to fatigue in medical education. For too long, we have misled trainees to believe that fatigue from sleep deprivation can simply be overcome by sufficient motivation and perseverance on their part. Those who fail to do so, blame themselves. Perpetuating this flawed belief about fatigue is easier than ensuring sufficient opportunities for trainees to sleep without generating other problems such as work compression, human resource shortages, and prolonged length of training. Similarly, prescription stimulant use allows fatigue to remain an individual burden and demands nothing from the training environment. Viable solutions must acknowledge the dangers of fatigued individuals without relying solely on them to fix the problem. We are long overdue for a cultural shift in which we stop glorifying sleep deprivation in the supposed interests of patient care or education and seek out innovative, system-focused solutions. Complacency is no longer an option.

8H5 (3685)
Let me tell you about yesterday's catastrophe: the power of concrete stories of failure

Authors
Rachel Lewin, University of California Los Angeles, Los Angeles, USA

Presenter: Rachel Lewin, University of California, Los Angeles, USA

Background: Everyone fails. Doctors, patients, nurses, educators--everyone. But we never talk about it. We talk about it abstractly--endorsing the power of failure from plenary stages, tweeting about how FAIL stands for "first attempt in learning"--but it is very rare to hear someone tell a concrete story of failure. This is especially true in medicine, where failure has potentially dire consequences. Failure is a key component of learning and improving, and medicine is a field in which everyone should always be learning. Every patient is different, which means there isn't ever one "right" answer. Medicine should encourage creativity and novel ideas, but to do so, we must become comfortable with the fact that sometimes we will fail. Becoming comfortable with sometimes failing requires talking about it. It requires publicly telling stories of failure. This makes people uncomfortable, because this is not something that we've been socialized to do, but mostly it makes it possible for others to share stories about failure, feel less alone, and aim higher on their next attempt.
Each story of failure is the story of something that was tried. When we share these stories, we make group success possible. We make it possible to advance. Real change--in culture, in care, in humanity--requires becoming comfortable with failure.
We've all failed and been too embarrassed to talk about it. And we've all identified with someone else who has failed, and been comforted by stories of how others managed similar challenges. But we have not yet capitalized on the power of these individual experiences for group progress. Discussion of failure has huge implications on our astronomical rates of burnout and isolation.
This talk is a call to action: talk about your failures with your friends and colleagues. Find your way to greater confidence, creativity, and professional success through stories of failure.

8H6 (3336)
Successful Failure: Building Growth Mindset, Grit, and Resilience

Authors
Teri Turner, Baylor College of Medicine, Houston, TX, USA
Melissa Carbajal, Baylor College of Medicine, Houston, TX, USA

Presenter: Teri Turner, Baylor College of Medicine, Houston, USA

Background: As a part of the interview process, I will ask trainees, "Could you tell me about a time you failed." Although failure is universal, some trainees have "never" failed and are unable (or unwilling) to describe any situation in which they were not successful. Why are people so afraid of failure? Failure is not just a part of life, it's essential to growth and success. We oftentimes learn the most from our failures. For example, Apollo 13 was termed NASA's most "successful failure" because of the experience gained in rescuing the crew despite several system failures and setbacks. But the term "successful failure" is an oxymoron and the two words are polar opposites. Can one really fail and still be successful? The question isn't whether or not we are going to fail, but how we deal with our failures. Do we accept them as opportunities to adjust our approach and try again, to risk trying to learn, to grow, to develop in new ways? Or do we take our failures as crushing blows and give up. There has recently been an interest in the concepts of a growth mindset, grit, and building resiliency. This session will describe several methods to turn failure into learning. We want to teach learners to give themselves a "second score;" (how one reacts and learns from failure) and promote behaviors such as; taking ownership (not blame) for mistakes, and setting realistic expectations. We must communicate growth in performance over time and criterion-referenced assessment instead of comparison to others. We also should role model and teach that failure is not an endpoint but instead is a "not yet." The initial evaluation is not the end of the story. It's the start of the second story about the meaning one makes of the experience in one's life.

8H7 (2897)

The dilemma of residents-in-crisis: The tension between residents' psychological welfare, institutional alignments and service provision

Authors

Wen Phei Lim, Psychological Medicine, Tan Tock Seng Hospital, Singapore
Faith LA Chia, Internal Medicine Residency, National Healthcare Group, Singapore
Wee Khoon Ng, Internal Medicine Residency, National Healthcare Group, Singapore

Presenter: Wen Phei Lim, Tan Tock Seng Hospital, Singapore,

Background: Doctors-in-training now practice in a challenging era in healthcare. With rising healthcare costs, limited residency opportunities, and a competitive employment climate, doctors struggle to stay afloat in a system that demands safe care, yet puts them at risk of sleep deprivation, burnout, substance abuse, depression and suicide.

Medicine itself is a hotbed for the development of psychological issues in doctors. Doctors are often second victims in sentinel events, which are associated with feelings of guilt, disillusionment and trauma. The process of medical litigation places doctors under scrutiny, and at the expense of the court of public opinion. Those who eventually need mental health support hesitate to do so, for fear of lack of confidentiality, stigma and its influence on career development, and the risk of losing medical licensure.

To help academic institutions recognise and assess psychological distress in residents, mental healthcare providers like counsellors, psychologists and psychiatrists are sometimes nominated as faculty members of residency programmes – but even then, a litany of other challenges arise:

- In a faculty member who is also a mental healthcare provider – when does one wear the faculty hat, and what other circumstances require them to don the clinician's hat?
- Is it ethical to perform a mental state assessment on residents, without providing due disclosure of the faculty's intent, and obtaining explicit consent?
- How do institutions manage information on a resident's psychological state, without compromising the accountability and standards of training, yet protect the resident's medical confidentiality?
- In residents who require psychological intervention, should the institution bear responsibility in providing the relevant resources as part of staff welfare?

The authors would like to invite the audience to a discourse on the above issues, as they reflect the current challenges faced in their institution. Deidentified case studies will be presented to guide the discussion.

8H8 (716)

The Good, the Bad and the Ugly in CPD Programs

Authors

Helena P Filipe, International Council of Ophthalmology, Hospital das Forças Armadas/PL-EMGFA, Hospital dos SAMS, Lisboa, Portugal
Heather G Mack, International Council of Ophthalmology, University of Melbourne, Melbourne, Australia

Presenter: Helena Filipe, International Council of Ophthalmology, Hospital das Forças Armadas/PL-EMGFA, Hospital dos SAMS, Lisboa, Portugal

Background: Though generally accepted as professionally necessary there is still wide diversity in how continuing professional development (CPD) is being led. There are regions where the concept is emerging and others where sophisticated structured systems regularly steer program refinement. CPD is evolving to build upon medical education research and integrate continuing education informed by epidemiology data beyond individual gap analysis. Evaluation anchors CPD system self-regulation, appropriate continuing education, and guides CPD educators to meet the educational needs of the healthcare workforce and systems.

Within such complex framework how should physicians consistently demonstrate their lifelong learning and professional accountability? What will be the best strategies to consider their needs and aspirations so they can feel fit to the job?

Both externally regulated, credit-based programs and individual reflective-portfolio-based CPD systems are currently run with both sides having passionate defenders and opponents.

We recommend a CPD model combining the best of both. The regulated system with spent learning hour equivalent to one credit acts as a universal currency and facilitates systems' harmonization facilitating healthcare workforce mobility and patient safety.

On the other hand, keeping an updated individual portfolio demonstrating the physician's course of action upon reflection, achievements and assessment tools' results (including the 360° evaluation and clinical audits) is intended to encourage metacognition and better prepared professionals.

To maintain the core of both methods and not falling in an intricate matrix of purposeless paperwork, we emphasize the role of professional societies and colleges. By representing healthcare professionals these, can a) interact on their behalf with healthcare authorities, universities and employers, b) inform and facilitate professionals to understand CPD requirements c) assist in developing appropriate individual needs analysis, d) deliver appropriate CPD education events and e) play a relevant role linking the patient voice to all CPD stakeholders.

8I: Short Communications: Assessment: Clinical

Location: Rio, 2nd Floor, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

8I1 (3722)
Introducing KAANBAL for clinical competence assessment: A digital mobile tool

Authors

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Presenter:
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Background: Medical schools and healthcare institutions require evidence from students' clinical competence learning and progress. A single evaluation based on one particular observation does not guarantee timely feedback for learners, faculty and authorities for continuous improvement. The objective of this project was to design and implement a mobile system to assess clinical competence progress for medical students during several clinical clerkship rotations.
Method: A mobile system was constructed with local software developers. Before starting its design, medical specialists from several disciplines were invited to participate on five focus groups to gather their impressions and needs regarding the clinical competence assessment. The most popular problems described by participants were: a) one single final grade lacking feedback for students' improvement, b) absence of objectiveness from examiners, and c) perfect scores to every student given only upon professional behavior. An app called KAANBAL was designed to be available for most devices. It includes customizable rubrics that allows real time feedback and full reports for both students and faculty. This app allows multiple assessments from different examiners across time. Student are invited to assess faculty performance.
Before implementation, a faculty development training workshop was delivered for clinical educators to instruct them about medical assessment basics and the use of the mobile tool.
Results: A total of 2,958 clinical skills assessments were done in a 12-month period to assess 157 students. Students went from receiving on average 8 assessments to 18 per year. A survey for the 250 faculty that participated showed that 88% considered KANBAAL user friendly, 73% appraised feedback, 75% reported student engagement and 87% of faculty agreed that this system helped them improve their clinical teaching.
Discussion & Conclusion: Increasing the number of clinical skill assessments improves reliability of the scores and promotes learning for better patient care. KAANBAL has the potential to encourage continuous improvement on performance applying workplace based assessments. Simplification and automatization of the clinical skills assessment process can lead to more active participation. Medical schools and health care institutions have timely information for decision making.

8I2 (2252)
Does a clinical skills assessment practice session improve low achieving students' performance on the USA Medical Examination® (USMLE) Step 2 Clinical Skills (CS) Examination?

Authors

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Julie Taylor, American University of the Caribbean School of Medicine, Sint Maarten, Netherlands Antilles

Presenter:
Kimberly Kirkland, American University of the Caribbean School of Medicine, Sint Maarten, Netherlands Antilles

Background: Lower academic performance and lower USMLE Step 1 scores are associated with poor USMLE Step 2 CS outcomes. At American University of the Caribbean School of Medicine (AUC), passing an optional 8-station practice Clinical Skills Assessment (CSA) is predictive of passing the CS. In this study, we focus on lower achieving students to determine if their performance on the CS was positively impacted by completion of the CSA.
Method: At AUC, 1339 students between March 2014 and September 2017 were categorized as "high achieving" or "low achieving" based on their performance on the USMLE Step 1 (< or > 215) or on GPA (< or > 83.8). A logistic regression model was used. Categorical variable of interest was the CS outcome; independent variables were CSA attendance and performance, GPA, and Step 1 score.
Results: Performance on the CS of a cohort of 1339 students over a three-year period was analysed. Low academic performance and low Step 1 performance were found to be independently predictive of poor CS performance (P values: <0.001 and 0.002 respectively). Although the CSA was not found to be statistically significant for students with low achieving GPAs, it was approaching significance for students with low achieving Step 1 scores (P value 0.058). It's likely that more data could prove this effect to be statistically significant.

Clinical deans need objective guidance to drive investment of resources to improve medical students' success.

Conclusions: At our institution as at others, low academic and USMLE Step 1 performance is associated with poor outcomes on the CS. While a CSA practice session seems to have a positive impact on CS performance in low achieving Step 1 test-takers, the results were not significant. A student taking the CS soon after completing CSA may see a higher effect than a student with several months between the exams; follow-up analysis may be valuable to determine the impact of timing of the CSA on CS performance.

Further investigation is needed before resources are invested in mandating the CSA for low achieving students.

8I3 NOT PRESENTED

8I4 (829)
Complex Intrinsic Skill Competencies: A Fit-for-Purpose Multiple Component Assessment Tool

Authors
Debra Sibbald, Touchstone Institute, Toronto, Canada
Sandra Monteiro, Touchstone Institute, Toronto, Canada

Presenter:
Debra Sibbald, Touchstone Institute, Toronto, Canada

Background: Intrinsic skill (non-expert) competencies are important capacities for health care professionals, but they cannot be measured using traditional methods. Such interdependent abilities are often demonstrated through integrated patterns of behaviours. Interview formats are common but less reliable in predicting performance and are limited in uncovering the interplay of skills. Few studies have examined the utility of a multi-perspective approach combining validated assessment approaches to measure intrinsic skills.

Method: An innovative screening tool was designed at Touchstone Institute to evaluate non-expert CanMEDS roles in practice-ready family practitioners using multiple components of standardized performance and reflective assessments. The performance component consists of eight structured short stations. In seven, candidates respond to objective and reflective questions related to challenging scenarios assessing interpersonal, cognitive and decision-making skills. The eighth station uses an interview format. On all stations, a physician, nurse and standardized client rate each candidate using numeric global ratings for overall performance and entrustment. Raters also record written comments to capture qualitative assessments. The second component is a tablet questionnaire combining two validated instruments measuring personal reflection ability and insights: the Groningen Reflection Ability Scale (GRAS) and the Self-Reflection and Insight Scale (SRIS). A pilot test was conducted as a validation study, comparing Canadian trained family medicine practitioners to residents. Scores were evaluated for inter-rater reliability, and internal consistency.

Results: Internal consistency was high (a= 0.93) with acceptable means for overall and for entrustment scales (3.5/5). There were no meaningful differences between raters, as scores were highly correlated across all 3 raters (r > 0.7). Written comments were infrequent and primarily highlighted unprofessional behaviours. These candidates also received lower scores. The self-reflection ability score was not correlated with overall performance on the 8 stations (r = 0.039), suggesting unique constructs.

Conclusion: This design shows promise as a screening assessment, providing evidence of complex competencies derived through multiple measures and multiple perspectives.

This innovative tool of pattern-based intrinsic skills offers rich, multi-disciplinary assessments of intrinsic skills and will be implemented in the selection of practice-ready international family physicians.

8I5 (1706)
Setting conjunctive standards in performance assessments: exploring the why and the how

Authors
Matt Homer
Dave Swanson
Godfrey Pell

Presenter:
Matt Homer, University of Leeds, UK

Background: Many institutions require students to achieve a minimum number of OSCE stations passed (MNSP) in addition to the aggregate pass mark. The rationale is that such conjunctive standards prevent excessive degrees of compensation across an assessment (i.e. students doing very well on a few stations, but poorly on many others). However, in the literature, we find there is generally a lack of underpinning empirical and theoretical evidence to support this approach, and the common practice of pre-determining a MNSP arguably lacks defensibility.

Method: We have surveyed the relevant literature to consider the psychometric arguments for and against such conjunctive standards. We have also developed a methodology for the setting of a post hoc conjunctive standard (MNSP) based on assessment outcomes. To do this we have used a methodology that is similar to that used in borderline regression standard setting - we use logistic regression to predict probabilities of passing stations based on global grades, and then aggregate these for the borderline group across the OSCE.

Results: There are psychometric arguments for and against the use of conjunctive standards in OSCES, but from a pragmatic point of view it is clear that many stakeholders approve and value this approach. Our work suggests that there is some variation in an empirically set number-of-stations-passed standard, but that few students fail to reach this standard in OSCEs.

Discussion: We have shown that it is possible to develop methods for measuring levels of compensation, and for producing a defensible MNSP standard. However, we find that the prevalence of excessive compensation is low, with few students failing based on the empirically set conjunctive standard. The underlying assumptions employed, and the implications for assessment policy of these findings, will be discussed.

Conclusion: Defensibility of decision-making in high stakes assessments is an absolute necessity. Ideally, conjunctive standards need to be justified alongside other assessment polices such the minimising of false positives via SEMs. However, taking into account wider policy issues, stakeholder views and the underlying methodological assumptions are also essential when doing this.

8I6 (2730)
A Study on Standard-Setting for the Application of Criterion-referenced Evaluation in Core Clinical Clerkship Summative Evaluation

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Background: Evaluation of clinical skill performance ability conducted in medical colleges of Korea is mostly based on norm-referenced scores to give a pass/ non-pass. This study recognizes the issues with clinical skill evaluation as a form of norm-referenced evaluation, and seeks to apply criterion-referenced evaluation in core clinical clerkship summative evaluation.

Method: With 96 medical students enrolled in their third year as of end of semester in 2017 as subjects, 6 CPX and 6 OSCE stations were conducted. 6 panelists were selected and trained individually. Applying the Modified Angoff and the Hofstee methods, a cut score was calculated and the process and results were both evaluated. It was reviewed internal, external and procedural validity of the score in terms of its feasibility.

Results: The results showed that CPX cut scores for cases ranged 43.8~65.3 by Angoff or 41.0~68.0 by Hofstee. The OSCE scores ranged 69.6~77.5 by Angoff and 66.0~89.0 by Hofstee. Intrapanelist consistency showed an overall high at .75(Kappa) or higher, and Interpanelist consistency was also high at .60 or higher. Inter-method consistency was high at .70. A questionnaire conducted to evaluate the procedural criteria found that the degree of understanding theoretical concepts and principles were relatively high, as well as validity of process. Moreover, the reasonableness of cut score was rated relatively positively. Overall, cut scores were lower or of similar level when the Angoff method was used, as opposed to the Hofstee method. To compile conflicting results into one criterion, the final cut score was set to be the mean value of the two methods, and the total score of 900(CPX 600/OSCE 300) was taken into account. This led to a non-pass rate of 29.1%. Further research is needed to: 1. A study on whether the same standard setting results should be applied in every year; 2. A study on predictive validity.

Conclusion: While comparative studies on standard setting using traditional methods and compromised methods are rare, based on the findings of this study, an appropriate method for establishing criterion for the evaluation of clinical skill performance ability was suggested.

8J: Short Communications: Assessment: Programmatic

Location: Shanghai 1, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

8J1 (3608)
Defensible decision making in programmatic assessment for learning

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Background: Flinders University's Medical Program has recently joined a small but growing group of institutions that have implemented programmatic assessment for learning (PAL). PAL emphasises assessment for learning but also recognises that assessment needs to be used for making high-stakes decisions such as readiness for progression. PAL is a program-wide plan of assessment that moves away from traditional aggregation of assessment data based on numbers and formulae towards the arena of holistic judgements. This in turn necessitates different progression decision making processes.
Method: A PAL decision making process discussion paper was drafted inspired by Maastricht's model, the programmatic assessment approach of rich data, and the legal defensibility principle of multiple levels of review. This discussion paper went through six months of rigorous consultation. PAL was implemented for first year Doctor of Medicine students in 2017 and used for making student progression decisions twice.
Results: Key aspects of the progress decision process are: (1) that there are many assessment data points; (2) recommendations on progression come from key staff/teaching teams with knowledge of the student based on multiple meaningful encounters with the student and/or a collection of data from assessable exercises; and (3) multiple levels of review of the decision.
Of the students who failed to progress in the first year of implementation, half of them appealed the decision. However, these were not upheld as an independent reviewer found the process to be robust.
Discussion: The rich data that was visible to staff and students meant that the outcome was less likely to be a surprise to anyone and so more likely to be accepted. While some students did appeal, this may have been due to a new system being tested, but the likelihood of the decision being overturned was low as it had already been through layers of review.
Conclusion: When moving to holistic decision making such as in PAL, rich data sources, multiple perspectives and multi-level review can aid the defensibility of progression decisions.

8J2 (2373)
Implementing integrated assessment programs in an unstructured environment – from theory to practice...

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Background: The GP365 program, developed by ModMed Ltd in partnership with the Flinders University's Prideaux Centre, adopts a programmatic assessment for learning approach. GP365, designed for general practice training, has been in use in Australia since 2015.
The decision to move to programmatic assessment was obvious. Challenges presented in the implementation of the program, in the translation of theory into practice. Intrinsic to the notion of programmatic assessment is a successful implementation. Therefore, issues that might facilitate or hamper a successful implementation and the sustainability of programmatic assessment beyond the implementation phase were important to consider.
The primary issues we encountered were:
-programmatic assessment is radically different from the traditional approaches.
-the logistics of delivering programmatic assessment in a work based setting.
Method: A systematic approach to implementation was adopted to address the issues identified and ensure increased adoption, quality, safety and cost outcomes were achieved. The framework developed was based on the congruence model of organisational alignment. Very simply, the greater the congruence of organisational elements such as work, people, structure, and culture the higher the performance.
Discussion & Conclusions: When pursuing transformations, organisations rarely realise the benefits or retain the value they anticipated. While there are many reasons for this, studies confirm that the top contributors are related to people and organisational issues.
Further, even when an organisation is willing to accept the concept of programmatic assessment there is still a tendency to revert to more traditional approaches along the way.
Take-home message: Critical to the success of the GP365 implementation was the development of a customised system to ensure ease of use, real time monitoring, access anytime anywhere, automation and reporting.
Critical to the adoption of GP365 was the change management approach, designed to support the successful transition. It was imperative to incorporate the behavioural and cultural elements in a coordinated and transparent manner to bring about lasting change, enable continuous improvement and optimise benefit realisation.

Since implementation careful guidance and continuous support has been maintained to embed the principles of programmatic assessment.

8J3 (2720)
The Highs and Lows of Setting Cut Points in Programmatic Assessment: A Validity Perspective

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Background: Programmatic assessment (PA) argues for high stakes decisions to be made by aggregated multiple low stakes assessments. While clear competency standards can be set for high stakes decisions, PA is also premised on decisions being contextualized in a holistic manner using other data sources/student context. This requires that traditional methods of setting cut points are revisited to ensure alignment with the goals of PA, stakeholder (students, faculty) acceptability, and competency standards. Using data from the first cohort of PA trainees at, we describe one method for generating cut points with adequate validity evidence and alignment with PA.
Method: First-year MD students (n=258) completed fifteen brief 20 to 30 MCQ assessments across first year; the performance was aggregated to make pass/fail decisions. We compared the previous traditional cut point of 70% against cut points derived using ability estimates from Rasch modeling. We examined validity evidence various cut points for setting with an emphasis on the predictive validity of cut points against future performance and precision of ability estimates.
Results: MCQ assessments themselves had strong validity evidence. The traditional cut point had low predictive validity and wide standard errors of measurement (SEM); less than 2% of students with subsequent academic difficulty were predicted. Increasing the cut point by 1 conditional SEM aligned ability estimates with stakeholder's perceptions of first-year competency and predicted 30% more students in subsequent academic difficulty. Other sources of validity evidence will be discussed.
A validity approach and application of measurement theory had strong utility in improving cutpoints for assessments in programmatic assessment.
Conclusion: Setting cut points in PA requires a careful balance of measurement issues with stakeholder acceptability
Take-home message: The approach described here can be employed by schools seeking to transition to a PA and ensure cut points are supported by validity evidence and aligned with PA goals.

8J4 (3186)
'It's hard to feel the fear of failing' – Teacher-Learner Relationships within Programmatic Assessment

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Background: Programmatic assessment attempts to optimise learning and decision-making. Creating an assessment environment that truly emphasises continuous improvement is often hindered by summative belief systems and inconducive cultures. By investigating the perceptions of the assessment process through the lens of teacher-learner relationships, we aim to unravel the mechanisms within this medical assessment culture.
Method: In an open and qualitative study we interviewed 26 learners, ranging from undergraduates to postgraduates, in five different international settings of programmatic assessment. Data were analysed using template analyses. We included several perspectives in our framework: an interpersonal perspective (the teacher-learner relationship using constructs from the model of interpersonal teacher behaviour (ITB)), a personal perceptive (constructs from learners' achievement goal orientation), and a cognitive perspective (assessment task perception). The ITB model describes and analyses supervision in terms of the relationship between teacher and learner as perceived by those being a part of the relationship (dimensions of Influence and Proximity).
Results: The study showed that learners' perceptions of teachers' 'Influence' were strongly related to their task perception, e.g. the learning value and assessment stakes. Teacher dominance was inversely related to learners' autonomy and learners' perception of stakes (Influence). Furthermore, teacher helpfulness and friendliness were related to learner safety, allowing frankness over weaknesses (Proximity). Goal achievement orientation mediated both mechanisms. Specifically, a performance orientation reversed the mechanisms; learners seemed to experience hierarchy and distance with teachers and were seeking more approval.
Discussion: A number of mechanisms were identified in the teacher-learner relationship that illuminated learner receptivity to the use of assessment for learning and the safety of being vulnerable. Learning goal orientation is an important moderating variable. The ITB model appeared to be useful for understanding how and why the role of the teacher becomes influential in programmatic assessment.
Conclusion: Understanding the mechanisms of the teacher-learner relationships is essential in reconciling learning and decision-making in programmatic assessment. The ITB model can create awareness among teachers about the impact of their behaviour and importance of their role.

8J5 (2455)
Programmatic Assessment for Learning is a Threshold Concept

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Background: Whilst it is generally accepted that "Assessment Drives Learning", the objective of Programmatic Assessment for Learning (PAL) is to drive learning towards approaches that foster deep, long-term and retrievable learning, through different types of assessment, with multiple sampling and meaningful feedback (van der Vleuten et al., 2012).
This revolution in educational pedagogy therefore requires a significant change in curricular structure, assessment approaches, supporting infrastructure and engagement from both staff and students (van der Vleuten et al. 2015).
Method: At Flinders University School of Medicine, as part of PAL, students are required to keep a reflective portfolio to track their development as self-regulated learners and to map their progress in the eight Course Learning Outcomes. Students' portfolios are submitted to and read by their individual Learning Coach (LC) who meets with them at regular periods to discuss their progression.
Results: During 2017, the first year of implementation of PAL, LCs' anecdotal evidence suggested that students were struggling with the concept of PAL: they were "wrestling" with this new paradigm of learning and assessment.
Threshold Concepts (TCs) are "akin to a portal, opening up a new and previously inaccessible way of thinking about something" (Meyer & Land, 2006) and have the characteristics of being transformative, integrative, irreversible and troublesome.
We viewed PAL through the lens of TC by asking LCs to review their students' portfolios for evidence of these hallmark features. Students were retrospectively asked for their permission to use de-identified reflections in the analysis.
Students' reflections clearly reveal evidence of the four characteristics of TC, particularly the transformative nature of PAL.
Whilst reflection has already been identified as a TC (Joyce, 2012), the students' comments in their portfolios demonstrate that PAL is also a TC.
Conclusion: This analysis contributes the growing literature in the area of TCs, particularly in medical education (Neve, Wearn & Collett, 2016). Importantly, by identifying PAL as a TC, we can provide support for students to make this transition and to assist them to engage in their learning and assessment as self-regulated learners.

8J6 (3731)
Defining a Program of Assessment to Inform Summative Entrustment Decisions in Undergraduate Medical Education Utilizing Entrustable Professional Activities

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Presenter:
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Background: While graduate medical education (GME) programs utilize a clinical competency committee to aggregate assessment data and report milestone achievement regarding their residents in order to track progress toward graduation and independent practice, there is not currently a comparable systematic, competency-based assessment process in undergraduate medical education (UME) to ensure readiness for the transition to residency.
Method: The Entrustment Committee (EC) at our institution was convened and tasked with developing a program of assessment for determining readiness for promotion to residency training. Using the framework of the Association of American Medical Colleges Core Entrustable Professional Activities (EPAs) for Entering Residency, we developed a program of assessment using group consensus methodology to identify the assessment data needed by the EC to render summative entrustment decisions for each student. Particular focus was placed on basing entrustment decisions on a longitudinal view of a learner's performance, emphasizing the use of daily ad hoc workplace-based supervisory and entrustment decisions, explicitly measuring attributes of trustworthiness, and gathering evidence from multiple assessors.
Results: The program of assessment developed using this process includes frequent ad hoc workplace-based entrustment decisions using a supervisory scale, narrative comments from workplace-based assessment, rotation grades, national standardized examination performance, review of reflective essays and scholarly projects, performance in the simulation and objective structured clinical examination environment, procedural skills assessments, and multi-source or 360-degree feedback. These various forms of assessment data are collated in real time into an electronic portfolio, which can be reviewed by members of the EC. Students, in consultation with their faculty coach, trigger the review for summative entrustment decisions by the EC.
Conclusion: Valid summative entrustment decisions require a program of assessment that includes multiple modes of assessment, integration of quantitative and qualitative data, and the perspectives of multiple assessors. Using this program of assessment, we will begin to render formal summative entrustment decisions after validating this system over several pilot student reviews in the coming year.
Take-home message: In order to render valid summative entrustment decisions, ECs require input from a broad program of assessment utilizing a variety of measures and perspectives.

8K: Short Communications: Curriculum: Anatomy

Location: Shanghai 2, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

8K1 (2561)

An interactive mixed reality application for anatomical and surgical education: 3D learning in relation to spatial ability

Authors

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Background: Medical students mainly learn anatomy using 2D content information. Spatial ability seems to be a successful predictor of deep anatomy learning and acquisition of technical skills. Previous studies have repeatedly shown, that especially students with lower spatial ability, have difficulty with transferring 2D knowledge to the clinically relevant 3D domain. The aim of this exploratory trial was to evaluate how spatial ability relates to anatomy learning using 3D content information.
Method: We developed a fully interactive mixed reality application for Microsoft Hololens. This application represents a holographic dynamic model of the lower leg and foot, including a complete musculoskeletal system. In a double-centred randomized controlled trial, 1st and 2nd year undergraduate medical students were randomized in three groups: holographic 3D model, non-stereoscopic 3D desktop model and traditional 2D anatomical atlas. Before the tutorial, spatial ability was tested for three spatial components: mental rotation, mental transformation and mechanical reasoning. All students did the same tutorial on the anatomy of musculoskeletal system. A written posttest was administrated to evaluate the learning effect on factual, functional and spatial anatomical knowledge. The utility and usability of our developed MR application was also evaluated.
Discussion: We hypothesize that students with high spatial ability will outperform students with low spatial ability in

all three learning modalities. Moreover, we hypothesize that students with low spatial ability will benefit most from learning in 3D with the use of an interactive holographic model, compared to non-stereoscopic 3D desktop model and 2D textbook. The main learning effect is expected to be observed on the functional and spatial knowledge domains.
The final goal of our project is to design a method for personalizing learning paths and providing individual students with the most efficient learning tools. Our preliminary data of current study will be presented including a showcase of the developed mixed reality application.
Conclusion: Mixed reality provides a total new environment for three-dimensional learning. This innovative educational tool may be an ideal way to facilitate personalized learning in anatomical and surgical education.

8K2 (2989)

An Exploration: Applying Cognitive Theory of Multimedia Learning to Anatomy Teaching

Authors

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Background: Anatomy is a cognitively demanding subject that requires stimulation of both audio and visual channels. Didactic lectures are not sufficient to teach and/or learn it. In contrast to conventional medical training which uses cadavers, anatomy practical at the University of Botswana Faculty of Medicine (UBFOM) is through Anatomage 3D Imaging Table (Anatomage Inc.) and anatomical models. Typically, the anatomy practical is preceded by a fifty-minute plenary. Later on, they attend the first PBL tutorial where they are expected to integrate anatomical knowledge gathered from these earlier sessions. Learners enter medical school having completed one-year basic sciences including an introductory course on anatomy using a didactic approach.
Method: Two learning tasks from anatomy practical were analysed using Mayer's cognitive theory of multimedia learning (CTML). This theory is premised on promoting retention and transfer of knowledge. We reviewed materials provided by the lecturer and, did observations of students undertaking these tasks. We also conducted separate interviews for learners and the lecturer using the CTML framework. These learning tasks involved first year medical students from a five-year spiralling Problem Based learning (PBL) Bachelor of Medicine and Bachelor of Surgery (MBBS) programme at the UBFOM. The tasks were focused on learning anatomy of the lower

respiratory tract by using anatomage table and anatomical models.

Results: From the analysis, the use of auditory and visual pathways seems to be relevant to both the teaching and learning of anatomy. Both tasks fulfilled most principles of CTML. Eight out of twelve principles of CTML were fulfilled. The learning objectives of the two tasks were observed to be at a lower level in the revised Bloom's taxonomy.

Conclusion: Learners found anatomy demanding. They reported difficulties in learning new anatomical terminology as well as integrating the material covered in anatomy sessions including the PBL tutorial. The use of images and words promoted learning of anatomy.

Take-home message: We recommend that CTML should be applied in teaching anatomy to optimize learning.

8K3 (1810)
Anatomy for Pharmacists: Creation of an anatomy syllabus to support the changing role of the pharmacist

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Background: This study describes the creation of a core Anatomy syllabus for Pharmacy students. The syllabus was developed to support the changing role of the pharmacist from one that was traditionally based on dispensing to one that encompasses treatment, diagnosis and acting as the first port of call for patients. With respect to this change, it is both timely and important for pharmacy graduates to have a strong anatomical foundation upon which to build their pharmacological knowledge and skills.

Method: The Delphi approach was employed to seek consensus on which learning outcomes should be included in such a syllabus. The Delphi panel was constructed to include 'experts' who were individuals from different professional backgrounds with experience of teaching pharmacy students anatomy. The Anatomical Society's council and education committee nominated the panel members. The resultant panel had 34 experts. Using existing frameworks, the research team performed an initial screen of outcomes to remove outcomes that were obviously not applicable (n=10). The experts were asked in two stages to 'accept', 'reject' or 'modify' (first stage only) each learning outcome. A final formatting was performed by the research team to standardise presentation, make changes either to correct any anatomical or minor syntax errors

Results: During stage 1, 163 outcomes were presented to the Delphi panel. Following stage 1, 53 outcomes remained and 49 after stage 2. The final syllabus contained 49 learning outcomes. Each outcome was mapped to possible teaching content within an integrated curricula. All learning outcomes achieved over 80% acceptance by the panel.

Discussion: The Delphi process offers a useful tool for creating such syllabus with the input of multiple, valued stake-holders. The new syllabus presents a basic anatomical framework upon which pharmacy educators can build the necessary clinical practice and knowledge.

Conclusion: The learning outcomes within the syllabus could be utilised to develop anatomy teaching within an integrated curriculum. At present, there are limited requirements from professional bodies, such as the General Pharmaceutical Council (GPhC) and the British Pharmacology Society, for anatomy standards – this syllabus is a first offering at filling this gap.

8K4 (3504)
Learning from an interactive online platform: Anatomy in the inter-professional operation room (OR)

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Background: Unfortunately, many students in medical education perceive basic subjects such as anatomy or physiology to be quite dull, as the knowledge is taught by books, lectures or in prosection courses that rarely illustrate the clinical relevance of anatomy. We assume that anatomical knowledge needs to be more linked to clinical application. Therefore, the University of Tuebingen offers the Sectio Chirurgica (SC), an online video platform where healthcare students and professionals have the opportunity to join surgical live-stream lectures that explicitly integrate pre-clinical anatomical education and clinical application.

Method: In order to examine whether SC videos are capable to support participants' learning activities by linking basic knowledge to clinical application, we conducted a randomized controlled online trial to compare this innovative format with a "classical" anatomy lecture. 168 medical students were recruited from the SC user panel and randomly assigned to one of two conditions. The experimental group watched a 15 minutes SC video about an ACL reconstruction surgery. While 2/3 of the video showed inter-professional interactions in the OR, 1/3 of the video showed a professor providing anatomical

background information. The control group was provided with a video of comparable length that showed the same professor holding a lecture about ACL reconstruction, covering identical information. Following the video, participants filled in several questionnaires.

Results: Our participants perceived SC videos as significantly more comprehensible (p>.01), more vivid (p >.01), and more entertaining (p>.01) than the lecture videos showed in the control condition, whereas no significant differences were found regarding anatomical knowledge (p = .35).

Our results show that SC videos are a promising solution to improve anatomy learning as the live presentation of clinical situations was perceived as more comprehensible and more vivid. However, short term learning results did not differ between conditions. Since participants reported that the SC video was also more entertaining, we assume that dynamic interaction of clinicians and anatomists is important for student's learning motivation.

Conclusion: Compared to classic anatomy lectures, SC videos made anatomy more attractive and especially tangible to medical students.

8K5 (2055)
Integrating the Anatomage Table into an Anatomy Curriculum: a qualitative analysis of student perception

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Presenter:
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Background: The absence of cadaveric dissection or prosection in the PU PSMD course was a conscious decision to constructively align teaching to the clinical experience of patient interactions, via surface anatomy and medical imaging. The use of innovative teaching approaches has been the mainstay of this Medical School, and developing and incorporating technology into the anatomy curriculum is an aspect that yields high student satisfaction. The Anatomage virtual dissection system was purchased to offer students an additional modality to explore anatomy, with a depth of detail rivalling dissection and prosection.

The aim of this study was to understand student perception of the Anatomage system, how they use it and factors affecting their engagement with it. It aimed to inform curriculum design and self-directed learning (SDL) tools that would enable effective use of the Anatomage system.

Method: This study utilised thematic analysis directed by grounded theory. Focus groups included 6-10 year 1-2 students providing detailed narratives to be gathered for analysis. Thematic analysis began with an inductive approach, based on the focus group data, followed by a deductive approach, grounded in an understanding of the relevant literature and prior experience, which informed the coding. Reflexive diaries were kept by the researchers, to identify any biases.

Results: Factors that affected their engagement with the Anatomage Table, and, therefore, their depth of understanding, including their level of prior learning, the learning curve involved in using the system and the fear of breaking it. Students found it easier to start with surface anatomy or plastic models before progressing to the Table. The Table helped students understand how structures interrelate in 3D, and how this related to different pathologies and medical imaging.

Cognitive load affected students' engagement, as they sometimes struggled with spatial awareness when looking at an organ in isolation on the Table. This study has helped inform curriculum design and develop SDL material to help students make the most of the Anatomage system to develop their Anatomy understanding.

Conclusion: The Anatomage system helps students develop their understanding of the complexity of regional anatomy.

8K6 (3591)
DynamicAnatomy, an interactive augmented reality application for higher education

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Presenter:
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Background: Deep learning of anatomy is an essential part of medical education. Students mainly learn anatomy using 2D content information. We and others have found that students and (surgical) residents often have difficulties with transferring this knowledge to the clinically relevant 3D domain. In addition, undergraduate students have limited time and access to "tools" to practice their anatomy skills.

Method: We developed a prizewinning interactive Augmented Reality application for Microsoft HoloLens® (https://insider.windows.com/nl-nl/community-news/windows-insiders-are-using-hololens/). This application is called DynamicAnatomy and is freely available for download from the Microsoft Store. It shows a dynamic model of the lower leg and foot with functional tibiotalar and subtalar joints. It is fully interactive in showing/hiding all bones, muscles, tendons and ligaments, blood vessels and nerves, in providing online information about all selected objects, and in joint motion by means of animations, manual interaction, and by live synchronization with your own ankle movement through

motion capture. In addition, arthrodesis of the tibiotalar joint is presented as a clinical case(https://www.mr4education.com/).

Results: We integrated this innovative educational tool in the 2017-2018 Medical Curriculum in various courses and performed preliminary research to the relation between 3D cognition, 3D cognition, and learning outcomes with this Mixed Reality tool. Students report an immersive and deep learning experience which greatly adds essential 3D insights to their prior (2D) knowledge. Intrinsic motivation appears boosted, although we cannot rule out a first pass "gadget" effect at this stage. Students further report preferences compared to VR because of (1) the possibility for explorative and collaborative learning, and (2) learning comfort: they don't get dizzy because HoloLens is a look-through device. In addition, they appreciated the chance to practice anatomy in a safe and authentic setting. Quantitative data will be gathered during the first months of 2018 and will be reported on AMEE2018.

8L: Short Communications: Career

Location: Shanghai 3, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

8L1 (1792)
Ebb and flow of career intentions through medical school and pre-vocational training

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Background: In New Zealand, the patterns underlying career intentions throughout medical school have not yet been investigated. This is an important consideration for the NZ health workforce planning due to the increased need for GPs, especially in the rural setting.
Method/Results: The aim was to quantify changes in career intention through medical school and in the early postgraduate years (PGYs) and to assess associations with, or reasons behind, the changes. Students were classified into persisters, partial persisters, mid changers, changers, inklings or undeciders depending on the stability of their career choices at 4 time-points T1 (start of medical school), T2 (end of medical school), T3(PGY1) and T4 (PGY3). 37% (n=181) of medical students starting in 2007 and 2008 completed surveys at the 4 time-points. Thirty percent (n=41) had the same intention at T2 as they had at T1. Thirty three percent (n=50) had the same career intention at T4 compared with T1. In contrast, 60% (n=104) had the same career intention at T4 as they had at T3 and 63% (n=96) the same intention at T3 as they had at T2. The careers that were least likely to change over these time periods were GP and surgery.
Eighteen percent (n=33) were undecided, 27% (n=48) were persisters, 10% (n=19) were partial persisters, 30% (n=54) were mid changers,16% (n=11) were late changers and 19% (n=16) were inklings. Career/financial prospects and vocational training availability was more important for persisters compared with undecided, and working hours less important for persisters compared with everyone else and undecided.
Discussion: Volatility in career intent occurs mainly in medical school and may point to diversity of medical student experience being important. The greater stability of intent in some careers may indicate the possibility of pre-medical school influence, selection and/or medical school experience as influencing factors. The ramifications of these findings will be influenced by the goals of medical schools in respect to career intentions.

Conclusion: Career intentions change during medical school and firm up post medical school. GP and Surgery were the most popular and 'stable' careers.

8L2 (1009)
Perceptions of community care and placement preferences in first-year nursing students: A multicentre, cross-sectional study

Authors
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Background: Despite increasing shortages of well-educated community nurses, far too few nursing students choose community care for their future profession; a strong societal problem that urgently needs resolution. This study provides a solid understanding of causes for the fields' low popularity by exploring first-year baccalaureate nursing students' perceptions of community care, and their placement preferences along with their underlying assumptions. Insights from this study can be used by educators to positively influence students' perceptions with targeted curriculum redesign strategies.
Method: A cross-sectional multicentre survey study was performed. First-year nursing students from six universities of applied sciences in Netherlands (n = 1058) participated in the study from September-December 2014. The students completed the 'Scale on Community Care Perceptions' (SCOPE), consisting of demographic data, current placement preferences, and three subscales measuring the affective component of community care perception, perceptions of a placement, and a profession in community care. Descriptive statistics were used.
For placement, 71.2% of the students prefer the general hospital, 23.4% another area, and only 5.4% choose community care. Students consider opportunities for advancement and enjoyable relationships with patients as most important for their placement. Community care is perceived as a 'low-status-field' with many elderly patients, where students expect to find little care variety and few opportunities for advancement.
Results: This study shows why few students show an interest for a career in community care. Students' perceptions of the field are at odds with aspects they regard as important for their placement. They also underestimate the complexity of community care, where specific traits are required to ensure appropriate nursing care in patients' homes.
Discussion & Conclusion: The results of this study allow for three recommendations. First, students and educators should be aware of misconceptions about career opportunities in the field of community care. Second, educators should provide students with experiences that foster an optimistic and realistic career outlook on

community care. Third, growing shortages in the community care sector urgently require representatives from the field and educators to collaborate to make community nursing an attractive career alternative.

8L3 (2672)
Do primary care placements influence career choice: What is the evidence?

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Background: The UK National Health Service (NHS) needs a successful primary care system but has struggled with recruitment. Junior doctors are increasingly opting for hospital specialties over general practice (GP). Health Education England (HEE) has been mandated to ensure that 50% of medical graduates enter GP training. The NHS HEE Wass Report, By Choice – Not Chance, among its various recommendations to boost GP numbers, highlighted undergraduate (UG) GP experience as an influence on career choice. The aim of this work was to explore what is known about UG influences on GP career choice.
Method: NHS HEE employed two junior doctors to produce a pragmatic rapid appraisal of the international literature on the UG influences on GP career choice for the Wass Report. The search strategy was supported by medical librarians and focused on rapidly accessing and summarising relevant literature. Databases searched included Medline, EMBASE, HMIC & grey literature in 2015 revealed 294 items. Data extraction & synthesis was pragmatic.
Results: The international evidence suggests that students who had more UG GP placements are more likely to become general practitioners. Optimised GP UG placements have been successful in increasing the number of general practitioners (e.g. in the USA and Australia). The style of UG placements is important, with longitudinal placements being more influential than traditional block placements. The UK literature is limited, but there are some consistencies with the international evidence. The analyses highlight key elements about placements. The identified reviews and primary studies are observational with a high risk of bias, but this is almost inevitable within this research context.
Discussion: An evidence-based improvement of UK UG GP placements is proposed. Longitudinal placements are compared to traditional block placements. The implications of these results for medical school curricula is discussed with particular reference to Government plans to expand medical student numbers and establish new medical schools with explicit aims to produce more GPs.
Conclusion: Primary care placements positively influence medical student's career choice towards GP.

8L4 (354)
Is finding a job stressful? How medical students, residents, and program directors perceive stress regarding medical trainees' future job prospects

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Presenter:
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Background: Medical trainees' future job prospects are often a stressful element of medical education, especially with the current surplus of Canadian physicians, yet little research examines this specific stress. We explored how medical students, residents, and program directors each perceive stress regarding medical trainees' future job prospects and how it may manifest.
Method: A University of Calgary survey measuring anticipatory stress regarding future job prospects included an open-ended question asking for comments regarding job availability and stress related to future job prospects (medical trainees) or in assisting residents to find employment (program directors). We conducted an inductive thematic analysis of responses from 8 medical students, 57 residents, and 14 program directors.
Results: All three groups described factors contributing to stress regarding future job prospects, including a lack of transparent and balanced information, program and structural factors beyond their control, and trainee expectations and preferences. Medical trainees emphasized that extra requirements and higher expectations placed on them contribute to their stress. Residents reported despair, vulnerability, costs and sacrifices made for their training, and lack of staff physician understanding related to residents' stress about finding jobs. Residents and program directors identified a need for support and guidance around future employment, however, program directors underscored that this support has limits and residents are ultimately responsible for securing employment.
Discussion: Medical trainees' future job prospects are a stressful aspect of medical education, particularly for residents. Further consideration of this stress and the factors that contribute to it could help identify avenues for supporting medical trainees in finding employment.
Conclusion: The wellbeing of medical trainees is highly relevant in all medical education environments; information that demonstrates the need for resources which may assist in reducing stress for trainees is important for multiple organizations and stakeholders.

8M: Short Communications: Communication Skills 1

Location: Boston 1, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

8M1 (584)
Communication Skills & Learning Disability - An Interprofessional Collaboration

Authors
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Presenter:
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Background: Effective communication skills are essential for health care professionals. Students must communicate sensitively with patients, regardless of age, social, cultural or ethnic backgrounds or disabilities (GMC, 2015). Specialist teaching on communicating with people with learning disabilities (LD) is often lacking- resulting in poorer healthcare and worse outcomes than the general population.
Method: We sought to provide authentic training to enable healthcare students to communicate effectively with patients of all abilities, nurturing skills and confidence to provide healthcare to vulnerable groups. We sought to challenge unconscious beliefs and anticipated training would change student attitudes.
Results: There are specific skills required when communicating with LD patients. We developed a pioneering partnership between Cardiff University, Cardiff Metropolitan University Speech and Language Therapy (SALT) faculty and Hijinx, a Welsh theatre company working with professionally trained LD actors, resulting in a new interprofessional (IP) learning experience. Students learn how various medical conditions can impact upon patients' ability to communicate. They role play with learning developmentally disabled actors and receive feedback from tutors, actors and peers. They learn to communicate effectively, when to involve other disciplines in managing patients and understand the importance of maintaining patient dignity throughout.
Discussion: A pilot workshop received strong feedback from participants. It was felt introducing an IP element would enrich the opportunities for students and improve awareness of the expertise offered by colleagues in other disciplines. As a result, the new IP session was introduced in November 2016. Evaluation data confirms that students find this rewarding and builds confidence, whilst learning more about the roles of their colleagues.
Conclusion: We have shown a significant increase in the confidence and competence of students dealing with LD patients- students find the teaching enjoyable and valuable. Through our collaboration with Hijinx we provide employment opportunities for LD actors, resulting in increased financial independence, self-esteem and wellbeing.
We provide a rare opportunity to practice and improve communication skills to meet the health needs of people with LD. We enable Hijinx actors to make a valuable, lasting contribution to society, something rarely offered to learning disabled adults.

8M2 (3704)
'Sharp Scratch!' Exploring medical student perspectives on communicating with patients when doing practical procedures

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Presenter:
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Background: Clinical communication skills are an essential part of the undergraduate medical curriculum and are used in the explanation of procedures. Whilst integration of procedural and communication skills is presumed, and encouraged with simulation teaching using mannequins, the communication aspect can still be neglected. Patients have a growing role in medical education, including direct contact with students to integrate clinical and communication skills and develop a holistic approach.
Method: Clinical year students participated at a patient forum event and performed procedural skills on part-task trainer mannequins attached to a simulated patient, whilst observed by real patients who provided feedback to the students after the demonstrations. Aims: To explore challenges students experience whilst communicating with patients when doing practical procedures and how feedback from patients can contribute to developing effective communication. Focus groups using a semi-structured interview protocol were conducted with participating students, before and after the event.
Results: Preliminary qualitative data suggest that challenges in communication experienced when doing procedures were related to causing patient discomfort, multiple attempts, perceptions of being novice and deviating from clinical communication scripts. Feedback from patients was received positively by students and promoted their confidence in performing practical procedures. Students developed increased awareness and understanding of individuality of patients, including their varying levels of knowledge, experience and personal preferences of language used.
Discussion: The pedological aspects of procedural skills teaching are considered with the addition of patient feedback to develop the integration of clinical and communication skills. Direct feedback from patients provided depth and richer learning experiences for students, supplementing both formal and informal medical curricula. This aids the transition of practising skills in the classroom to clinical placements with improved communication, confidence and implications for patient safety.

Conclusion: Communication aspects of procedural skills teaching needs to be developed. Patient feedback can be used to increase student awareness of the individuality and variability of patients, encouraging adaptation and effective use of communication when performing practical procedures.

8M3 NOT PRESENTED

8M4 (1260)
Integration of communication research into clinical practice: Time for a paradigm shift

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Presenter:
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Background: Healthcare professionals are required to develop and maintain their professional skills. Since the rise of movements promoting patient-centred care and safety, skills in communication and collaboration have been emphasised in health professional education and practice. While studies have identified features of effective communication and interprofessional collaboration, multiple barriers exist to integrate these results into practice, making innovative knowledge translation imperative.
Method: The research study conducted in ten healthcare institutions involved video-recording of team meetings, collaborative practice (i.e. co-therapy) and medical rounds, and data were analysed using a qualitative observational method. In order to integrate the study findings into practice, workshops with each participating institution were organized. Rather than delivering synthesised research findings, we used data (i.e. video clips of interprofessional practice) and invited clinicians to engage actively and reflect about their own communication and collaborative skills.
Results: The study identified verbal and embodied (e.g. gaze, posture) resources health professionals used during interprofessional activities. The video-recorded data disseminated in collaborative workshops with clinicians allow for dialogue, reflection and discussion. This presentation represents an innovative approach to skills development and involves the end user of research findings (clinicians) engaging directly with the data. The underpinning pedagogy of this approach relates to learning via constructivism and reflective practice.

A constructivist paradigm seems to be well suited for integrating knowledge into practice. The process of knowledge translation can be seen as a social interactive process, potentially able to bridge the gap between research and practice while enhancing clinicians' reflection on practice. The benefits of video-recordings for communication and collaborative skills development will also be discussed.
Discussion: This presentation highlights the importance of collaboration between clinicians and researchers to achieve successful knowledge translation. Using a constructivist approach requires a paradigm shift from positivist knowledge transfer initiatives to a more collaborative and constructivist philosophy, enabling a dynamic integration of evidence on communication and interprofessional collaboration.
Conclusion: Encouraging clinicians to incorporate research findings into their everyday practice is challenging. Building in collaborative engagement with research findings as a deliberate dissemination strategy enhances understanding and uptake of interprofessional collaboration and communication research findings.

8M5 (803)
Improving the quality of communication assessment: continuous training of raters and interrater reliability

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Presenter:
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Background: Assessments of communication skills of GP trainees is recognized as a necessary component in medical education. GP trainees hand over videotapes of real life consultations that are assessed using the Maas-Global. This instrument has an established reliability and validity. In its manual it is acknowledged that context factors play a role but it is left implicit how to incorporate contextual influences. It is known, however, that context factors may affect assessment outcomes. To achieve a satisfactory degree of agreement among raters, faculty members of our GP-training are trained intensively. After the initial training at the start, twice annually meetings are organized in order to make raters aware of the influence of context factors and they are instructed to account for these factors. This study aims to measure the interrater reliability (IRR) of the Maas-Global.
Method: Sixty-three GP-trainees provided a total of 188 videotaped consultations. The Maas-Global includes 13 communication items. Using a prospective design, we computed the IRR of the Maas-Global items rated by a panel of 24 faculty members.
Results: The percentage of poor (15.5%), sufficient (45.6%) and excellent performance (38.9%) in our sample did not differ from the total population. We found that IRR was

0.81 for all items of the Maas-Global indicating a good reliability on item level. We also examined the IRR of five items associated with patient centeredness: Shared Decision Making: 0.81, Exploration: 0.83, Transfer of Information: 0.86, Structuring: 0.84 and Showing Empathy: 0.86.

Discussion: The literature shows that implementing a training to improve reliability of an assessment instrument often shows moderate effects at best. To assess practice situations, raters received guidance on how to handle specific contextual factors. Our way of continuous training asks raters to reflect on their personal methods of evaluating performance and establishes a shared frame of reference for evaluating performance. The results of our study show that personal influences of the raters in assessment of GP trainees is minimal.

Conclusion: Our way of continuous training of the raters enables raters to assess the communication skills of GP trainees in a reliable way.

8M6 (3574)
Minho Oral Scientific Communication Scale (MOSCS): A checklist to evaluate oral presentations in medical students

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Background: Oral presentation skills plays a significant role during medical training and in future professional life. Medical students have frequently to present projects orally in classes, discuss clinical cases and attend to conferences to present research results, being, simultaneously, evaluated. The Medicine course of School of Medicine-University of Minho, Portugal, includes curricular units (Option Project) in which students are evaluated also by their oral presentation of an experience in health and social institutions. In order to use a dichotomous checklist in real time for these oral presentations' evaluations in classrooms and to a more objective evaluation of oral presentations, we developed the Minho Oral Scientific Communication Scale (MOSCS), as to the best of our knowledge, none existing instrument fills our needs.

Method: The MOSCS was developed based on a Delphi method with a group of assessors with clinical and teaching experience. A final 17-item checklist considering verbal and nonverbal communication skills, content and organization of the presentation, iconography and time management was applied. A total of 32 senior (>4 years of experience in oral presentations evaluations) and non-senior assessors (<4 years of experience in oral presentations evaluations), evaluated 364 oral

presentations from medical students. Exploratory factor analysis (EFA) and measures of reliability were obtained to derive the factor structure and internal consistency of the MOSCS.

Results: On average, there was a percentage item agreement of 79.6% between independent assessors (SD=12.5%). Regarding to EFA findings, two to four factor solutions were examined. After the elimination of items with cross-loadings between factors, the two-factor solution was considered the most appropriate, as it provided a good discrimination between items, while being theoretically relevant and having good indices of internal consistency.

Our findings revealed that MOSCS displays adequate psychometric properties, which encourages its use in the context of oral examinations of medical students.

Conclusion: MOSCS can be used in academic context for evaluations in curricular units. In future, we consider that can be used also by peers, for self-evaluations and in research projects, being a useful tool in programs to promote oral communications skills.

8N: Short Communications: Interprofessional Education 1

Location: Boston 2, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

8N1 (1340)
Integrating an Interprofessional Collaborative Practice Experience into Physician Assistant Education

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Presenter:
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Background: Physician Assistants (PAs) are integral members of the healthcare team in the USA. With the increasing focus on Interprofessional Education (IPE) and collaboration, the Wake Forest PA Program implemented a pilot Interprofessional Collaborative Practice (IPCP) experience for second year students completing a clinical experience in Hospital Medicine. Students were integrated into an existing IPCP environment on a large inpatient unit with medically complex patients. On this unit, an interprofessional team conducts daily Structured, Interdisciplinary Bedside Rounds (SIBR).
Method: We developed a curriculum that includes participation in SIBR; TeamSTEPPS training; and learning modules on Infection Prevention, Care Coordination and Wound Care. Modules include pre-reading, interactive one-on-one sessions with a member of each specific discipline, and a checklist completed during the interactive portion of the module. At the end of the experience, in a small group setting, students apply their learning to determine management of a complex patient case study. Students complete pre- and post-experience surveys to assess level of knowledge for each discipline. The post-survey includes a reassessment of prior knowledge compared to current knowledge.
Results: Preliminary data from 12 students show that reassessment is much lower, indicating students overestimate their level of knowledge prior to the experience. Post-assessment of knowledge is higher than either pre-surveys or reassessments. Feedback about the experience from students and preceptors is positive. This experience was designed to align with IPEC competency domains: roles and responsibilities of team members; communication; interprofessional development; and integrated knowledge. Much of IPE happens in the classroom or via simulation. The IPCP experience is unique in that learning occurs in an actual patient care setting. Based on the results thus far, the pilot project is considered a success. All parties are eager to expand the curriculum. A more comprehensive assessment will be implemented.
Conclusion: This IPCP experience adds value and breadth to PA student education and aligns with the institution's strategic goals to expand and enhance educational

programs and transform care delivery through care models, quality and team-based care. This experience will become a required component of the PA clinical curriculum.

8N2 NOT PRESENTED

8N3 (3645)
InBetween: Interprofessional Education in multiple sectors increases learning relevance of workplaces

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Presenter:
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Background: Interprofessional education (IPE) in health professions focus to learn, collaborate and interact with the patient. Does IPE increase learning and transfer relevant for workplaces?
Method: We have focused IPE and crossing sectors in the project InBetween since 2012. Teams of students learned in a working setting of 2 weeks, first week in hospital and a week in a municipal setting.
InBetween as implemented study model underwent development to give frame to IPE for students from several different educations (2017). This recent Interprofessional Elective element contains 4-6 weeks of study and clinical work in Campus, Hospital and Municipality.
The Council of Education at Aarhus University Hospital has been in charge of bringing together students. An ongoing process keeps up a necessary common time schedule of educations. To teach IPE all teachers, supervisors of hospital and municipal care homes have trained interprofessional Facilitation. During the course students are given daily supervision.
Content of IPE:
1. Study of how to collaborate, learn and teach within different professions.
2. Team training of bringing in the Patient's voice
3. Clinical work 1 week in a hospital working with an admitted patient and 1 week in a care home working with citizens care and training
4. Reflection of the Patient's pathway and ressources in different settings
5. Focus on individual learning mono- and interprofessionally
6. Creation of solutions to solve problems in the patient's pathway
Results: The InBetween has taken place 8-9 times with 3-6 teams of students from nurse, physiotherapist, occupational therapist, medical science, dentist assistant, radiograph, bioanalysist and dietician educations.

Far the most of the students have been very challenged but also motivated especially when working with real patients. They experience interprofessional learning and understanding. They gain the ability to take responsibility, to listen to the patient's requests, and they become better at decision making.

Conclusion: Pregraduate students have limited interprofessional skills before they participate in InBetween. The majority of students get workplace relevant mono- and interprofessional learning, though the supervision is time consuming and the supervisors' ressources differ.

Futher research has to clear potentials of transfer and innovation in this model of education.

8N4 (2543)
Nurse-shadowing in medical education: A systematic review

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Presenter:
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Background: Nurse-shadowing program provides a great opportunity to enhance physician-nurse collaboration and communication. Although nurse-shadowing has been discussed for a long time, no scope review was published. Therefore, the purpose of this study was to review the elements, benefits, and aims of nurse-shadowing for medical education systematically.

Method: This systematic review completed comprehensive search by using relevant terms of nurse-shadowing and medical education in Cochrane library, Embase, PubMed, and Web of Science. No language or date restrictions were set for the searches. The exclusion criteria included (i) no intervention of nurse-shadowing, or (ii) not investigating in medical students or residents.

Results: There were 186 references that were identified by comprehensive searches. Eleven articles entered full-text review after title and abstract screening. One of the 11 articles is letter to editor, and another one is general review. Two of the other nine articles are cross-sectional survey without nurse-shadowing intervention. There were seven eligible studies that investigating in nurse-shadowing program for medical education. The seven studies investigated 649 medical students, and indicated that nurse-shadowing may promote medical students in communication, team work, patient care, and inter-professional learning. Communication was mentioned mostly in improvements after nurse-shadowing activities.

Discussion: This study portrayed key elements, goals, and benefits of nurse-shadowing according to relevant trails. The studies claimed that nurse-shadowing is an effective

and important approach to medical education, despite those studies were different in study design, measurement, and nurse-shadowing activity. However, few well-structured trial of nurse-shadowing with objective measurement was developed and published. There was only one study designed as randomized controlled trial, but it measured outcomes by a self-report questionnaire.

Conclusion: Nurse-shadowing might improve communication, team work, patient care, and inter-professional capacity. However, the evidence is not sufficient. Well-structured trial of nurse-shadowing is needed in the future.

8N5 (1991)
Not just a "guide by the side": Facilitation of IPE in the clinical environment to enable significant change

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Presenter:
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Background: Students enrolled in health care education programs at the University of Toronto learn interprofessionally through the Centre for IPE-led IPE curriculum which includes interprofessional learning in both the academic environment and in practice across a range of settings. Evidence shows that collaborative, client and family-centred care is essential to patient outcomes, health care provider satisfaction and system efficiency and yet, there is still a lot to learn about how IPE, and IPE facilitation, works in the clinical setting (IOM, 2015; Reeves et al., 2016). This participatory research project examines the impact of IPE in the clinical environment of two Toronto hospitals and explores the role of the IPE facilitator.

Research Questions
1. How does IPE in the clinical environment achieve impact?
2. What is the role of the facilitator to enable this impact to occur?

Method: The first stage of this research project utilized the Most Significant Change (MSC) method (Davies & Dart, 2005). Primary data was collected in the form of participants' stories (e.g., learners, clinical supervisors, IPE facilitators) about the changes they noticed following participation in IPE. Then key stakeholders, including patients and learners, identified the most significant changes highlighted in the stories. Phase 2 involved the collection of additional qualitative and quantitative data from existing sources to create a theory of impact which answers how the most significant changes were achieved.

Finally, a thick description of the role of the facilitator in the theory of impact was generated.

Results: The theory of impact illustrates how IPE can result in 1) improved team practice, 2) enhanced interpersonal relationships and 3) deepened self awareness. The facilitator plays a crucial role by authentically engaging with students in an interprofessional learning process which reinforces and strengthens an interprofessional learning climate. The facilitator also must retain and model an interprofessional learning mindset that includes humility and curiousity.

Conclusion: More than just a "guide by the side", the facilitator is an integral part of a learning partnership with students, patients and families.

8O: Short Communications: Leadership

Location: Boston 3, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

8O1 (1613)
Gender and Academic Health Leadership

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Presenter:
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Background: Women continue to be under-represented in academic health leadership attainment. Faculty development interventions may positively impact on leadership capacity building, especially in women. We explored academic leaders' perceptions of gender and leadership to inform how faculty development can better support leadership growth.
Method: We used a sequential mixed methods study design. Participants completed the Leadership Practice Inventory ® (LPI), to assess leadership beliefs and practices. Scores were compared by gender using the t-test. We interviewed a subset of participants and analysed the results using thematic analysis. Quantitative and qualitative findings were integrated.
Results: Sixty-five leaders (38 women; 27 men) participated in the survey. There were no significant demographic or statistical differences between women and men on any of the LPI® components. Five women and 5 men were interviewed. Thematic analysis revealed common leadership aspirations and values. Gender differences were noted in experiences of leadership attainment, the role of mentorship and risk-taking. While the male narratives reflected cognitive awareness of gender inequities, the female narratives also included lived experiences. Male participants emphasized meritocracy in leadership attainment, whereas the female participants highlighted the interplay of gendered social and structural barriers.
Discussion: While men and women shared many similar leadership aspirations and perceptions, they differed in their perceptions and experiences of the influence of gender on leadership attainment. The findings suggest that in addition to skills building, leadership development also needs to explicitly address the "hidden curriculum" of gender and leadership to improve gender equity. The underrepresentation of women in academic leadership results in a loss of potential to the university. An explicit gender lens needs to be applied to leadership program development to address this issue.
Conclusion: Women and men have differing perceptions and experiences of gender and leadership attainment. Faculty development that explicitly addresses gender issues may improve capacity building and contribute to closing of the gender gap in academic leadership.

8O2 (940)
Medical Leaders Identify Personal Characteristics and Experiences that Contribute to Leadership Success in Medicine

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Presenter:
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Background: Leadership theories stress the importance of experiences in developing leaders. Correspondingly, medical schools and organizations offer learners formal leadership experiences; and our study in Academic Medicine (February, 2018) demonstrates the power of informal experiences in preparing students for successful medical leadership. However, contemporary theories show a renewed interest in the contribution of personal characteristics to effective leadership which poses the questions we explored. What characteristics mark medical leaders? What experiences nurture those characteristics?
Method: We adopted a phenomenological, qualitative approach for our study. In August-November, 2015, we interviewed 48 medical leaders who graduated in 1976-1999 from our six-year US medical school and who met rigorous criteria for outstanding leadership. We asked the leaders an open-ended question "In your opinion, what has enabled you to become the leader in medicine that you are?" with prompts: "Experiences before, during, and after medical school? People? Personal characteristics?" We conducted a directed content analysis of their responses. Using iterative coding cycles with attention to reliability and validity, we noted the personal characteristics leaders mentioned, categorized and counted them. We coded and categorized experiences leaders discussed, counted the number of leaders who mentioned each type of experience, and noted connections leaders saw between experiences and characteristics.
Results: Characteristics mentioned most often were: intense motivation and active involvement; openness to new ideas and opportunities; and astute risk-taking. Other frequent characteristics were: people-skills; a service-orientation; capability/competence/ intelligence; and self-awareness. Experiences that nurtured these characteristics included: family traditions of community service; participation in high-school co-curricular experiences; enrollment in an innovative medical school emphasizing longitudinal clinical preparation in supportive learning communities; observation, as students and residents, of mentors modeling leadership; and opportunities to practice leadership and innovation in

authentic settings throughout their education and in the workplace.

Conclusion: Medical leaders identified characteristics paralleling those in the literature but highlighted a service-orientation. They linked family, high-school, medical school, residency, and workplace experiences to developing those characteristics.

Medical leaders' insights enrich the literature on leadership characteristics and how to prepare tomorrow's leaders.

Take-home message: Leadership programs should design longitudinal experiences promoting leadership characteristics, especially service.

8O3 (660)

Growing Your Own Leaders: Preliminary Outcomes of an Institution Based Leadership Development Program for Women Faculty

Authors

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Presenter:

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Background: Few women aspiring to leadership roles in academic medicine can participate in leadership development programs due to expense, program competitiveness and time away from work. To respond to the demand for leadership education, we created a novel locally based medical school program, Career Development for Women Leaders (CDWL). CDWL is modeled after international programs but costs much less. CDWL consists of nine monthly sessions. Instructors are known experts, senior faculty and administrators. Acceptance into the program is a competitive process.

Method: This program evaluation of three cohorts of participants (N=47) assessed impact using a mixed methods approach. Data included focus group transcripts, and pre- and 24-month post-questionnaires. Participants responded to 63 questionnaire items via a seven-point Likert scale (strongly disagree=1; strongly agree=7). Transcripts were reviewed for themes. Matched paired t-tests were used to analyze questionnaire responses.

Results: Four focus group "program impact" themes arose: expanded networking opportunities; personal/professional benefits; provision of safe learning environment, and return on investment (ROI) for participants and their departments. Matching pre-post questionnaires resulted in 17 pairs. Participant responses significantly improved (p<.05) from pre to post on 47 of 63 items (Cohen's d range = .53-1.42, which represents medium to large effects). Examples: "Establishing a professional network outside institution" (networking); "I know my strengths as a leader" (benefit); "In the past 2 years I have been able to achieve my leadership objectives" (ROI).

Results showed that CDWL was invaluable, provided significant benefit, and offered women career enrichment.

Respondents said CDWL is an excellent faculty recruitment and retention strategy. Participants reported significantly higher levels on all 16 confidence items and better understanding of their leadership strengths/weaknesses. Networks developed were highly valued. A local program allowed more women to participate and the program proved to be cost effective.

Conclusion: Providing faculty development is vital to engaging women faculty and essential for advancing diversity at medical schools. Local economical programs can be implemented that meet the needs of women faculty. We will present how CDWL can serve as a model for other institutions desiring to provide leadership training.

8O4 (2242)

Does Academic Leadership Development Make a Difference? The Evaluative Case of a Contemporary Program

Authors

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Presenter:

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Background: The academic medicine environment is often characterized by rapid change and complexity. The demand to attend to new trends and drivers in health care and health professions education requires academic leaders to have the capacity to anticipate, influence, and be responsive to these emergent needs, in ways that strengthen their organizations. In response, academic leadership development programs have proliferated; however, rigour in their design and evaluation is still in its infancy.

Method: We report on the evaluation of the New and Evolving Academic Leaders (NEAL) program: an 8-month, three-module program based at the University of Toronto. Informed by authentic, self, collective, and complex-adaptive paradigms of leadership, the program emphasizes reflective practice and experiential learning as its primary pedagogical orientations. The curriculum is thematically mapped within intrapersonal, interpersonal, organizational, and system domains of leadership practice. To evaluate the program, we employed a contribution analysis approach to explore the role that leadership development plays in influencing individual and organizational transformation. Ergo, we engaged in in-depth, longitudinal study of 18 program participants. Data sources included 3 reflection course assignments, pre-post program leadership attributes survey, semi-structured interviews 1-3 years after program completion and interviews with program coaches.

Results: Our results support views of effective leadership development as a process of personal and organizational discovery. We found that situated and experiential leadership development provides a platform for ongoing feedback, exposure to alternative mental and leadership models, relationship building, and, reflection, thereby contributing to shifts in 'leader role' perspectives toward more interdependence, collaboration, reflectiveness, and authenticity. Furthermore, individual differences impact participant interaction with various program elements and differentially influence outcomes.

Conclusion: Leadership development can effectively influence the cognitive frameworks and leadership practices of academic leaders. Evolving leaders can grow to incorporate more authentic and collective notions of leadership in contrast to traditional approaches. Programs developers may need to attend to Individual and contextual differences that can influence program success.

8O5 (3425)
Could Executive Coaching improve the leadership potential of trainee family doctors?

Authors
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Background: Executive coaching is well established in the industrial and financial sectors, impacting favourably on leadership and productivity, but there is scant evidence and little experience of this in health care. It is argued, such an approach might encourage the leadership needed to meet the ever increasing complex challenges of delivering effective health care efficiently. We set out to explore the potential impact executive coaching could have on trainees in family medicine.

Method: All family medicine trainees (n=46) in Northern Ireland completed a questionnaire about knowledge and experience of coaching and leadership ability. Six underwent up to six sessions of coaching by professional coaches over a 12 week period and completed a post-coaching questionnaire. Semi-structured interviews were audio recorded, transcribed and analysed for themes. Trainees had no experience of formal coaching and knew little about it. Pre-intervention they felt ill-equipped for leadership positions, but were keen to develop themselves.

Results: Themes extracted included: General experience of coaching; Leadership identity and areas of leadership development.

Post-intervention perceived self-efficacy was greater. Shifts in mind set were identified in four key areas of leadership: courage (delegation, conflict management, appropriate assertiveness, and challenging defensive medical decision-making); passion (experimental attitude, creativity, self-compassion, positivity, stress reduction, reframing 'failure', resilience); impact (time management, effectiveness, action planning, pro-activity) and vision

(understanding personal values, culture creation). An increased desire for leadership responsibilities was apparent.

Discussion: Coaching creates a safe, challenging and empowering environment, impacting working cultures. This is the first UK study of its kind in family practice. Coaching helps provide leadership 'language' and 'identity' and challenges the 'imposter phenomenon'. Coaching provided bespoke, deep, experiential learning, with transferable benefits not otherwise available in the Specialty Training programme.

Conclusion: Executive coaching is feasible, relevant and an "eye-opener" for trainee family doctors. It empowers and facilitates doctors to consider leadership roles. Incorporation within existing training schemes should be considered.

8P: Short Communications: Teaching and Learning: Problem Based Learning/Team Based Learning

Location: Darwin, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

8P1 (3542)
How hybrid PBL can support students to manage cognitive load: findings from an audio-diary study

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Presenter:
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Background: Despite increasing evidence that Problem Based Learning (PBL) benefits learners beyond knowledge acquisition, PBL has been criticised for increasing cognitive load and reducing student learning compared to 'strongly guided' instruction, particularly in the early years when students have not yet acquired major concepts and basic knowledge (Hattie, 2015). Others argue that the flexible scaffolding of PBL is compatible with human cognitive structures (Schmidt et al, 2016) and supports students to learn in complex domains which are essential for future practice.
Method: Our school incorporates hybrid PBL within the first two years of our curriculum, which has been updated to reflect recent evidence (Neve et al, 2016). This paper describes a qualitative research project using audio-diaries to better understand our learners' experience of PBL. Over an academic year, Year 1 medical students and tutors recorded, on Smart phones, relevant experiences occurring during PBL sessions. Participants were asked to describe 'aha' moments, times where learning was troublesome, and perceived enablers and barriers to their learning. Reflections were uploaded to a secure dropbox, transcribed and analysed using Nvivo software to identify key themes.
Results: 12 students and 5 tutors kept audio-diaries. We will describe, with illustrative quotes, how the PBL process enabled them to identify and address troublesome and complex learning encountered during other elements of the course. Particularly important were the use of visual tools and group discussion, to activate prior learning, make thinking visible and identify gaps in understanding. We will share data suggesting that PBL also supported students to develop metacognition, self-regulation and self-efficacy.
Discussion: Rather than increasing cognitive load, our study suggests that PBL, in the early years of a hybrid curriculum, can support students to address this load and to develop the qualities and capability (Bowden, 2004) they will need to learn effectively in future complex and unpredictable healthcare settings.
Conclusion: Student and tutor audio-diaries can offer important insights into the learner experience of PBL.

When employed within a hybrid curriculum, the PBL process can help students address complex and troublesome learning and develop important lifelong learning skills

8P2 (3459)
Experiences and emotions – examining first year medical students' transition into a PBL curriculum

Authors
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Background: Expectations are that students come ready for learning when entering problem-based medical education. Coming prepared entails that students perform as self-directed learners when engaging with problems. Studies have however shown transitions to be uncertain and potentially stressful experiences but little is known about students' specific experiences of transition into a PBL setting.
Method: This study examines students' detailed experiences of transformation from secondary to problem-based medical education. The qualitative study is based on reflective journals written by a cohort of first semester students, N=169. As part of their journals students were required to reflect on their transformation process. Nvivo was utilised for an inductive thematic analysis first revealing overall themes which were subsequently organised in sub-themes providing rich details of students' experiences.
Results: Three significant findings emerged from the study. First, many students do not consider learning or learning strategies actively during secondary education. Instead they rely predominantly on structures provided by teachers. Second, many students express emotions, often negative, when reflecting on their transition into PBL and third, many students recognise the need to change their learning strategies shortly after entering problem-based medical education.
Discussion: Students face a comprehensive transformation when exchanging the structured confines of secondary education with the messy, emotional uncertainties of PBL. Consequently we need to consider if students are offered adequate support and guidance not only on the learning structures but also on the transition process itself. This consideration is necessary as students experience large discrepancies between experiences of learning across educational boundaries and this may ultimately impact their possibilities for a satisfactory learning outcome as well as their sense of belonging in medical education.
Conclusion: We cannot assume students come prepared for problem-based medical education. Therefore it is important to consider the way the PBL curriculum may simultaneously support and hinder the transition process. This requires a closer look at both structures and the role of facilitators engaging with students during the first crucial months of their education.

8P3 (2663)
Team-Based Teaching (TBT) for Active Learning: Our experiences teaching Medical Professionalism

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Background: International University of Health and Welfare is the first new medical school to be approved in Japan in 38 years, and as such has the opportunity to develop an innovative medical education never before attempted in Japan. In our medical professionalism course, we implemented a team-based teaching (TBT) approach for active learning with multiple faculty members planning and delivering the course together.
Method: First year students (140 in total) undertook an anonymous questionnaire at the end of the course (60 hours) regarding 6 active learning class activities prepared by TBT. For each activity, they were asked whether they remembered the activity, whether it was fun and whether they thought it was useful to their learning.
Teaching faculty involved with the course (7 in total) completed a Likert scale evaluation from 1 to 5 (representing negative and positive effects respectively); regarding the effects of TBT on lesson planning, content delivery and reflection. Faculty were also asked if they wanted to continue using this methodology and if they felt it should be applied to other courses.
Results: Student questionnaire results; remembered the activity 85.8% (56.4～96.4；SD15.1),
activity was fun 86.1% (79.8～93.8；SD5.7), was useful to learning 79.3% (62.1～89.8；SD12.0).
Faculty evaluation results; lesson planning took more time (2.4), was more difficult (2.3) but was also fun (4.6) and satisfying (4.9). Lessons themselves were easier (3.7), fun (4.6) and satisfying (4.9). Reviewing lessons took longer (2.1), but was easier (4.3), fun (4.6) and satisfying (5.0). Faculty responded overwhelmingly positively (5.0) with regards to continuing the TBT methodology and felt that it could be applicable to other courses (4.6).
Conclusion: TBT requires a greater investment of faculty time, but in exchange increases their level of satisfaction, allowing them to enjoy the teaching process of active leaning, as well as garnering positive student feedback. TBT allows implementation of meaningful active learning lessons while allowing the educators to enjoy the lesson preparation, delivery of the class, and team reflection.

8P4 (964)
Validation of the Knowledge Re-Consolidation Inventory: A New Rating Scale to Measure Learning During Team-Based Learning

Authors
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Background: Team-based learning (TBL) is an instructional approach that has been adapted by many educational institutions world-wide. Despite its growing popularity, there is a lack of instruments that can reliably measure the underlying psychological mechanism of TBL. To address this gap, a new rating scale, the Knowledge Re-Consolidation Inventory (KRCI), was devised. The instrument is based on the theoretical model proposed by Schmidt and colleagues, who explored the six psychological mechanisms underlying TBL – preparation, knowledge consolidation, retrieval practice, peer elaboration, feedback, and transfer.
Method: A construct validation study involving 197 students at a medical school in Singapore was carried out. Two independent samples were taken to explore the psychometric characteristics of the KRCI. First, an exploration sample was taken (N = 90) to conduct a preliminary Confirmatory Factor Analysis. This analysis identified how well the data fitted the hypothesised model, and which items had poor psychometric properties. These items were removed from the model. A confirmation sample was then taken (N = 107) to cross-validate the scale with reduced items. In addition, the present study also explored how well the subscales can predict outcome variables of TBL.
Results: From the original 38 items, 16 remained. The resulting model fitted the data well. The second CFA with the cross-validation sample replicated the findings of the first analysis, and supported the factorial structure of the hypothesised six-factor model. Tests of factorial invariance demonstrate that the factorial structure of the KRCI was stable across measurements. The subscales of the KRCI were also adequate predictors of TBL outcome measures. The KRCI, which consist of 16 items, is a valid and reliable instrument to measure the underlying psychological learning mechanisms of TBL.
Conclusion: While the present study constituted an internal validation procedure, it is an essential and necessary step in any survey research. Only future studies that use KRCI can provide more informative insights in the inner workings of TBL. It is also important to explore how

the sub-scales of KRCI are related to external measures and other constructs.

8P5 (723)
Team-based learning (TBL) in the medical curriculum: better than PBL?

Authors
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Background: Internationally, medical schools have long used a variety of approaches to develop hybrid Problem based learning (PBL) curricula. However, Team-based learning (TBL) has gained recent popularity in medical education. TBL maintains the advantages of small group teaching and learning, but in contrast to PBL, does not require large numbers of tutors. In 2016, TBL was introduced to Year 1 of the Sydney Medical Program (SMP). Increasing student numbers (from 142 Year 1 students in 1997 to 332 in 2016) and limited teaching resources, had rendered our model of a hybrid PBL approach unsustainable. This study sought to compare students' perceptions of using TBL in place of PBL.
Method: Year 1 students (n=169) completed three PBL and three TBL sessions during one of the following teaching blocks: Musculoskeletal (n=56), Respiratory (n=59) or Cardiovascular (n=54). Student feedback following completion of each block of teaching was collected by questionnaire, using closed and open ended items. All students were invited to attend focus groups. Data were analysed using descriptive statistics and thematic analysis.
Results: In total, 144/169 (85%) of participants completed a questionnaire regarding PBL, and 152/169 (90%) completed a similar questionnaire regarding TBL. Additionally, 34/169 (20%) of students attended one of five focus groups. The students found positive aspects of their TBL experience to include the smaller group size, the use of readiness assurance tests, immediate feedback from senior clinicians, and time efficiency. In PBL, students reported that variable expertise of tutors; limited direction; and large group size hindered their learning.
Overwhelmingly, students preferred TBL over PBL, as the optimal teaching strategy. Students found the structure and format of the TBL sessions more conducive to learning, engagement and participation than PBL sessions. Changes in both curricula and pedagogy are needed to prepare students for the demands of increasingly complex healthcare systems. Although the use of TBL required an instructional approach, needing direction from the tutor, it remained student-centred, generating a range of positive outcomes.
Conclusion: Study results provide confidence to change from PBL to TBL within Years 1 and 2 of our medical curriculum.

8P6 (839)
What is Nystagmus? Analysis of a Learning Issue Construction in a PBL Tutorial Group

Authors
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Background: Self-identification of learning issues—gaps in one's knowledge and understanding—is the fruit and hallmark of problem-based learning (PBL). Learning issues trigger self-directed study as part of a larger self-regulatory process that promotes comprehension and knowledge retention. With few exceptions, group discussion around learning issues has escaped the close scrutiny that could lead to novel, interactional perspectives on this putative collaborative learning method.
Method: Multi-modal, sequential analysis was applied to three fragments of videotaped conversation from one PBL tutorial group discussing a neurology patient case. The group comprised six second-year medical students and an expert PBL tutor. In the first fragment, the group names "nystagmus" a learning issue after noticing an irregular pattern of eye movements in the patient's examination and failing to articulate what they saw. In the second fragment, the student assigned to present "nystagmus" shares her self-directed learning findings with her peers while the tutor is absent. In the third fragment, the student shares her findings as part of the formal tutor-facilitated tutorial discussion. Analysis examined how the group co-constructed the boundaries of "nystagmus" in these three different conditions, exploring the practical organization of negotiated understanding in each.
Results: The construct of "nystagmus" differed in each of the three fragments, referring initially to an unfamiliar pattern of irregular eye movements, next to a certain neurological examination finding, and finally to poorly understood cranial nerve functions underlying coordinated eye movement. The group negotiated the boundaries of "nystagmus" using various topic-change techniques, which constrained the amount and depth of discussion. The tutor deftly avoided participation in boundary setting, preventing closure by using expansion techniques.
The Conversation Analytic approach used revealed the co-constructed nature of learning issues, that the boundaries of what the group took to be a learnable matter were dynamic and negotiable. Topic changes signaled the group's boundary setting process, which the tutor prolonged to avoid closure.
Conclusion: Learning issues may be seen as static labels for constantly changing, co-constructed meaning. Expert tutors may facilitate construction by recognizing learners' boundary setting activities and inserting expansions to prevent closure.

8Q: Short Communications: Postgraduate: Specialist Training

Location: Lima, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

8Q1 (600)
Using quality-of-care clinical data as an indicator for comparing outcomes from different Family Medicine Residency training programs in Canada: a pilot study

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Presenter:
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Background: There is limited information about how family medicine (FM) residency training influences the quality of care provided by graduates in practice. Studies in American obstetrics have shown graduates from higher quality programs have lower maternal mortality rates. Clinical outcomes are more complex in FM, involving variables more difficult to measure than mortality and complication rates, but indicators have been developed in the UK for general practice quality-of-care data gathering and analysis.
The Canadian Primary Care Surveillance Network (CPCSSN) gathers similar quality indicator data from over 700 "sentinel" Canadian family physicians. This provides quality-improvement information to the sentinels and is also a potential source of information back to the FM residency training programs about the quality-of-care provided by their graduates.
Method: As a test of feasibility, the residency program of participating southern Alberta sentinels was identified. Quality indicator data were collected via CPCSSN for sentinels' patients with i) diabetes and ii) hypertension. Treatment targets from current Canadian practice guidelines were used to define quality benchmarks based on glycated hemoglobin (HbA1C) levels in patients with diabetes and blood pressure measurements for patients with hypertension. Data were compared based on residency training program (Calgary vs. non-Calgary).
Results: 72 sentinel physicians participated (35 Calgary and 37 non-Calgary graduates). Data from 14,808 patients were used, including 47,361 HbA1C levels and 182,875 blood-pressure measurements over a five-year period. No significant differences were found in the percentages of measurements that met the targets for the chosen quality indicators between the two groups.
Conclusion: This pilot study confirms the feasibility of using a set of clinical data in measuring quality of care based on training program. Studies in other jurisdictions and studies including other potential variables would be possible where such data are available.

8Q2 (745)
Introducing practical leadership skills into general practice placements for first year GP trainees in Scotland

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Background: Leadership is one of the General Medical Council's generic professional capabilities for all medical specialities in the UK, but engagement in leadership activities is not currently routinely built into GP training. Assessing leadership is part of the RCGP's proposed changes in workplace-based assessment for UK GP trainees. This pilot explored whether GP trainees in their first year of speciality training could engage with a leadership activity in their practice placement.
Method: First year GP trainees were invited to take part in a voluntary pilot on leadership activities. Trainees were offered a menu of leadership activities that could be done in a GP surgery setting. Trainees and supervisors were surveyed through an electronic survey before and after their six-month GP placement.
Results: Trainees felt supported by supervisors and other team members within the practice. Most chose an educational leadership activity or a quality improvement project. Most educational supervisors led on leadership teaching, and most gave feedback, but not all trainees remembered receiving this. Not all supervisors found it easy to get trainees to engage with the process, and generally rated leadership skills as more important for general practice compared to trainees' views. Perceived barriers included lack of protected time, other training priorities, not feeling empowered, and personal issues. Both groups felt that leadership skills were important for a trainee's future career, but supervisors placed more emphasis on this than trainees.
Discussion: Practical leadership training can be translated relatively easily to the real-life setting of UK general practice. There was variable support offered by educational supervisors and differences in trainees' engagement. With a minimum of resources, trainees can take on small projects in the workplace that are of value to them in their training.
Conclusion: Practical leadership skills are essential for GPs in the UK and can be taught in a GP setting. More work needs to be done to see if these results are generalisable to trainees across demographic subgroups, and in other years of training

8Q3 (12)
Clinical decision making at fingertips for junior doctors in Emergency Medicine

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Background: Increasingly the provision of Medical Education is supported by technology in its delivery. Previously, in EKHUFT, a DGH, clinical guidelines in Emergency department were paper based. To complement the modus operandi of our junior doctors belonging to Generation Y and Z, an App was introduced as a pilot, to assist clinical decision making.
Method/Results: As TEL lead,
• Scoping: Assessed using questionnaires for need and preference of using App, availability of off-the-shelf apps in market place, cost and compatibility with our Trust IT support infrastructure.
• Project Board was established with junior doctors and a mix of healthcare professionals in ED and the IT Professionals with Trust board buy-in
• A prototype of a Customised mobile App was designed converting the paper based clinical guidelines and was made available on different smart device platforms (including App Store, Google Store).
• The two markers of success for the pilot was using
   o   App analytics on usage
   o   Feedback from junior doctors
• Services were advised to take ownership of governance of the app content
• 73% of trainees expressed improvement in the speed of their clinical decision making using the app
• 74% said Rapid access to clinical guidelines and Enhanced their learning experience
• Patient flow enhanced and breaches reduced.
• Established a Governance board and related protocols
• Identified a gap for a technology based resource for learners in other specialities
Discussion: Are there any reasons why you wouldn't use them? There are various papers supporting and challenging some of these findings. Yet, new developments must consider viability and usefulness before investment.
Conclusion: Introduction of technology seem to have aided doctors in clinical decision making. There are positive outcomes for other specialities to consider introduction within other areas.
Take-home message: After observing the results, there seems to be a clear appetite of doctors in training, especially in generation z for technologically advanced resources like apps as an aid for clinical decision making. Technological tools are to be considered when training Generation Z doctors.

8Q4 (2380)
Postgraduate education in anaesthesiology in Johannesburg, South Africa: qualitative reflections from registrars

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Presenter:
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Background: The training of anesthesiologists is an evolving process that balances statutory education requirements, service delivery and the personal circumstances of the registrar. The literature reports negative experiences of training such as the academic pressures and the challenge of balancing personal life, study and work, as well as positive experiences.
This study explored the experiences of registrars during their specialist training in Anaesthesiology at Wits University, Johannesburg, South Africa.
Method: A qualitative design was applied to answer the research aim. Naïve sketches were invited from the registrars (100) in training to specialise in anaesthesiology. Demographic data was collected and used to assist a purposive sampling strategy to ensure all level of study were represented in the sample. The data were analysed using thematic analysis. Trustworthiness was enhanced through member checking.
Results: Forty one narratives were received from 15 junior and 26 senior registrars. 29 of these were women and 24 were married. The average age of participants was 31 years. These participants describe their learning environment as positive with an excellent academic programme. They describe the personal and systematic challenges of learning in a high service context. The rich descriptions offered by the participants facilitated the emergence of six major themes: roller coaster experience of learning, struggle for academic excellence, lack of protected teaching- a dimension of the academic struggle, of service and learning: unresolved tensions, the challenge of balance and transformation.
Discussion: These themes converged in the metaphor of an oxygen-haemoglobin dissociation curve. A flat line represents entry into the community of practice followed by an exponential increase in the learning as a result of legitimation from exam success. There is a final period of consolidation of their identity as a specialist.
Conclusion: Each registrar's experience is a unique and challenging journey. Despite this, participants experience this journey as a rewarding one that equips registrars with the skills and confidence to become an accomplished specialist.
Take-home message: Postgraduate medical education is a complex process with multiple interacting factors.

8Q5 (153)
Cross-Specialty Differences in Gender Effect on Residents' Milestones Trajectories

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Background: ACGME Milestone assessment data allows for longitudinal analysis of residents' professional development. Recently, Dayal et al. (2017) raised concerns about potential gender bias in Emergency Medicine (EM) by frontline faculty using a mobile, direct observation assessment tool. In eight residency programs from 2013-2015, they found that for all 23 sub-competencies, males and females were rated similarly at the beginning of residency, but males were rated higher at time of graduation. The present study investigated whether similar gender differences exist in national Milestones data reported by programs after Clinical Competency Committee's (CCC) consensus review in four specialties.
Method: This study examined Milestones data from EM, Internal Medicine (IM), Family Medicine (FM), and Pediatrics residents from 2014-2017: n=1282 (EM; male/female= 65%/35%), n=6682 (IM; 56%/44%), n=3172 (FM; male 45%/55%), n=2439 (Pediatrics; 27%/73%). For each of the sub-competencies, a spline regression model was used to see if gender was differentially predictive of Milestones rating trajectories over the course of residency. Also, gender differences in rating at time of graduation were compared.
Results: In all four specialties, we found that male and female resident trajectories were almost identical on all sub-competencies. At time of graduation, EM and IM males were rated slightly higher than females on a few sub-competencies. In contrast, FM and Pediatrics females were rated higher than males on the majority of sub-competencies.
Discussion: The present national study indicates that for the majority of sub-competencies, males and females were rated equally throughout their training in four specialties. Statistically significant but small gender effects were noted in certain sub-competencies at time of graduation, but differences varied depending on the specialty.
Conclusion: Two major differences between this study and the Dayal study were: 1) we examined data for all residents nationally across multiple specialties and 2) the ratings were the result of CCC review and not based on single faculty evaluations. The methods presented here could be applied to data from other specialties to monitor for signs of gender bias across all specialties.

8Q6 (2409)
"You are virtually on your own" - after-hours support of radiology trainees – are we putting registrars and patients at risk?

Authors
Irina Dedova
Michelle Moscova
Merribel Kyaw
Tina Hoang
Michael Hollands
Noel Young

Presenter:
Irina Dedova, University of New South Wales (Sydney), Sydney, Australia

Background: Support and clinical supervision of radiology registrars is essential for them to develop skills to become competent specialists who engages in safe clinical practice. Under the local guidelines, radiology trainees must have access to a consultant supervisor after-hours. However, how these guidelines are implemented in practice, is unknown.
Method: This study aimed to evaluate after-hours support for radiology registrars in New South Wales, Australia. We conducted a mixed methods study consisting of semi-structured interviews with 16 radiology registrars and an electronic survey of all current radiology registrars (83 respondents). Grounded theory was used to analyse qualitative data. Descriptive statistics were used for quantitative data analysis.
Results: 1 in 3 registrars reported being allowed to work after-hours before completing six months of training. 1 in 5 reported their training site did not have a process for ensuring they were competent at case reporting before they were rostered to after-hours shifts. Only 55% were comfortable calling on-call consultants for help after-hours, compared to 92% during regular hours. After-hours, 70% relied mostly on peers for help with reporting. Compared to junior colleagues, senior registrars were 12 times less comfortable reporting patient safety concerns and twice as uncomfortable calling consultants for help after-hours. Qualitative themes to explain it included: registrars' "unspoken rule"; fear of appearing incompetent; consultants discouraging calls; consultants unable to access data remotely.
Discussion: Despite guidelines, after-hours supervision of registrars is variable. Consultants should take leadership and encourage all registrars to seek help reporting cases as needed. As senior registrars act as role models for juniors, they should be encouraged to seek help after-hours when needed. Reluctance of senior registrars to report patient safety concerns and their fear of being labelled incompetent suggests hospital culture may influence safe clinical practice.
Conclusion: After-hours supervision of radiology registrars needs to improve, as it has potential to affect patient safety.
Take-home message: Culture shift is needed to improve registrar after-hours support and to encourage seeking help after-hours.

8R: Round Table: Self Directed Learning

Location: Hong Kong, 2nd Floor, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

8R1 (464)
Improving student midwives' workplace learning by moving from self- to co-regulated learning

Authors
Mieke Embo
Martin Valcke

Presenter: Mieke Embo, Artevelde University College Ghent and University Ghent, Belgium

Background: Contemporary perspectives about regulated learning are moving beyond models, emphasizing individual learning (self-regulated learning) to models that positions social transactions at the core of learning (co-regulated learning). In discussing this paradigm shift, it is important to study self- and co-regulated learning in situational context but research in the context of midwifery education is scarce.
This study aimed at improving our understanding of regulating midwifery students' learning by exploring factors that promote or inhibit the capacity to independently self-regulate learning during internships.
Method: We conducted a qualitative study design involving semi-structured group discussions with final year undergraduate midwifery students (Belgium). Focus groups were audio-taped, transcribed verbatim and analysed in a thematic way.
Results: The majority of respondents didn't experience an education intended to stimulate continuous self-regulated learning. They identified many social transactions (with mentors, teachers, teams of midwives, students, peer students, personal environments, personal coaches and curriculum managers) that were instrumental in promoting or inhibiting the ability to independently self-regulate. Flexibility and resilience to cope with all the differences in practices, guidance, beliefs and behaviors of individual midwives within and between workplaces, was seen as paramount.
Conclusion: Broadening the perspective of the individual learner to the complex interplay between all the stakeholders involved with workplace learning is an essential step to move forward in the effort to improve student' midwives learning in the workplace.
Take-home message: The results of this study suggest that the co-regulated approach might be a necessary direction to enhance the quality of clinical education in practice.

8R2 (1438)
A qualitative exploration of self-regulated learning in newly graduated physiotherapists

Authors
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Shuh Shing Lee, Centre for Medical Education, Yong Loo Lin School of Medicine, Singapore
Sungwon Yoon, Programme in Health Services and Systems Research, Duke-NUS Medical School Singapore, Singapore
Emily ZF Luo, Health Services Research Unit, Singapore General Hospital, Singapore
Fred Steven, Department of Educational Development & Research, Faculty of Health, Medicine and Life Sciences, Maastricht University, Netherlands

Presenter: Hwee Kuan Ong, Physiotherapy Department, Singapore General Hospital, Singapore

Background: Ability to self-regulate learning is a critical part of health professional practice, as it ensures the provision of optimal care in tandem with the medical advances. However, research has been scarce on self-regulated learning (SRL) in Physiotherapy, especially the newly graduated physiotherapists (NGPTs) who undergo the critical transition from student to working professional.
Method: The aim of this study was to 1) understand how NGPTs interpret the meaning of SRL; 2) identify what SRL strategies were being practiced by the NGPTs while they were at college, and at workplace. Six semi-structured group interviews were conducted with 16 NGPTs and 16 supervising physiotherapists (SPTs) working in the largest academic medical centre in Singapore. Data were analyzed using conventional content analysis approach. The findings were also examined against Pintrich's social cognitive model of SRL (2004).
Results: While most interviewees correctly understood SRL, important misconceptions of SRL such as "learning in solo" or "learning as and when the learner desires" were found. There were important motivational changes - students' learning were primarily motivated by exam grade whereas the NGPTS's learning were driven by desires to improve patients' life. The learning strategies were also changed. During student time, group learning, revision of lecture notes and learning resources were the primary learning strategies. However, as the same learners transit to working professionals, the learning strategies changed to seeking supervisory support, experiential learning and time-effort management.
Discussion: Our findings suggest a need for clarifying the concept of SRL and highlight the context in which the learning strategies occurred. Analysing the SRL strategies through the lens of social cognitive SRL model revealed that the NGPTS adopted a narrow range of SRLs. There was minimal monitoring, controlling and reflection in the cognitive and behavioral self-regulation.
Conclusion: Clarifying the concept and introducing a broader range of SRL strategies may be of value for the NGPTs. The use of Pintrich's theoretical framework has enabled the investigators to examine the challenges in a

systematic manner and help to illuminate important considerations beyond a content analysis approach.

8R3 (3547)
Game on: Gamification of Medical Education

Authors
Viral Thakerar, Imperial College, London, UK
Dilshani Hunukumbure, Imperial College, London, UK
Saroj Das, Imperial College, London, UK
Rohit Chitkara, Imperial College, London, UK

Presenter: Viral Thakerar, Imperial College, London, UK

Background: Why are some medical students motivated to play video games for many hours, but appear less motivated to learn how to practice clinical medicine? Video games are designed to engage the player to complete tasks, and reward the player for doing so. These tasks can be cognitively demanding, not unlike medical learning. Video games often give the player a satisfying sense of progression by testing the player to apply the skills already learn in ever more complex and challenging scenarios. This is similar to student progression through the clinical years, where students move from "learning the controls" to "playing the game".
Gamification is the process of applying game-thinking and game mechanics to solve non-game problems. A 2016 landscape review of the literature described seven possible benefits of gamification of medical education. These were increased engagement, enhanced collaboration, real-world application, clinical decision making, distance training, learning analytics and swift feedback[1]. There is evidence of a positive reaction to gamified teaching and of improved learning[2].
The question: Can we apply game mechanics to teach common acute medical conditions to improve engagement and improve learning outcomes?
Pilot study: Year 3 students were given access to an online series of interactive stories based on acute medical scenarios. The stories used game mechanics and followed different paths based on the students' choices. Student feedback and performance on applied knowledge tests before and after playing the game were recorded.

1. Lise McCoy, EdD; Joy H. Lewis, DO, PhD; David Dalton, DO, Gamification and Multimedia
for Medical Education: A Landscape Review, The Journal of the American Osteopathic Association, January 2016, Vol. 116, 22-34. doi:10.7556/jaoa.2016.003
2. Akl EA, Sackett KM, Erdley WS, Mustafa RA, Fiander M, Gabriel C, Schünemann H., Educational games for health professionals, Cochrane Database Syst Rev. 2013 Jan 31;(1):CD006411. doi: 10.1002/14651858.CD006411.pub3.

8R4 (2355)
Develop This! A Pilot Self-Directed Learning Activity for First Year Medical Students

Authors
Marika Wrzosek, Medical College of Wisconsin, Milwaukee, USA

Presenter: Marika Wrzosek, Medical College of Wisconsin, Milwaukee, WI, USA

Background: Teaching future physicians is a delicate balancing act – with enough space to foster their independent learning but enough structure to ensure they progress along critical competencies and learn to take care of people. Given the emphasis on lifelong learning, educators are challenged to stay relevant to today's students who often seek online sources of knowledge.
Method: At the Medical College of Wisconsin, a group of 264 first year medical students participated in a mandatory "self-directed learning" (SDL) activity required for their assessment in a course entitled "Foundations of Human Behavior" (FHB). This presentation delineates the details of this pilot SDL project and shares the trials and tribulations of an ultimately successful learning activity.
Results: By weaving in self-assessment, analysis and synthesis of relevant information, and appraisal of sources, this activity supplemented what the required textbook for the course only superficially covered. Requiring students to share information via the completion of a group project as part of the SDL activity solidifies the collaborative nature of modern medicine from the earliest stages of medical school while also subtly paying tribute to peer learning and teaching. Lastly, feedback from the instructor on the independent projects allows for specific input on students' critical thinking skills. Incorporating all components of the Liaison Committee on Medical Education (LCME) SDL standards, this activity was intentionally designed to have students stretch into their slightly uncomfortable independent learning zone by merging with what they naturally want to know – how something they learn in class is clinically relevant. While originally taught to 264 first year medical students, this activity can be easily adapted to wide ranges of topics and students at different stages of learning. This presentation shares this pilot project with a society of fellow scholars and educators.

8S: Workshop: Developing and Integrating a Neuroanatomy Virtual Reality Tool for Medical Education (1499)

Location: Wettstein, 2nd Floor, Swissotel
Date: Tuesday 28th August
Time: 1400-1530 hrs

Presenters
James Pickering, University of Leeds, UK
Panos Bamidis, Aristotle University of Thessaloniki, Greece
Panagiotis Antoniou, Aristotle University of Thessaloniki, Greece

Background: The diffusion of innovation into medical education is well known with novel technologies continuously entering our curricula. With the emergence of cutting-edge digital media, such as Augmented, Virtual, and Mixed Reality (AR/VR/MR), curriculum content can now be created with holographic visualizations that can potentially enhance the understanding of conceptual and abstract aspects of the human body. This workshop will focus on the creation of such a learning resource to support the teaching of neuroanatomy and provide participants an opportunity to interact and discuss the logistics of its development. The workshop will also provide time for open discussion on why, when and how such a resource should be integrated into medical curricula. The workshop therefore aims to provide participants with an opportunity to interact with a cutting edge resource and discuss the implications of integrating such a resource along three themes: 1) why does medical education need to utilize such resources, 2) at what stage should such a resource be utilised, and 3) how is such a resource best integrated. To support the answering of these question, approaches to evaluation will be discussed drawing on the experience of the presenting team and published TEL evaluation frameworks.
Who should attend: Medical educators/teachers; Medical innovators/technologists; Curriculum developers
Structure:
1. Presentation - Introduction to the development of VR learning tool
2. Activity - Experience the VR learning tool
3. Discussion - why, when and how integrate a VR into medical education
4. Group discussion and opportunities for networking
Intended outcomes: By the end of this workshop, participants will be able to:
1. familiarise themselves with a novel VR learning tool based in neuroanatomy as an example of the technology's potential
2. discuss and share ideas of developing such a tool that requires a diverse range of stakeholders, including educators, students, developers and project managers
3. discuss the logistics (positive and negative) of integrating a resource of this type into a medical programme
4. discuss and share approaches to its effective evaluation so meaningful decisions can be made on its implementation and future directions

5. network with likeminded colleagues and initiate interdisciplinary collaborations and future projects
Level: Introductory

8T: Workshop: Student Refugees in Europe: Barriers & Solutions to University Enrollment and Retention

Location: Helvetia 3, 1st Floor, Swissotel
Date: Tuesday 28th August
Time: 1400-1530 hrs

Presenters
Evangelos Papageorgiou, EMSA
Lara Teheux, EMSA
Aikaterini Dima, IFMSA
Marian Sedlak, IFMSA
Janusz Janczukowicz, AMEE

Background: During the last decade, wars and conflicts have resulted in large numbers of refugees and displaced persons seeking survival and better living conditions, largely in Europe. In particular, the Syrian War outbreak in 2011 resulted in substantial increase of people on the move. Among the thousands of refugees, a large portion of them represented youth: those in the age range 18–34 years accounted for slightly more than a half (51%) of the total number of applicants for asylum in EU-28 during 2017 alone. While no data exists to report the percentage of tertiary education, and in particular medical students among them, we can safely assume that many of them have had to halt their education from the country of origin in order to survive. Naturally, this leads us to ask the question: have they gotten the opportunity to resume studies once settled down in Europe?
Who should attend: The workshop should be of interest to academic staff, policy makers in education, and students.
Structure: The workshop will consist of the following 4 parts:
- Introduction to the topic, explanation of legal terminology and presentation of relevant statistics from the European Students' Union report
- Points of view from invited refugee students who are now enrolled in European institutions
- Identification of barriers to access education as well as highlighting good practices through active discussion and experience sharing
- Formulation of an action plan to support refugee students and educational institutions
Intended outcomes:
- Formulating an action plan for Integration of Refugee Medical Students in European Universities
- Developing understanding of barriers to access education faced by students
- Exchanging good practices among participants
- Understanding steps that should be taken towards the integration of student refugees
Level: Introductory

8U: Workshop: Transitioning to Competency Based Medical Education – Supporting direct observation in a non-procedural based specialty (1363)

Location: Helvetia 4, 1st Floor, Swissotel
Date: Tuesday 28th August
Time: 1400-1530 hrs

Presenters:
Tina Hsu, University of Ottawa, Ottawa, Canada
Sohaib Al-Asaaed, Memorial University of Newfoundland, St. John's, Canada
Sanraj Basi, University of Alberta, Edmonton, Canada
Nazik Hammad, Queen's University, Kingston, Canada
Som D. Mukherjee, McMaster University, Hamilton, Canada

Background: The transition to competency-based medical education (CBME) is rooted in frequent assessment with timely feedback based on direct observation of trainees. In procedural based specialties, such as surgery, faculty presence throughout a patient encounter is already embedded into the culture of residency education. In contrast, trainees in non-procedural based specialties are often implicitly entrusted early on with tasks such as patient assessment due to assumptions by faculty that these skills are already attained in medical school or due to competing clinical demands.
In preparation for CBME, Canadian medical oncology residency programs launched a national field test in 2016. This workshop will be based on lessons learned and our experiences with implementing direct observation as a non-procedural specialty.
Who should attend: This workshop would be of particular interest to faculty, educators, and residents who are interested in developing strategies to encourage direct observation in non-procedural specialties.
Structure of the workshop: The rationale for direct observation in workplace-based assessment will be reviewed. Participants will work in small groups to identify challenges with direct observation in non-procedural based specialties and brainstorm potential strategies to mitigate these barriers. This will be followed by an evidence-based review of the literature surrounding direct observation and CBME supplemented by relevant real-life experiences of the panel. Successes and challenges encountered, as well as successful solutions developed during the implementation of CBME by the medical oncology subspecialty committee will be central to the process and will be framed using Kotter's 8-step change model. Participants will then work in small groups to develop an individual plan for implementation of CBME and direct observation in their centre, using this model. Presenters will be present to facilitate small and whole group discussions of the application of this model.
Intended Outcomes: At the end of this workshop, the participant will be able to:
• Identify challenges and potential opportunities for direct observation of trainees in clinical practice.
• Reflect on successes and pitfalls experienced during a national field test of CMBE in Canadian medical oncology

training program to develop strategies to facilitate integration of direct observation into workplace-based assessment programs.
Level: Beginner to intermediate

8V: Workshop: Faculty Development for Interprofessional Continuing Education: Employing an Innovative, Interactive Approach

Location: Helvetia 5, 1st Floor, Swissotel
Date: Tuesday 28th August
Time: 1400-1530 hrs

Presenters
Kathy Chappell, American Nurses Credentialing Center, USA
Graham McMahon, Accreditation Council on Continuing Medical Education, USA
Lawrence Sherman, Academy for Global Interprofessional Learning and Education, USA

Objectives: Analyze a problem using an outcomes model framework; Develop interprofessional continuing education (IPCE) designed to improve collaborative practice and patient/system outcomes; Identify measures of team performance and patient/system outcomes. Continuing education in health professions has historically been conducted in silos, yet healthcare providers practice collaboratively in teams. Healthcare educators developing IPCE must plan education that improves team performance and patient/system outcomes.
As a result of participating in this session, healthcare educators will develop IPCE activities designed to improve interprofessional collaborative practice and patient/system outcomes. Participants will explore methods to measure team performance and impact on patient outcomes.
Who should attend: Faculty from all healthcare professions developing interprofessional continuing education for practicing clinicians.
Level of workshop: Intermediate

8W: Simulation Journal Club

Location: Helvetia 7, 1st Floor, Swissotel
Date: Tuesday 28th August
Time: 1400-1530 hrs

Lars Konge and Debra Nestel, co-chairs of the AMEE Simulation Committee along with members of the Committee

Do you want a quick update on the most recent literature regarding the use of simulation in medical education? Please join us for the Simulation Journal Club where members of the AMEE Simulation Committee have identified the newest simulation literature and handpicked the most influential, innovative, provocative, and interesting papers. We will present these papers and where possible invite the authors to comment on their impact. The format of the Simulation Journal Club will be interactive – allowing time for questions and participant voting for the Premier Paper on Simulation in Medical Education 2017. This paper will win a £1000 award from the Copenhagen Academy for Medical Education and Simulation. This is an excellent opportunity to keep up to date with the increasing amount of research published on this very important topic in medical education.

8X: Workshop: How to use self-regulated (SRL) enhanced feedback in medical education (17)

Location: Osaka, 3rd Floor, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

Presenter:
John Sandars, UK

Background: Feedback is an essential process for the improvement of academic and clinical performance. However, research suggests that feedback on the learner's use of self-regulated learning (SRL) is a key component of effective feedback. This requires a systematic process to identify the learner's use of SRL processes during real life performance, such as by the use of SRL microanalysis and then to provide structured feedback. This workshop is based on the recent 12 Tips on how to provide self-regulated learning (SRL) enhanced feedback on clinical performance (2017 - Heather Leggett, John Sandars, Trudie Roberts).
Who should attend: All medical educators who wish to develop their approach to using SRL enhanced feedback for academic and clinical performance
Structure of workshop: A practical mix of short presentations and interactive group work, including practical development of SRL microanalysis skills and the provision of SRL enhanced feedback.
Intended outcomes: By the end of the workshop, participants will appreciate the importance of SRL when providing feedback on academic and clinical performance, and to develop their skills in the assessment and feedback

of SRL processes through the use of microanalysis.
Level: Intermediate

8Y: Workshop: "Falling Through the Cracks": A Film and Curriculum for Teaching Teamwork Skills (500)

Location: Samarkand, 3rd Floor, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

Presenters
Kristin Fraser, University of Calgary, Canada
Irina Charania, Univeristy of Calgary, Canada
Marlene Donahue, University of Calgary, Canada
Ian Wishart, University of Calgary, Canada
Sandra Goldsworthy, University of Calgary, Canada
Ward Flemons, University of Calgary, Canada
Teri Price, Greg's Wings, Calgary, Canada
David Price, Greg's Wings, Calgary, Canada

Background: As complexity increases in healthcare systems, teamwork is becoming an increasingly important element for the delivery of high quality safe patient care. This is true for both healthcare providers working in well-defined care teams, as well as for more geographically distributed providers who interact as part of ad-hoc teams, specifically formed to meet the needs of each unique patient. By placing the patient at the nucleus of the healthcare team, discussions about teamwork necessarily expand to include more providers and interactions than are normally discussed when considering only well-defined teams, such as those who work in the Operating Room. Based on this premise, our university has been developing a new teamwork curriculum and framework (TeamScheme©). This is used by our Faculties of Medicine and Nursing, as well as local partnering schools for allied health professionals to help their students develop the foundational skills required for successful interprofessional collaboration in the delivery of safe patient care.
To further anchor this teamwork curriculum so it is received as meaningful and solution-oriented, a powerful and emotional film, professionally produced by Greg's Wings (gregswings.ca) is shown, and integrated into small group activities (6 hours total). Six additional teaching scenes supplement the film to further illustrate patient safety impacts of teamwork during small group sessions. Attendees will receive facilitator materials for implementing the curriculum, view the film and teaching scenes, engage in facilitated debriefing around the film and participate in a selection of small group activities. Finally, participants will reflect on the utility of the provided facilitator guides.
Who should attend: Clinicians and educators interested in patient safety, teamwork training, systems improvement and interprofessional collaboration.
Structure of workshop: 45 minutes- video and reflection/debriefing by faculty; 45 minutes – attendees will work through sample curricular; 15 minutes – General session debrief, and evaluation of tutor materials.

Intended outcomes: 1. Describe common challenges to providing safe continuing care across clinics and/or institutions. 2. From this true story: 2a, Identify specific opportunities for patient safety improvements through teamwork. 2b Use the TeamScheme to discuss potential solutions. 3. Use these materials for teaching teamwork skills at home institutions.
Level: Introductory

8Z: Workshop: 'Diagnosing' and 'Treating' learners who struggle with clinical performance and reasoning (286)

Location: Guangzhou, 2nd Floor, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

Presenter
Debra Klamen, Southern Illinois University School of Medicine, Springfield, USA

Background: Learners fail at clinical performance/ reasoning due to a variety of factors and faculty are left with the dilemma of helping them. This dilemma is frustrating because we do not currently have any explicit guidelines for how to do so. Remediation is often haphazard, rotely applied and/or too general. The core problem ('diagnosis') behind the failure is never made clear beyond the fact that the learner did not perform up to passing standards in whatever clinical performance setting in which they find themselves (an exam, on the wards, in a clinic). Our 'treatments' need to be much more specific and targeted, based on a clear 'diagnosis'. This workshop will introduce participants to a 'diagnosis' and 'treatment' cycle for those learners who are deficient in clinical performance/reasoning. Actual learner cases (anonymized) will be presented to illustrate the process of 'diagnosis' and 'treatment', and participants will work through cases (with a tool provided) so that they may become familiarized with the process.
Who should attend: Those who work with medical students or residents in an clinical performance arena (OSCEs, standardized patients, simulations, clinical rotations) and who have had learners who struggle in these areas.
Structure of workshop: Introduction of participants and facilitators - 5 minutes
Goals and Objectives outline - 5 minutes
Presentation of clinical reasoning/clinical performance problems - 10 minutes
Presentation of tools to help diagnose deficient learners - 5 minutes
Practice 'diagnosing' and 'treating' learners with clinical performance/reasoning problems using anonymized cases - 60 minutes
Wrap up and take home messages – 5 minutes
Intended outcomes: By the end of the workshop, participants will be able to:
- Describe 3 potential deficiencies in clinical performance/reasoning

- Use a (provided) tool to diagnose a learner's difficulties, and be able to provide ideas to help with remediation
Level: All levels

8AA: Workshop: Knowledge Translation in Health Professions Education: The Start of a Conversation (2339)

Location: Nairobi, 2nd Floor, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

Presenters
Aliki Thomas, Canada
Tanya Horsley, Canada
Yvonne Steinert, Canada

Background: There is a growing body of health professions education (HPE) research that can be used to support educators, faculty developers, and curriculum coordinators in making decisions about teaching and assessment practices. It is not clear, however, to what extent our community is ready to embrace and adopt an evidence-informed approach to HPE (EIHPE) and what the targets of EIHPE ought to be. Knowledge Translation (KT) is an emerging field of study targeting a spectrum of activities with the potential to inform the creation, dissemination, and utilization of knowledge and research evidence in daily HPE practices. While KT may provide a useful lens through which to investigate the nature and impact of evidence-informed educational practices and policies in the health professions, HPE scholars have questioned 1) what constitutes "evidence" in HPE; 2) the relevance of educational research in the "real world"; 3) the quality and strength of available evidence; and 4) the readiness of evidence for implementation in educational settings. The goal of this workshop is to bring the notion of KT into HPE and explore how this growing field can be used to advance the EIHPE agenda.
Who should attend: All individuals interested in the creation, dissemination and utilization of educational research in the health professions including educators, researchers, students, Deans and other educational decision-makers.
Structure of workshop: The workshop will begin with a short plenary on the definition and purpose of KT and highlight how KT may be a useful lens through which to promote EIHPE. The plenary will serve to stimulate the small group discussions on whether KT is a "new" or existing paradigm in HPE and whether the HPE community is "ready" to embrace and apply KT. Participants will work in small groups to 1) discuss the challenges, opportunities and applications of KT in HPE and 2) brainstorm possible future directions for KT in HPE.
Intended Outcomes: Participants will be able to:
- Define KT and its main components and processes;
- Characterize how KT can be applied to HPE;
- Discuss avenues for advancing KT in HPE.
Level: Introductory to intermediate

8BB: Workshop: The Standards of Best Practice by the Association for Standardized Patient Educators (ASPE SOBP) (2008)

Location: Mexico, 2nd Floor, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

Presenters
Henrike Hölzer, Medizinische Hochschule Brandenburg, Neuruppin, Germany
Cathy Smith, Baycrest Health Sciences, Toronto, Canada
Carine Layat-Burn, Psyché-Psychiatric Centre, Neuchatel, Switzerland

Background: Increasingly, health professional educators work with simulation modalities, including human role players such as standardized/simulated patients or simulated participants (SPs). SPs are well people who are trained to portray other human beings (patients, family members, health professionals) for an array of experiential learning and assessment contexts. The Association of Standardized Patient Educators (ASPE), a global organization whose mission is to share advances in SP-based pedagogy, assessment, research, and scholarship, recently published a Standards of Best Practice (SOBP) for human role players in simulation (Advances in Simulation, June, 2017). The ASPE SOBP represents the input of many experts in SP methodology from institutions around the world. These standards provide foundational guidelines that are precise and yet flexible enough to address the diversity of varying contexts of SP practice, from novice to expert. The ASPE SOBP have five underlying values (safety, professionalism, quality, accountability, and collaboration) and address five domains (safe work environment, case development, training SPs, program management, and professional development). This workshop will orient participants to working with these standards. Particular focus will be put on safe and effective work practices and professional development. Resources for implementing the SOBP will be presented.
Who should attend: Those interested in introducing SP methodology into their program.
Intended for all learner levels
Structure of workshop: Large group discussion, small group breakout sessions, and opportunities for individual reflection.
Intended outcomes: Participants will:
- Identify key features of the ASPE SOBP
- Improve awareness of safe and effective work practices related to human simulation
- Reflect on opportunities to apply the ASPE SOBP to their contexts
- Develop strategies for professional growth and networking

8CC: ePosters: Simulation

Location: Kairo 2, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

8CC1 (3468)
Improving Patient Safety and Teamwork Through Simulation Training in Cardiopulmonary Resuscitation

Authors
Wan-Ting Wu
Hsing-Chien Wu
Ping-Hsun Yu
Kai-Ti Chang
Li-Ping Huang
Jiin-Chyr Hsu

Presenter: Wan-Ting Wu, Taipei Hospital, Ministry of Health and Welfare, New Taipei City, Taiwan

Background: In the ward, Cardiopulmonary Resuscitation(CPR) is a complex, time-critical endeavor requiring the coordinated effort of a multidisciplinary health care team. In addition to technical skills of individual rescuers, human factors such as teamwork and leadership affect adherence to algorithms and hence the outcome of CPR. In situ simulation is a voluntary safety program that collects safety data during simulation scenarios.
Method: Our training program includes Crew Resource Management (CRM) and Advanced Cardiac Life Support (ACLS). The CRM program was modified from CRM training materials of China Airlines and Team STEPPS materials. The training program was designed based on a simulation scenario of Unexpected CPR adverse event. In the scenario, a 72-year-old man suffered from long-term hemodialysis was sent to the hospital because of recent repeated gastrointestinal bleeding. 12 sessions of training were conducted in May to December, 2017. At the end of each training session, a score of the participants' overall performance was be given by the instructors. Moreover, two anonymous surveys, one about satisfaction of the program and the other about patient safety issues (The Safety Attitudes Questionnaire), were administered to the physicians and nurse practitioners participating in the training program.
Results: The results indicate that the overall performance of the participants was improved, with an increse of 15.75 % from the first session (64.44%) to the last one (80.19%). Moreover, most participants demonstrated positive attitude toward the training with the scores of satisfaction increased from 65.73% to 86.30%. Lastly, positive gains were also found in teamwork climate (63.8% to 67.3%), safety climate (64.1% to 65.7%), job satisfaction (62.6% to 62.7%), and stress recognition (63.1% to 64.4%).
Conclusion: Leadership and teamwork training have been shown to improve the subsequent team performance during CPR. In-situ simulation provides a learning opportunity for a controlled clinical practice without putting patients or others at risk. This approach may help improve the effectiveness and impact of the training programs. In the future, we will employ Kern's 6-step model to refine the training curriculum.
Take-home message: To achieve this goal, teamwork concepts should be introduced to healthcare professionals.

8CC2 NOT PRESENTED

8CC3 (2835)
Assessing the needs for Basic Cardiac Life Support training in one hemodialysis center using Simulation

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Presenter: Julien Aron, AURA, Paris, France

Background: Patients undergoing hemodialysis have a 10 to 20 times higher risk of cardiac arrest (CA) than the general population. Improving team skills in the diagnosis and initial resuscitation of CA may be a way to improve survival.
AURA Paris (Association for Artificial Kidney in Paris) take care of 1200 patients needing kidney replacement, using various techniques of dialysis. In the largest hemodialysis center of AURA, 150 health professionals treat weekly 320 patients, with 47000 hemodialysis sessions/year. A team is dedicated to staff training, using learners-centered techniques, including simulation. The objective of this study was to assess the needs of the hemodialysis staff for specific training on Basic Cardiac Life Support.
Method: A scenario of CA in the center was written, describing a 40 years old unresponsive patient during an hemodialysis session. Before the session, a questionnaire was given to participants gathering basic demographic datas, previous experience and training in CA, and level of confidence in managing CA.
After a briefing explaining the objective of the session, we exposed to each group of 2 participants the clinical case and introduced them in a room with a manikin designed for cardiopulmonary resuscitation, able to simulate various cardiac rhythms (ZOLL©, US). A semi automatic external defibrillator and a bag valve mask were available. Participants were assessed during 5 minutes by two evaluators, using a 6 items checklist with a simple grading scale ("done"-"not done"). The checklist was established in advance, based on the European Resuscitation Council recommendations, listing the basic requirements expected from any staff facing a CA.
Results & Conclusions: The study started on February 2018: preliminary results of both standardized assessment and questionnaire suggest the need of basic training in CA. The assessment is still ongoing: the target is to assess 100 staff, including nurses, practical nurses, and stretcher-bearers. The training team will keep on strengthening periodic training on CA, targeting in priority the staff in need, identified during the sessions.

Take-home message: Periodic training on CA is required for staff facing high risk cardiovascular patients in hemodialysis centers.

8CC4 (3473)
Enhancing the meaning of the feedback in learning patient care in simulations – Education for Simulated Patients

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Presenter: Riikka Teuri, Turku University of Applied Sciences, Turku, Finland

Background: Simulation exercises are designed to imitate healthcare situations in which students should be able to act with the patient. Simulated patients (SPs) are used like a real patient to contribute to the authenticity of the simulation. The SP means a person trained to act and give feedback as a patient in the simulation situation. The feedback in simulation is an essential part of learning and can be achieved when the SP knows the meaning of the curriculum and is educated to feedback giving.
Method: In order to increase the authenticity of the simulations Turku University of Applied Sciences has started to educate volunteers who want to act as a SP. The first course was held in 2017 and it included four study days for orientate participants for simulation pedagogy, basis of the nursing curricula and giving feedback to produce acquirements for SP roles. The course was built on basis of SP pedagogy and ASPE Standards of Best Practice. Special attention was given to the experimental feedback focusing on the learning goals of the curriculum. After the course the trained SPs (n=6) were tested in the pilot simulation exercises with nursing students.
Results: In the simulation, the SP gives feedback to the students about how they experienced interaction and how students met the learning goals from the patient´s point of view. SP provides for the student the learning experiences that allows for encounter of humanity and individuality in simulations. The students who participated to the pilot simulation exercises valued SP´s participation in the exercises and they found the learning situations more real and easy getting in.
Conclusion: In simulation exercise, where patient-centeredness is of crucial importance, the SP helps to create more authenticity and bridge the gap from simulated practice to practice with live patients. The authentic feedback based on the learning goals provided by the SP enables the students to reflect on their own actions and thus to deepen their theoretical knowledge.
Take-home message: By giving feedback focused to the learning goals SP take learning in to a new level in the simulations.

8CC5 (302)
Does the team leader role affect medical students' confidence levels, in simulated shock resuscitation?

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Presenter: Veerapong Vattanavanit, Faculty of Medicine, Prince of Songkla University, Hat Yai, Thailand

Background: Simulation-based team training is well recognized as an effective learning method, and as such our faculty has established a course for fifth year medical students over the last 2 years. It can improve our medical students' knowledge and their confidence levels in regards to septic shock resuscitation[1]. However, due to this program being time consuming, we cannot provide every student a chance to fulfill a leader role. Hence, we aim to compare both the knowledge and confidence levels between leaders and followers.
Method: A prospective study was conducted with fifth year medical students, during an internal medicine rotation between the periods of: May to November 2017. The simulation class was a 3-hour session consisting of 4 shock type scenarios, as well as post-training debriefing. Each group had 1 leader, with the rest filling the roles of followers. Knowledge assessment was determined by a ten-question, pre-test and post-test. At the end of the class, the students completed their 5-point Likert scale confidence level evaluation questionnaire.
Results: Of the 90 medical students, 20 students were leaders. The median scores, interquartile range (IQR) of post-test, between leaders and followers, was not different (6, IQR 6.0-7.7 vs 6, IQR 6.0-8.0, p =0.84). In addition, the student median confidence level, IQR after training, was also similar (3, IQR 3.0-4.0 vs 3, IQR 3.0-4.0, p = 0.22). Overall, medical students improved scores (5, IQR 4.0-6.0 vs 6, IQR 6.0-8.0, p < 0.001) along with confidence levels (2, IQR (2.0-3.0) vs 3, IQR (3.0-4.0), p < 0.001) after training.
Discussion & Conclusion: Both, knowledge and confidence levels were not different between either leaders or followers in simulation training in shock resuscitation. In concerns to the timing of the course, every student may not be able to fulfill the leadership role.
Take-home message: The team leader role does not affect medical students' knowledge and confidence levels in our shock resuscitation simulation training.
[1]Vattanavanit V, Kawla-Ied J, Bhurayanontachai R. High-fidelity medical simulation training improves medical students' knowledge and confidence levels in septic shock resuscitation. Open Access Emerg Med. 2017;9:1-7.

8CC6 (2790)

Enhancing emergency performance competency for violence response by using mnemonic phrase and simulation training among emergency workers

Authors

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Presenter: Yi-Chun Chen, Department of Emergency Medicine, Taipei Medical University Hospital, Taipei, Taiwan

Background: Health workers are at high risk of violence all over the world. It is important but difficult to train health workers for these kind of rare but complex and critical circumstances. The aim of this study is to use " seven mnemonic phrases " with simulated violent scenario to enhance emergency response performance to violence of our emergency health workers.
Method: A total of 34 emergency works were included in this study. The participants were 20 nurses, 8 doctors, 3 security guards and 2 social workers who enrolled in Division of Emergency Medicine in Taipei medical university hospital. According to our hospital policies and laws, we organized violent response protocol. Based on Information Processing Theory and Motor skill Theory, the violent management steps were simplified as seven mnemonic phrases called IIUACCM including 1) Identify potential violent behavior, 2) Isolate the personnel of conflict, 3) Understand the causes of conflict, 4) Appease violator, 5) whether to Constrain the violator or not, 6) Call the response team, and 7) Maintain safety. We designed pre and post-scenario with these elements and used a self-efficacy of violent response checklist to measure the performance outcome and collected quantitative feedback from the employees on the simulation class.
Results: The result of violence scenario showed that emergency teams had better violence response after training with seven mnemonic phrases (t=8.625, p<.001). The results showed the improvement of isolate the personnel of conflict (MD=0.760, p=.027), appease violator (MD=1.060, p<.001), whether to constrain the violator or not (MD=1.360, p=.045), call the response team (t=9.222, p<.001), and maintain safety (MD=1.060, p<.001). The improvement of call the response team was higher than other violence management steps according to the result from general linear model (Lambda=.041, F<15.699, p=.009).
Conclusion: Competence of managing medical violence can be trained by simulation. Mnemonic phrases could help clinical personnel remember and perform better in a complex situation. Violent management involved nurses, doctors, security guards and social workers. Simulation training and way to help them to memorize like mnemonic phrases for above people help improving violent management competence.

8CC7 (989)

Changes in the interprofessional attitudes of midwife students after hybrid-simulation

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Background: Team performance, communication, and leadership enhance the quality and effectiveness of interprofessional collaboration between midwifery students and anaesthesia residents in labour emergencies. The realistic setting of hybrid-simulation, where an actress plays a pregnant woman, enables practicing interprofessional competencies in a stressful environment without putting the labouring woman at risk. During video-assisted debriefing, participants discuss and share their experiences and thereby learn about each other's professions and views.
Method: We investigated how full-scale interprofessional hybrid-simulation affects the attitude of midwives towards interprofessionalism. The Inter-Professional Attitude Scale (IPAS) assesses the attitudes of students towards inter-professionalism. We translated this scale from English to German and validated the translated version before its application. The validation of the German IPAS showed high Item-CVI scores for most items, except for the subscale "Inter-professional Bias" which was similar to the original validation showing a low Cronbach's for this subscale. Midwife students filled out the German IPAS before simulation, directly after the simulation day, and 3 months after the simulation.
Results: The total IPAS-score increased significantly toward more positive interprofessional attitudes directly after the hybrid simulation. This increase did not sustain over the 3-month observation period.

	Before(n = 41) p(a)	After(n = 41) p(b)	3-months after(n = 36) p(c)
Teamwork, roles, and responsibilities			
	35(30-37)*	40(36-43)*	34.5(31.5-37)*
	<0.001	<0.001	0.363
Patient-centeredness			
	40(38-40)*	40(39-40)*	40(40-40)*
	0.011	0.675	0.779
Healthcare provision			
	29(27-32)*	30(27-33)*	29(27-31)*
	<0.001	0.009	0.347
IPAS score			
	103(96-108)*	(105-115)*	104(99-1007)*
	<0.001	<0.001	0.820

*median (interquartile range)

Discussion & Conclusion: Inter-professional hybrid-simulation aims to improve knowledge and understanding about each other's roles and responsibilities. The more positive attitude towards inter-professionalism directly after hybrid-simulation enhances trust in one another, which provides the foundation for improved team collaboration in the handling of emergencies. Unfortunately, the improved attitude did not sustain over three months. Future research should focus on how to maintain this positive attitude over time and if improved

interprofessional attitudes lead to better healthcare and safety for the labouring woman and child.

Full-scale hybrid simulation improves interprofessional attitudes directly after hybrid simulation, but the improved attitude did not sustain over 3 months.

8CC8 (1424)
Residents As Teacher by Inter-Operator Observation in High-Fidelity Simulation

Authors

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Background: Resident-As-Teacher training improves resident's clinical skills and attitudes toward medical education. We analyzed performance of fifteen ICU-naive second-year residents undergoing "first aid team work" high-fidelity simulation in last 3 years and found they had insufficient capacity in "Leadership role", "Communication", and especially "Distribute workload". It is essential for a third-year resident (R3) to integrate
Method: We organized a team-based program to recruited four R3 (named A, B, C, D), respiratory therapists and nurses. Four scenarios with critical conditions and arrhythmias were manipulated by a tutor. All residents completed a self-evaluated transcript before procedure. The program focused on stimulation and feedback. First, the R3-A practiced with medical staff and the R3-B evaluated R3-A's performance along with a tutor as inter-operator observation. Whole process was recorded. Second, by video, the R3-B gave feedback and tutor added afterwards. Thereafter, R3-A and R3-B exchanged roles and remaining residents followed. Each resident got four transcripts created by tutor, another R3, self-evaluated, and pre-ICU training. Behavior as a teacher was introduced by accuracy comparing the score R3 made with the score tutor made.
Results: We applied paired t-test to analyze the results in simulation and intraclass correlation coefficient in accuracy. All residents except R3-D practiced better than they expected and got better performance comparing with pre-ICU training ($p<0.05$). However, by inter-operator observation, a great accuracy gap between residents and tutor was still existing.
Discussion: We assume that if the resident is aware of the situations, and thus he/she should be able to score similarly to the teacher. The higher accuracy residents make, the better ability of being a teacher they get. By inter-operator observation, we found most of the gaps in scores were one point and items of difference more than two points would be especially emphasized.
Conclusion: The team-based training program associated with inter-operator observation by residents and tutor not only provides high-fidelity simulation but also assists residents to become teachers.

Take-home message: Inter-operator observation associated with video-based feedback may serve as an innovative methodology to facilitate residents as teachers.

8CC9 (3572)
Towards lower threshold simulation

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Presenter: Teemu Masalin, Faculty of Medicine, University of Helsinki, Finland

Background: Simulation is increasingly important part of medical education. Patient simulator systems can enhance teaching, but they are often complex, expensive and require many resources. The Faculty of Medicine at the University of Helsinki is experimenting and expanding simulation teaching with lower threshold systems. Three completely different patient simulator systems has been tested and evaluated from the start of the 2018. Systems suitability for different simulation teaching, total cost of ownership and required needs for human resources has been evaluated. The project will continue during the spring, with the first phase now conducted consisting observations and discussions among the experts at the skill labs.
Results: Traditional computer-based patient simulator system includes expensive simulator mannequin, simulator software, control and patient monitor computers and AV-system. It is suitable for almost all of the simulation teaching cases, but requires planning and lots of resources, including the need of a controller working with the simulation teacher and nurse. A lighter mobile patient simulator built around two iPads and wireless router has lowered the threshold, with faster setup time and easier controls. It is flexible, with the possibility to use simulated patients and e.g. CPR mannequin depending the case. App-based solution requires only inexpensive app that can be installed on teacher's own mobile device to act as a patient monitor. No pre-programmed scenarios available, but the app-based solution is suitable to many simulations and requires minimal support.
Discussion & Conclusions: Full scale medical simulation can be achieved by using also lighter simulation systems. With lower threshold systems available, simulation teaching is accessible to more teachers. With lower learning curve, no fear of breaking expensive equipment and familiarity from mobile devices, mobile patient and app-based simulators are more suitable also for beginners and peer tutors.
Take-home message: It is important to evaluate different simulation systems to find the optimal options for different situations. More expensive and complex system is not always the best option.

8CC10 (649)
Simulation Based Learning (SBL) for Pediatrics Clerkship Medical Students: A Preparation Program for Clinical Practice

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Background: Simulation is a technique to replace or amplify real experiences with guided experiences that evoke or replicate substantial aspects of the real world in a fully interactive manner. Minimisation of medication related adverse events is essential for patient safety especially in pediatrics which involve high alert situations. The use of simulation based training for preparing pediatrics clerkship students for various high-stress and high-impact medical emergencies and impact of this training on student's preparedness are described.
Method: Participants were students at Acıbadem University Medical School in Turkey who had recently begun their clerkship rotations scheduled in 2017(n:84) and 2018(n:44). A 2 day simulation based training program was organized by the faculty. An e-learning module was send to the students prior to the program and also pretests were completed. The 1st day consisted of basic procedural skills trainings such as, iv cannulation, urinary and nasogastric catheterization, airway management, O2 therapy. The 2nd day consisted of history taking, physical examination and management of emergency situations. At the end of the each session a debriefing was done via video recordings. The program was evaluated by using Keller's Instructional Materials Motivation Survey (IMMS). IMMS consists of four factors (attention, confidence, satisfaction, relevance) and 36 Likert -scale. Likert Scale(1-strongly disagree, 5-strongly agree).
Results: 128 pediatrics clerkship students' perceptions for simulation based training were evaluated. Items related to satisfaction factor were 4.8 ± 0.299 and relevance factor was 4.8 ± 0.147. Items related to confidence factor was 4.2 ± 0.294. Items related to attention factor was 4.6 ± 0.336.
Discussion & Conclusions: Clinical training during clerkships is an essential stage in medical education. The transition to the clinical stage can be both exciting and worrying for students described as 'shock of practice'. Simulation based learning allows trainees to hone their skills in a risk free environment. Integrating simulation based learning into existing curriculum improves self confidence of the learners and give opportunity for practicing in emergency situations.
Take-home message: Simulation based learning allows trainees to hone their skills in a risk free environment.

8CC11 (2789)
SimPharma UAE: Using clinical simulation to support 2nd year medical students' understanding of pharmacology in the United Arab Emirates

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Presenter: Helen Henderson, Mohammed Bin Rashid University of Medicine and Health Sciences, Dubai, United Arab Emirates

Background: Teaching methods have evolved exponentially in the past three decades. Many reforms are being made across the pharmacology curricula whilst trying to identify the best teaching and learning approaches that assist medical students' learning . Simulation is a powerful teaching tool providing a bridge between didactic and observational learning to clinical practice; however, it is seldom used to teach pharmacological principles to medical students.
Method: Forty-nine second year medical students from the Mohammed Bin Rashid University of Medicine and Health Sciences in Dubai, UAE were exposed to three 10-minute simulation scenarios which were designed to encourage active learning around the taught theory that the students had already received in their Principles of Pharmacology and Therapeutics course lectures. Groups of 7-9 students observed and rotated around the three scenarios, which were focused on routes of drug administration and justification for the use of one route over another in different clinical situations. Scenarios included anaphylaxis and its management using intramuscular administration of adrenaline, an acute asthma attack and its management with a nebulized bronchodilator and hypertensive crisis and its management with an intravenous potent vasodilator. Debriefing was used to discuss the management of the scenario and relating it to the learning objectives of the session. Data was collated from the student evaluation forms.
Results: Students provided positive feedback indicating that they wanted more sessions and 100% of the students agreed that clinical simulation sessions supported taught theory. Comments from students included that it: "built up on what we learned in a live environment and we put our objectives into action"; "gives practical insights on the subject", and "experiencing real life scenarios leaves the information solid in our heads".
Conclusion: Students felt engaged in the process and evaluated the sessions positively. Further development of the integration of clinical simulation is planned for the future.
Take-home message: Clinical simulation has the potential to support the teaching and understanding of

pharmacology as it can enhance the learning of theory already taught in class.

8CC12 (1500)
Knowledge retention after team-based learning for cardiopulmonary resuscitation training in 6th year medical students

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Background: A two-day CPR (cardiopulmonary resuscitation) training program was provided for all 6thmedical student in KhonKaen hospital at the beginning of the year. All of them passed the written and simulation examination which done immediately after training. Moreover they still experienced lot of CPR events in real world as leader or member of the team. But most of them got very low scores from OSCE at the end of the year. So team-based learning (TBL) was introduced to improve knowledge retention.
Method: Six months after standard CPR training, all students were attended a one-day training program, started with simulated life support examination (pre-test). Score was recorded as passed or unpassed. TBL with 6 questions (BLS, VF/Pulseless VT, PEA /Asystole, Tachycardia, Bradycardia and team) in sequence was started by divided the student into 4 groups. Closed book case-based discussion were done in each group. Then one student from each group conducted group discussion under supervision of the instructor. After discussion end, all students received same examination as pre-test2 times; immediate (post-test1) and 75 days after the class. (post-test2).
Results: Thirty-four students completed this TBL course. The passing rate was increased from pre-test at 29.4% (10/34) to post-test1 and post-test2 at 88.3% (30/34) and 85.3% (29/34) respectively.
Discussion & Conclusions: Experienced real CPR events might promote retention. Before TBL course, only 14.70% (5/34) of the students experienced as a leader in real CPR more than 10 events. Passing rate at 75 days after the course was nearly the same as immediate passing rate. So knowledge retention was influenced by TBL.
Take-home messages: For effective CPR training, lecture and simulation based should be combined with TBL. TBL can improve knowledge retention. So it can be used with other strategy to make learning experience more effective.

8CC13 (2752)
Effects of Video Debriefing on Advanced Life Support Simulation Course

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Presenter: Youngjoon Kang, Jeju National University Medical School, Jeju, South Korea

Background: Debriefing is important in simulation education. Traditional debriefing is progressed talking with students for explanation, reminders of context, report of performance but it's reproducibility is low. We hypothesize debriefing with watching video will improve performance, communication, etc.
Method: Advanced life support is critical for healthcare provider. We present simulation about advanced life support for medical students of 4th grade. They had completed 8 hours lecture and 4 hours practice about basic life support before. 38 of students took 4 hour lecture about advanced cardiopulmonary life support (ACLS), they were divided 2 groups, traditional debriefing group vs video debriefing group. They had 2 simulations practice with monitored by camcorder. 2 evaluators who had license of ACLS instructor had assessed their performance, 8 components of team dynamics(closed loop communication, clear messages, clear role and responsibilities, know one's limitation, knowledge sharing, constructive intervention, reevaluation and summarizing, mutual respect). The took knowledge test before and after simulation
Results: There was no difference within 2 groups in rise of knowledge test score. Traditional debriefing increased from 13.61(12.44-14.78) to 15.83(14.79-16.87), video debriefing increased from 13.75(12.68-14.82) to 16.1(15.13-17.07) in performance ability during ACLS simulation. 3 components (clear role and responsibilities, know one's limitation, knowledge sharing) were increased in video debriefing group. Only reevaluation and summarizing was increased in traditional debriefing group. But these were not significant statistically.
Discussion & Conclusion: Debriefing made improvement in performance and knowledge. Video debriefing improved in more areas of team dynamics than traditional debriefing.
Take-home message: Both of traditional debriefing and debriefing with watching video improve performance, communication and team dynamics, but there is no difference.

8CC14 (1970)
Lessons in Medical Simulation Centre – Polish student's expectations and experience

Authors
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Presenter: Antonina Doroszewksa, Medical Simulation Center of Warsaw Medical University, Warsaw, Poland

Background: Medical simulation has been recognized didactic tool for clinical courses. In 2017 the Medical University of Warsaw adopted simulation as a method of teaching. This allows to observe students' approach to this kind of classes

Summary of Work: The aim of the study was to describe the expectations and experiences of students participating for the first time in the MSC classes. The study group consisted of students who had never before taken classes at the MCS. After pilot study, a preliminary study was carried out (n = 70). The presentation will present results for the whole research sample (about 300). Two questionnaires were used. The first one was completed by students before the beginning of the class, the second one after completing the course. The respondents were also asked to fill in the Perceived Stress Scale and the Coping Inventory for Stressful Situations.

Summary of Results: The analysis of the preliminary results shows that almost half of the students (44.3%) feel anxiety. This anxiety is primarily due to the fact that the majority of the respondents assess their practical skills at the very low level. At the same time, students positively assess classes in the simulation center. More than half of the respondents declare that they would like to attend more such classes, that they allowed them to acquire practical skills, that they are better prepared to train practical skills.

Discussion & Conclusions: Analysis of the preliminary results shows that the classes involved the subjects emotionally, which is also manifested in the declared subjective stress perception before and after the classes. Before the classes the average stress level for the research sample (on a scale of 1 to 9) was 3.41 (SD 1.75), while after the classes 4.84 (SD 2.21).

Take-home Messages: The MCS classes give the respondents an opportunity to learn their limits, their behaviour in a specific clinical situation, role in a therapeutic team, the ability to apply knowledge during practical activities. They are therefore an important part of the practical preparation of future medics, exercising skills in coping with stress, as well as shaping their personality.

8DD: Posters: Community Oriented Medical Education

Location: Hall 4.1, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

8DD1 (2878)
Student selective components: the way to improve community engagement in a community-based curriculum

Authors
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Presenter:
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Background: Community-based is the important curriculum to produce medical students to be community-oriented doctors with comfortable medical practice in the rural community. The aim of this study is to demonstrate planning for vertical integration of community-based curriculum by student selective components(SSC).
Method: During the academic year 2015-2018, Chonburi medical education center and Chulalongkorn university had planned to integrate community-based curriculum in 14 weeks duration of student selective components from total 26 weeks that divined to four weeks before clinical years, six weeks during the middle of clinical years and four weeks in the final years. Planning on the curriculum were consists of select the community and rural hospitals, planning with a rural clinician for staff development and student support systems, consider for infrastructure and manpower support and design course syllabus and lesson plan.
Results: Community-based student selective components had designed and divided into two components (management and caring). Management topics consist of Healthcare system, Health system analysis, Community health system and management, Information technology and management information system in community health service, Economics in community health care system and patient safety with risk management. Caring topics consist of Occupational medicine, Alternative medicine in the community, Chronic care in the community hospital, Stroke care in the community hospital, Palliative care, Ambulatory care in the community, Mother and child health care in the community, Cross-culture health care and medical linguistic and Emergency medicine in the community hospital. The course syllabus and lesson plan had developed by Clinician staffs of Chonburi hospital with the rural clinicians.
Discussion: Mentoring is required for medical students to select appropriate selective components because of the variety of SSC within the limit of times. The core curriculum and medical professional development program with community-based should be developed and integrate since the preclinical year.
Conclusion: Student selective components are the alternative way for medical students to develop community engagement. Evaluation of the course was needed to support this learning method.
Take-home message: Rural clinician development to be teacher and effective mentoring should be strongly considering for community-based student selective components.

8DD2 (165)
Construction and Practice of Education System of Early Community-based Clinic Contact

Authors
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Presenter:
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Background: To implement the "Healthy China 2030" planning outline and increase the level of hierarchical medical system, according to the "Global Minimum Essential Requirements, GMER", Shanghai University of Medicine & Health Sciences (SUMHS) is committed to initiating medical educational program and building community clinic partnership to train the family doctor. Meanwhile, the early self-learning and practice has been carried out to enhance the competence of family doctor in community care.
Method: The Early Community-Based Clinical Contact (ECBCC) was established and integrated into the medical education curriculum which emphasized the family medicine concept and basic clinical skills. Two courses, "Introduction to the medicine" and "Early community practice", were introduced. The former describes the origin of medicine, doctor-patient communication, prevention and healthcare, family medicine concept, etc. Students are guided to pay close attention to healthcare through Problem-Based Learning (PBL). The later consists of several community practice modules such as general clinic observation, home bed interview and patient care. Several methods including questionnaire survey and online assessment were adopted to evaluate this curriculum. The ECBCC system was set up through the effective course and a School-Hospital-Community three-level mechanism. Four learning methods were combined closely: PBL (P) based on family medicine case, Observation (O) in the real community clinic, Interview (I) that community patient care or patient home visiting and Service(S) oriented in "Health education to patient" projects.
Results: The curriculum was highly accepted with more than 90% of students recognizing this teaching content. The ECBCC system focuses on integrating "medical liability, concept of family medicine, doctor's empathy toward patient, doctor-patient communication, and preliminary skills of community service" into the curriculum so as to foster students' professionalism in the early studying stage.

Conclusion: Through this system, students recognize their future social role and improve their capability of doctor-patient communication, professionalism and health promotion awareness. The classroom is extended to patients through exploring the narrative medical "patients' illness stories".

Take-home message: The ECBCC system based on POIS has been successfully established and utilized in student-centered progressive medical education.

8DD3 (1539)
Introduction of early clinical and community-based experiences to undergraduate medical education in Vietnam to meet evolving epidemiological and population demands

Authors

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Presenter:
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Background: Early and community-based clinical exposure has become an integral component of medical training programs around the world. Most Low-and-Middle Income Countries (LMICs) still apply a traditional model of pre-clinical science taught in the classroom followed by hospital-based clinical rotations, with minimal emphasis on community-based care. Vietnam, a LMIC, has undergone an epidemiological transition towards chronic, non-communicable diseases. To address this, the University of Medicine and Pharmacy at Ho Chi Minh City (UMP) is reforming its 6-year curriculum to include early, community-based clinical experience in the pre-clinical years.

Method: We conducted a series of workshops over a two-year period, focused on course and faculty development for communication, professionalism and clinical skills, with dedicated practicums at community-based sites. UMP faculty participated in immersion trips to Harvard Medical School (HMS), and were "twinned" with HMS faculty for mentorship in curriculum development.

Results: In 2017, UMP introduced a new longitudinal clinical skills course to 400 students at 15 community based sites. The course includes an expanded emphasis on communication, professionalism, and a clinical skills practicum, exposing students to these important skills two years earlier than in the prior curriculum. UMP also implemented a faculty development course for 60 new community physician and nurse preceptors, decreasing its clinical instructor to student ratio from 15:1 to 4:1. This course was well rated by students as it allowed them to immediately practice clinical skills and brought relevancy to their education.

Conclusion: As LMIC strive for Universal Health Coverage and move beyond acute, episodic care delivery, a greater emphasis on community-based care and chronic disease management is needed. Medical training programs must adapt to ensure that graduates can meet population health demands. Our successful implementation of a new community-based clinical skills course in a LMIC serves as a model for the many schools undergoing similar reform efforts.

Take-home messages: 1) As LMIC health systems transition to chronic, longitudinal care models, medical training programs must evolve to meet the need.
2) Recent pedagogical trends of early clinical exposure can be effectively applied to LMICs.

8DD4 (3055)
Prevention of Sexually Transmitted Diseases and Pregnancy in Secondary School by Community-based Approach of Sixth Year Medical Students

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Presenter:
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Background: Thailand's teenage pregnancy rate is the highest in Southeast Asia. Common medical problems among adolescent mothers include poor weight gain, pregnancy-induced hypertension, anemia, sexually transmitted diseases (STDs), and cephalopelvic disproportion. Increasing teenage knowledge of contraception and prevention of sexually transmitted infections which utilizes school sex education is very important.

Method: In community and Family subject of sixth year medical curriculum was assigned medical students to develop activities and/or tool to approach community. In 2017 they educated grade 11 students about contraception and sexually transmitted infections. Their knowledge was assessed using pre- and post 15 multiple choice questions. Results were analysed using paired t test.

Results: 20 grade 11 students in a rural secondary school, 11 were the girls. Mean age was 17.2 years old. There was a significant improvement in student's knowledge on contraception and STDs (Mean scores = 9.7 and 12.75 for pre and post learning, p<0.001). Most of them(90%) increased in post test scores.

Discussion: This learning method showed that the medical students applied three domains of educational activities or learning; Cognitive: mental skills (knowledge) Affective: growth in feelings or emotional areas (attitude or self) Psychomoto: manual or physical skills (skills) to solve a community health problem. They achieved the top categories of Bloom's Taxonomy; Creating level by integrates training from several sources to solve a problem to improve the outcome.

Conclusion: Learning which powerful and embedded in the learner must learn by doing in real life problems with team.

8DD5 (1813)
How well do students identify community health needs through rapid appraisal Community Diagnosis?

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Background: Over two afternoons Year 1 Medical students undertake a Community Diagnosis Project in central Scotland Communities. Students work collaboratively in small group (8/9 students) learning sets, interviewing key community respondents on their community health needs using "rapid appraisal". Data obtained is triangulated with observations made during the visits and published statistics. The project aims to inform students about the social determinants of health. Many communities have a high degree of social deprivation. Students work together to produce a 15-minute presentation to peers. They also produce an individual report. Presentation and report are assessed coursework. Key elements are "Community Health Needs" and "Suggested Heath Strategies".
Method: Consent was obtained to access individual reports. The health needs and suggested strategies from student reports for each community were collated and coded for analysis. Data from twenty-four communities was available. Seven communities fell into the most deprived category determined by an on-going health and social deprivation initiative. Analysis determined the range and frequency of reported needs and strategies.
Results: 49 Student reports were available for analysis. Frequent health needs identified were employment, diet, smoking, drug and alcohol problems. Also, less expectedly found, were mental health issues that prominently as did community aesthetics and a need to advertise available services. Prominent strategies suggested were cooking classes and health education. Common ground was found with the "Deep End Report" into deprived communities. Though these Year 1 students had very little time to make observations, undertake interviews and compile reports they were able to gain an impressive amount of information about social determinants of health and to suggest strategies. In addition, they identified unexpected issues found in much more detailed community analyses.
Conclusion: The Community Diagnosis Project using rapid appraisal is an effective means of gaining understanding of social issues that affect the health of communities through active learning and engagement with these communities albeit for a short time. Students are more likely to appreciate their patients' problems.
Take-home message: Rapid appraisal of social determinants of health can be undertaken can be undertaken quickly by inexperienced junior students with good results

8DD6 (1262)
Community and Medical Student Perspectives on Community Engaged Medical Education: Impact of CEME on Learning

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Presenter:
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Background: Thailand has sought any intervention to improve medical students' competencies suited to work as a primary physician after graduation. Community-engaged medical education (CEME) becomes a considerable method of learning in primary health care, that contribute to community health needs, and increases graduates' interests in living and working for primary health care in community. This study aims to explore the impacts of medical students on engaging with community members during a community/family medicine rotation.
Method: The forth-year students (the first clinical year) in Sawanpracharak Medical Education Centre (MEC) engaged with local health personnel and community members for one month during a community/family medicine rotation. Activities for community exposure were understanding local community history, geo-social mapping, community meeting participation, family hosting. After community exposure, data was collected from participants who involved with students' activities using questionnaires for quantitative analysis, and a free written report for qualitative theme analysis.
Results: 66 participants completed questionnaires. Almost all community members strongly agreed that fieldwork information students presented was consistent with local reality, and also recognized their capability of self-development, solving problems, and overcoming obstacles in their context. Most of them considered information raised enthusiasm of their health concerns. Almost all students themselves perceived that fieldwork fostered inter-personal and inter-professional teamwork through working and collaborating with social and health network. Not only understand influence of personal beliefs, community life and culture on local health care system, students also recognized the range of problems such as individual, familial, and social levels. Data from

students' reports was captured and thematically analyzed. Emerged themes included: role of community leaders and primary health care workforce in improving community health; understanding of different aspects of holistic care in community setting; dilemma after encountering poor and underprivileged concern of financial over health status.

Conclusion: CEME rotation has positive impacts on students: understanding of lives and health concerns from community members they engaged with. Students experienced local community reality through work-integrated learning with their peers, health care providers/resources, and community members i to achieve the course learning objectives.

Take-home message: Community engagement is a crucial step of delivering an effective medical course

8DD7 (3529)
Empowering the roles of preceptors to promote praxis in community engagement medical education program

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Background: Medical students are expected to be competent in practice applicable to complexity of the real world; however, this is sometimes not the case. While medical teachers have limited real understanding with the community and the health systems in practice. Preceptors are therefore the key persons who link theory and practice in community engagement medical education. They are very keen in fieldwork but limited theoretical knowledge. Accordingly, to promote community engagement, their capacities must be strengthened. This project was aimed to examine the process to meaningfully enhance their roles and competencies for medical student's learning through praxis in the community.

Method: This participatory action research was conducted in the Department of Preventive and Social Medicine, Srinakharinwirot University in 2016-2018, consisting 9 rotations of medical students, 5 community hospitals with one main preceptor and 3-4 assistants for each hospital. Initially they were orientated to understand the learning objectives and processes, and later provided with course process and learning outcome. In each rotation, they all attended final project presentations with a number of academic commentators.

Results: The medical students were able to link theory to practice and to understand the real situations with consciousness of the medical professional. The preceptors are increasingly more competent by working with medical students using open-minded mindset, continuous assessment with reflection, dialogue for problem solving and linking with their own experiences. Preceptors also prepare communities and resource persons that

potentially facilitate professional formations. In the final project presentations, preceptors learn from experts' comments for using in the next rotations.

Discussion: Collaborations between medical lectures and preceptors are very important to students' development. Preceptors facilitate praxis through learning with medical students. Their roles are promoted by giving relevant theory and joining academic discussions on the student projects and the attempt to improve together with other hospitals.

Conclusion: Preceptors are the link between theory and practice in professional learning. The keys to strengthen to preceptors' capacities are to facilitate them to learn with medical students and the projects that link theory through practice under healthy competitions and responsiveness to the community needs.

8DD8 (965)
Mobile Clinic: Connecting medical students and the community

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Presenter:
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Background: The Mobile Clinic of the University of Nicosia Medical School is a non-profit, student- and staff-run initiative that coordinates visits to cities and villages of Cyprus offering free diagnostic tests and raising awareness of a range of health issues. The clinic is run on average twice a month, its main mission being to provide complementary health checks and preventive education to the Cypriot community. The mobile clinic started operation in 2013 and so far has given medical students hands-on experience in the surrounding communities and the opportunity to interact with healthcare professionals and peers.

Method: The Mobile Clinic has provided a variety of health services to Cyprus. It has provided targeted medical examinations and general health evaluations, including ECG, BMI, spirometry, blood pressure, blood glucose, eye and skin examinations, and more specialized examinations, including cervical cancer screening. Presentations delivered by students on topics such as smoking, sexual health, and healthy eating have been given in schools and institutions to raise awareness. It has also aided in surveys and questionnaires for gathering demographic data.

Results: Over 5 years, the mobile clinic has provided free medical services to over 3,300 patients during 52 expeditions. Locals in the community have been referred to appropriate doctors for any concerning findings during the expeditions, and educated on elements of their health they had questions about. Students have gained valuable information regarding health behaviours and preventative measures. Around 400 medical students and 50 doctors

and staff have been involved in expeditions since the beginning of the initiative.

Conclusion: Communities in Cyprus have been extremely receptive to the services provided. Primary prevention given to the community through health checks and education is invaluable, particularly since these members of the Cypriot community do not have easy access to health resources nor do they normally participate in regular check-ups. The Mobile Clinic has played a significant role in developing key skills students will need as future medical professionals.

Take-home message: The Mobile Clinic has built a strong connection between the medical school and the community, which is of mutual benefit to both.

8DD9 (949)
Study of learning and teaching styles in Community and Family Medicine: A course in Medical Education Center at MNST Hospital, Thailand

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Background: The course in Community and Family Medicine at the Medical Education Center at MNST Hospital aimed to inform students on community lifestyles and community health problems. In the 1st week, students learnt concepts and theories of Community Medicine. In the 2nd and 3rd weeks students went to villages and stayed with host families in order to investigate local health problems using the 7-tool kit theory. After assessment, they planned solutions and in the 4th week, students presented their results.This curriculum was established in 1999, thus it is necessary to improve it for the present day.

Method: Questionnaires and groups discussion were used to collect information from 31 MEC medical students regarding the curriculum, their medical adviser, host families and villages. An thorough interview with 6 host families had also been done.

Results: The results of the questionnaires showed that the curriculum of Community and Family Medicine was very satisfactory ($\bar{x}$ =4.46 SD=0.41), the stays with host families were very satisfactory ($\bar{x}$=4.64 SD=0.39), their medical adviser in selected villages was very satisfactory ($\bar{x}$ =4.57 SD=0.46), and their lecturer in the concept and theory of Community Medicine was very satisfactory ($\bar{x}$=4.44 SD=0.43).

Discussion: According to a discussion with medical students, the timing of the course was appropriate. Students developed relationships with their families and people in the villages, and deepened their understanding of local lifestyles that may affect health problems. Regarding the curriculum, students suggested that the tools for the community study should be done before

going to the villages in order to save time. Moreover, the mark for Community and Family Medicine, particularly in field practice, should be increased from 50% to 60%. With regard to the in-depth interviews of the 6 host families, Students made relationships like a child would to their mother.

Conclusion: Students were satisfied with the curriculum and each felt that they had gained in relationships with their host families and villagers. Furthermore, improvement in community health seems more attainable. The learning and teaching styles in this study are effective for improving the Community and Family Medicine curriculum.

8DD10 (2928)
A study of the correlation between INHOMESSS acknowledgement and application of holistic home healthcare in Family Medicine

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Background: In the processes of holistic approach in patient care after hospital discharge, home visits play an important role in continuity of care. INHOMESSS Checklist 3, an AAFP home healthcare evaluation tool, is used by multidisciplinary team to assess patient's conditions in each visit. This study determines whether INHOMESSS Checklist acknowledgement correlates with better holistic view of home healthcare.

Method: Samples of this study include 17 4th year medical students taking family medicine course in Prapokklao hospital, Thailand. Self-assessment questionnaires were given after the 3rd home visit using INHOMESSS Checklist to determine whether understanding the evaluation tool correlates with better application in patient care in each visit. The questionnaire is based on score 1-5 rating from least to most applicable of the tool respectively and analyzed with SPSS Statistics, Version 19

Results: There are statistically significant at p-value less than .01 in two issues evaluation : N – Nutritions and M – Medication evaluation in correlation between INHOMESSS acknowledgement and application of holistic home healthcare. There are more sum scoring in application than acknowledgement.

There are more learning benefits for the medical students when they are on duty with multidisciplinary team . The coaching from the staff had given them more practical points to make them more applicable about holistic home health care approach.

Conclusion: The correlation between INHOMESSS Checklist acknowledgement and application of the tool in holistic home healthcare was statistically significant at p-value less than .01, while there was no correlation between the samples' cumulative GPA and application of the tool.

Take-home message: Home visit with multidisciplinary team using INHOMESSS helps better holistic home healthcare.

Key theme: Family Medicine ; INHOMESSS Checklist
33RUNWIN BK, JERANT AF. The Home Visit. The American Academy of Family Physicians; 1999 [4 December 2010]; Available from: http://www.aafp.org/afp/991001ap/1481.html

8DD11 (3080)
Using Clerkship Education Days to Standardize Learning in a Community-Based Longitudinal Integrated Clerkship/Block Hybrid

Authors

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Background: Geisinger Commonwealth School of Medicine (GCSoM), community based in semi-rural Pennsylvania, utilizes a distributed hybrid Longitudinal Integrated Clerkship (LIC)/Block model in the MD3 year.
Method: With four regional campuses and multiple sites for LIC and Block rotations, we incorporated a weekly half-day "Clerkship Education Day" (CED) to ensure exposure to core clerkship content for students across all regions and sites. Historically, some students get excellent preceptor evaluations (subjective) but have significantly lower scores on objective clerkship and national exams. GCSoM's core clerkships, Family Medicine, General Surgery, Internal Medicine (IM), Obstetrics/ Gynecology, Pediatrics and Psychiatry, rotated weekly allowing for 7-8 CEDs per clerkship with supplemental content including Radiology, Reflection and quality improvement (QI) projects. Performance on Clerkship-specific content comprised 20% of clerkship grades. IM, Family Medicine and Obstetrics/Gynecology used Team-Based Learning (TBL) exercises on preassigned readings. Surgery, Pediatrics and Psychiatry used one student presentation for the CED grade leading to limited assessment and perceived subjectivity in grading. We therefore implemented TBLs in all disciplines. This increased student workload by doubling each student's readings assignments but marginally decreasing presentations. Workload was addressed by reducing CED sessions to 5/clerkship and TBLs from 44 to 30. Supplemental CED content is scheduled during "off" weeks, shortening CED sessions and increasing engagement in activities such as QI projects.
Results: We hope that standardized assessments, decreased student workload and increased engagement will improve student outcomes in standardized testing (national subject exams) across clerkships and the national licensing exam compared with results of previous years.
Discussion & Conclusion: Cross clerkship collaborative modification of CED meets learning objectives while improving assessment and allowing dedicated time for supplemental content. Opportunity to cover core clerkship content with preparatory readings, small and large group discussions improved. Individual and group readiness assessment testing provides objective measures of content knowledge and helps offset the subjective assessments of clinical preceptors.
Take-home message: In Longitudinal Integrated Clerkships, standardized CEDs across disciplines can offset subjective preceptor evaluations in a community based setting while covering core clerkship content.

8DD12 (2032)
From single home visit to continuous family and community study: the better learning process for rural attachment

Authors

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Presenter:
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Background: Most of the medical students come from middle class families and live in urban area, they have little understanding about rural contexts and rural experiences. Medical students have rural attachment only in family and community subject which is only snapshot learning process.
Method: Medical students in rural program started continuous family and community study (CFCS) since year 1-3 at 7 community hospitals. We develop this new learning process for 2 years. Each student was assigned one family continuously. Students have 2-3 times visiting their assigned family for 1-3 days per visit in each year. They should join the routine family activities and visit that community learning by both dialogue and observation.
Results/Discussion: Letting them learn from ultra-poor family can inspire them and getting them more understanding about rural context. After each visit, hospital staffs and medical students will have reflection session. We found that poor family who has many health problems and social determinants of health issues can stimulate students' curiosity and inspiration of rural attachment better than normal family and single home visit when compare to previous snapshot home visit. When they learn from their assigned family, they learn about community too. CFCS also can be integrated with other learning experience such as community medicine project.
Conclusion: CFCS learning process which learning continuously and directly from rural patient and family can be one of the learning process for better rural attachment and understanding rural context.
Continuous family and community study can be one of the learning process to change middle-class urban medical students mindset to be rural doctors by direct continuous learning experience to transcend the identity of their life.

8DD13 (1657)
Attitudes of last-year medical students recruited from special recruitment tracks toward working in rural hospitals

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Background: Shortage and maldistribution of doctors, especially in rural areas, have been important problems for healthcare system in Thailand for decades. The Ministry of Public Health has launched various policies in order to distribute more doctors to rural areas. Significant strategies are special medical-student recruitment through the programs called 'Collaborative Project to Increase Production of Rural Doctors (CPIRD)' and 'One District One Doctor (ODOD)'. However, little is known regarding the attitudes of last-year medical students recruited through these special tracks toward working in rural areas.
Method: A cross-sectional survey was conducted in June 2017, using self-addministered questionnaires among last-year medical students recruited through special tracks studying in Buriram Hospital Medical Education Center, Thailand. Descriptive statistics were used for data analysis.
Results: There were 28 last-year medical students enrolled in the survey, 12 (42.8%) from ODOD and 16 (57.2%) from CPIRD. Rural backgrounds, early exposure to rural work of medical trainees increased positive attitudes for working in rural areas. Attitudes toward intention to fulfill undertake mandatory service in rural areas (3 years for CPIRD, 12 years for ODOD) were 12 (75%) in CPIRD and 5 (42%) in ODOD. Influencing factors for long term working in rural areas were 'close to the family' 18 (64.2%), 'rural colleagues are nice and friendly' 12 (42.8%) and 'appropriate living conditions' 11 (39.2%).
Conclusion: Majority of students have positive attitudes in special track recruitment for increasing doctors in rural workplace, especially because of the fact that they can be 'close to the family'. However, more than half of ODOD medical students have no intention to fulfill 12 years obligation.
Take-home message: Special medical-students recruitment tracks may increase short-time distribution of doctors in rural areas. However, long-term retention has remained unsuccessful.

8DD14 (1675)
Vertical training - leveraging the "gain, train and retain theory"

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Presenter:
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Background: Rural Clinical Schools have been established in Australia for 20 years and have proven an important part of the rural pipeline in securing a health workforce for rural and remote Australia. The last 10 years of this programme has seen large numbers of medical students graduating with 12 months exposure to medicine in a non-metropolitan environment. However, discrepancies still exist in the distribution of this graduated workforce, with regional and remote Australia remaining under-supplied . Recent initiatives and associated funding have given the Rural Clinical Skills new roles to establish Regional training hubs in order to build postgraduate training (PG) pathways in non-metropolitan areas. There are 26 such Hubs funded around Australia.
Objective: The objective of the Hubs are to improve the coordination of the stages of medical training. Students will be able to complete as much of their Undergraduate and Postgraduate medical training as possible within regional areas.
Hubs are based in Rural Clinical Schools in collaboration with Area health services with allocated Commonwealth funding. These hubs provide opportunities for networking, up- skilling and collaboration, requiring a vertical model of medical education not previously seen in rural centers in Australia. The poster will review three case studies of opportunities to elongate and affirm rural training.
Regional hubs provide the opportunity to strengthen the teaching and supervision of our medical workforce. Teachers engaged in vocational training will be supported throughout this process to ensure the delivery of high quality medical education. Integrated training where 60% is based in a regional centre should be achievable in a number of specialties.
Conclusion: Establishing a critical mass of junior medical officers, integrated regional training posts, and high quality CPD are all achievable locally with three case studies providing guidance on successful models. While not all outcomes will be realised for years, the positive response from Regional providers has been encouraging. Collaboration between local health districts, Universities and the Commonwealth Government suggests this is a key initiative in providing a health workforce for the future.

8DD15 (1318)

How can internship doctors apply patient-centered medicine in the community hospitals?

Authors

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Presenter:
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Background: Patient-centered medicine emphasizes the health professional's role in caring for patients by focusing on the patients' bio-psychological and social realities. Patient-centered medicine curriculum started from 4th to 6th year of medical studies to improve qualities of patients' care. Advance in medical technology with patients' high expectations can cause communication problems, therefore the researchers want to investigate how the internship doctors apply patient-centered medicine in Thai community hospitals.

Method: A qualitative study with deep interview and observation five internship doctors at outpatient clinics in two community hospitals in Suratthani Thailand, they were interviewed during december,13 – december,27 2016.

Results: Most of the internship doctors had knowledge and good attitude of patient-centered medicine. However they applied by using doctor-centered relationship mainly. Every patients had been focus about their disease, the doctor would explore illness in poor compliance or anxious patients. All of the doctors didn't ask the questions to understand the whole person in holistic such as how they lived, how their family or social cared the patient. However many doctors made an agreement on treatment, talked empowerment for prevention and health education with patients especially in NCD clinic, but mostly they applied doctor-centered care in outpatient clinic.

The doctors didn't apply patient-centered care all every dimension. It's big barrier to make a good relationship and doctor-patient center care because there were too much patients and lack of time, the doctor spent short time caring about 3-5 minute for each. They didn't realized the important of psychological ,family and social realities would effect the disease and illness. The patient's poor self care education and health literacy also make it difficult to share their opinions, they preferred doctor's decision that caused doctor-centered care.

Conclusion: To enhance the internship doctors apply patient-centered medicine in Thai community hospitals. Undergraduated teaching and learning and Postgraduated Practice-Based Learning program in patient-center

medicine may be an important part to make a quality of holistic care.

8EE: Posters: International

Location: Hall 4.1, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

8EE1 NOT PRESENTED

8EE2 NOT PRESENTED

8EE3 (1550)
Medical Development in Europe – ten years' experience of multinational teacher-initiated course

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Presenter:
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Background: Internationalization is a valuable part of medical education. There are several multi- or bilateral programs for this but many students remain doubtful and do not do exchange studies or just cannot be abroad for several months or at very distant locations. To offer the possibility of international experience in a compact format and to highlight the vast possibilities in Europe regarding work, research or studies we initiated this course.
Method: In 2007 we visited a number of medical universities in Europe to suggest an elective course spanning three different regions and universities, each site offering one week of studies. Two universities in eastern/central Europe (the Medical University in Kaunas, Lithuania and the Jagellonian University in Krakow, Poland) and two universities in southern Europe (the University of Florence and the University of Cagliari, both Italy) were selected. One course plan was formulated and accepted at each site with common learning objectives focusing on Internal Medicine and Public Health. The supercase method (e.g. Gyllenhammar et al, AMEE 2006) was the pedagogic method... The course had a first week at the Karolinska Institute in Stockholm and then 1 week each in two of the other universities. It has been given twice a year since May 2008.
Results: The first course had only 8 participants but was enthusiastically received. The applications increased rapidly to a maximum of 52. We found that the teachers at each site were very positive and students performed well in exams. Student evaluations were generally very positive highlighting the experience of working in multinational groups.
This model is easily reproducible and we found cooperation, logistics and administration manageable and learning outcomes very good.
Conclusion: The concentrated exposure of the students to cooperation with international students working intensely for 3 weeks in English and experiencing different European medical and social cultures and interpretations of the common course plan proved very rewarding for students and teachers alike.
Take-home message: You can achieve very good internationalization outcomes also from short intensive multinational courses.

8EE4 (1376)
Academic achievement and stakeholder satisfaction on expected learning outcomes of the graduates from the Srinakharinwirot University–University of Nottingham Joint Medical Programme

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Presenter:
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Background: The Srinakharinwirot University – University of Nottingham Joint Medical Programme is the first and only international joint medical programme in Thailand. The objective of this study is to assess the academic achievement and stakeholder satisfaction on expected learning outcomes of the graduates from this programme.
Method: All of the graduates from the Srinakharinwirot University – University of Nottingham joint medical programme in year 2015 and 2016 were included in this study. The grade point average (GPA) of the graduates was retrospectively collected from the medical education data center. Employer feedback on the graduates' performance has been assessed using the questionnaire. The expected learning outcomes of the graduates including moral, knowledge, wisdom, interpersonal relationship, mathematic, communication skill, managerial skill, and professionalism.
Results: The mean GPA of the graduates was increased from 3.0 in year 2015 to 3.23 in year 2016. Employer satisfaction on the expected learning outcomes increased in all subscales from year 2015 to year 2016. The highest score was the moral subscale (4.71 in 2015 and 4.74 in 2016) followed by communication skill (4.60 in 2015 and 4.71 in 2016) and professionalism (4.55 in 2015 and 4.69 in 2016). The lowest scores were in the managerial skill (4.32 in 2015 and 4.50 in 2016) and wisdom subscale (4.40 in 2015 and 4.56 in 2016). We did not found significant correlation between the GPA and the employer satisfaction on the expected learning outcomes of the graduates.
Conclusion: The academic achievement and employer satisfaction of the graduate from the Srinakharinwirot University – University of Nottingham joint medical programme were in the high standard level.
Take-home message: The academic achievement and employer satisfaction of the graduates from the Srinakharinwirot University – University of Nottingham joint medical programme were in the high standard level.

8EE5 (291)
An Innovative Programme to Support Refugee International Medical Graduates

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Presenter:
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Background: Refugee and Asylum Seeker Centre for Healthcare Professionals Education (REACHE) North West has been supporting refugee health professionals entry into NHS work since 2003. Just under half of doctors supported by REACHE who are registered with the General Medical Council (n=196) are in specialist or GP training posts. A REACHE North West programme, Clinical Practical Training (CPT), provides 3 months adaptation to UK practice and although following this all doctors entered paid NHS employment, this was mainly in short term non-training posts in which they were unable to get their F2 competencies signed off. Without this they are unable to enter GP or specialist training in the NHS. Refugee doctors are at additional disadvantage competing with UK or International Medical Graduates for NHS training posts because:
Lack of exposure to NHS General Practice either at undergraduate or foundation level disadvantages them in the application process for GP specialist training
They may have long career gaps on their CV due to their experiences as a refugee or asylum seeker.
With the support of the Salford Royal NHS Foundation Trust (SRFT) stroke team, REACHE doctors were able to enter 1 year junior clinical fellow posts after their CPT with support to achieve F2 competencies sign off.
9 doctors achieved F2 competencies - 2 of them have started GP training and 1 has applied this year. 2 are currently applying for specialist training and 2 have unsuccessfully applied.
Barriers to specialist training still remain.This programme has been developed further- a rotational junior clinical fellow programme has been established to provide doctors with wider experience as well as to fill junior post gaps across a number of specialties within the Trust. These posts are currently filled by locums which has an impact on financial status, quality of patient care and morale of existing staff. 4 months of GP training is being incorporated into these posts.
Refugee doctors in the UK require additional training and support to increase their contribution to the NHS in specialist or GP roles.

8EE6 (3694)
Internationally Educated Healthcare Professionals: Supporting transitions to new healthcare environments

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Background: 'Internationally educated healthcare professionals' (IEHP) describes multi professional healthcare workers who cross international borders in order to work within different healthcare environments. UK healthcare relies heavily on IEHPs, but in the wake of the BREXIT referendum, institutional reports highlight falling numbers of employment applications from abroad.
Method: We report a descriptive review of empirical research literature about IEHP transitions. Analysis of these publications identified a wide range of approaches to examining this topic with most reports focusing on professional experiences. Other papers reported IEHP learning resources, patient mortality, organisational experiences, licensure requirements, examination performance and success at appointments to training positions. From these we propose a model with 3 areas of focus that could inform future IEHP curriculum development programs.
Results: Our review identified 28 key papers. These varied greatly in their contribution to the discourse of IEHP transition so a 3-level traffic light classification was developed though which papers were assessed for quality: Papers were classified into 'green' high value studies, 'amber' intermediary value studies or 'red' low value studies. This was a subjective judgment based on the content of these papers (context, methodological approach and what they add). The discussions from these papers varied greatly but most explored the importance of setting-specific approaches to assisting IEHP transition. Conclusions directed towards the development of site-specific curricula for IEHP transition with focus on 3 important areas: organisational support, supported training and individual attributes.
Identified literature was used as a basis to form a traffic light system for informing three areas when considering future IEHP curricula to support transitions across international healthcare systems.
Conclusion: Empirical research examining transition of IEHP into destination healthcare environments is heterogeneous and high quality studies examining this area are lacking despite the high levels of scrutiny recently. Published literature relating to IEHP varies greatly. Results from this approach signpost to site-specific curricula supporting transition.

8EE7 NOT PRESENTED

8EE8 (111)
Medical Education in a Global Context

Authors
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Presenter:
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Background: The Accreditation Organisation of Netherlands and Flanders (NVAO) is the first EQAR (European Quality Assurance Register for Higher Education) registered quality assurance agency that participates in the Recognition Programme of the World Federation for Medical Education (WFME). NVAO applied for recognition upon request of the medical schools in Netherlands and Flanders.
As of 2023, physicians applying for ECFMG (the Educational Commission for Foreign Medical Graduates) certification will be required to graduate from a medical school that has been recognised as working according to the WFME standards. These standards have been endorsed by the World Health Organisation (WHO). The WFME Recognition Programme offers accreditation agencies such as NVAO the opportunity to undergo an evaluating and recognizing process. Graduates of medical programmes accredited by NVAO will meet the ECFMG criteria once NVAO is recognised by WFME.
ECFMG certification allows international medical graduates to enter US medical education. It is also a requirement to take Step 3 of the US Medical Licensing Examination (USMLE) and to obtain a license to practice medicine in the US.
The WFME Recognition Programme relates to basic medical education i.e. the bachelor and master programmes in medicine. 'Medical schools' in the WFME and ECFMG documents can be interpreted as 'medical programmes' depending on the context. For NVAO that would be the case as not the schools but the programmes are being accredited.
NVAO applied in August 2017 and is expecting the WFME recognition decision by mid 2018, in time for the AMEE conference.

8EE9 (3246)
Palestinian Anesthesia Teaching Mission (PATM): an ongoing academic partnership in area of conflict with deprived resources

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Presenter:
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Background: Anesthesia Teaching Mission has been running since 2014 as a partnership between the UK based charity IMET2000, the World Federation of Societies of Anesthesiologists (WFSA), the Palestinian Ministry of Health (MoH) and the Palestinian Society of Anesthesia (PSA). The goal of the mission is to provide educational support for anaesthesia trainees in Palestine. This article describes a strategy in capacity-building in a developing country by establishing unique partnerships between academic partners in the developed world.
Method: Volunteer teachers are recruited from anaesthesia training centres in the developed world by WFSA. IMET2000 organises the teaching activities locally and provides logistic support. PSA and MoH ensure trainees' time protection and availability for training. Volunteers typically spend one month teaching trainees both in the operating room (hands on) and in the classroom (didactic). Feedback on trainees' satisfaction was collected using a structured 10-item questionnaire.
Results: To date about 20 anaesthesiologists from 6 different countries have volunteered in East Jerusalem and the West Bank. Collecting feedback on the activities, 42 Participants have completed the questionnaire 36% are specialist ,64% are residents. 38 % and 52 % of the participants rated the covered materials and Excellent and good, respectively. Similarly, 31% of the participants rated the trainings as excellent at meeting their needs and 55% said it was good. Virtually all the participants indicated that PATM is very much needed and have reported high level of satisfaction with it.
Conclusion: The medical education and training needs in Palestine are far beyond what the Palestinian Authority can cope with. PATM is relatively cheap academically based model that helped enhance training opportunities, expanded trainees practical experience and skills and strengthen stakeholder collaboration. Further research is needed to determine the long-term impact on anaesthesia training and disease burden.
Funding:IMET2000-PAL
Contributors: IMET2000, WFSA, MoH and PAS.

8EE10 (3411)

Using a High-Fidelity Simulation Transition Course to Prepare International Doctors with Technical and Non-Technical Skills when dealing with Common Medical, Ethical and Legal Challenges in the National Health Service

Authors

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Background: Retrospective studies show that doctors trained outside of the UK(UK) are more likely to require General Medical Council (GMC) performance assessments than UK-trained doctors. The reasons for this discrepancy are unclear, but it reinforces the need to address staff induction and training. A high-fidelity simulation programme was accordingly created to prepare this cohort with technical and non-technical skills when dealing with common clinical and ethico-legal dilemmas.
Method: From an extensive survey of overseas doctors, five work-based challenges were identified which were not covered in local induction. These were generated into high-fidelity simulation scenarios and incorporated ethico-legal issues within a medical emergency. For example, candidates had to review escalation plans in a critically unwell patient without mental capacity.
We piloted this one-day course to ten international doctors. Evaluation was collated using a questionnaire with a mixture of open and closed questions graded on a 6-point Likert scale.
Results: The feedback received was positive with 100% of candidates stating the scenarios were clinically relevant and realistic. A common theme amongst all candidates was the appreciation of non-technical skills particularly situational awareness and task management. All candidates felt more competent in dealing with ethico-legal issues faced in emergencies. 100% candidates agreed that the course was a necessary adjunct to trust induction, and felt "more confident commencing a job in the National Healthcare Service (NHS)".
Discussion: The course highlights a gap in the training associated with the transition of overseas doctors to the NHS. A significant proportion felt under-prepared on commencing a job in the UK and emphasised cross-cultural disparities when dealing with certain medical and ethical scenarios. Post course, all candidates felt more prepared commencing their job, and agreed that simulation should supplement generic induction.
Conclusion: High-fidelity simulation empowers overseas doctors in managing difficult ethico-legal scenarios in a safe learning environment. Many candidates had no prior simulation-based training, but it proved a vital adjunct in their induction.

Take-home message: The use of high-fidelity simulation to recreate clinical scenarios complicated by ethico-legal issues can empower and aide the transition of overseas doctors working in the NHS.

8EE11 (1796)
Unique collaboration to involve trainees in educational policy making: EFPT and UEMS Section of Psychiatry

Authors

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Presenter:
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Background: The European Federation of Psychiatric Trainees (EFPT) is an independent federation of national trainee associations formed in 1992 and now has 38 members from 36 different countries. The Union Europeenne des Medicins Specialistes (UEMS) is a non-governmental organisation representing national associations of medical specialists in the European Union and associated countries. It aims to harmonise training in different medical specialities. The UEMS Section of Psychiatry began in 1990 and includes representation from EFPT. Both organisations' primary concern is to promote the highest quality of postgraduate training in psychiatry in Europe.
The UEMS Section of Psychiatry meets twice each year, including two invited EFPT representatives, to ensure that the concerns and aspirations of trainees are incorporated in to the Section's work. Similarly, the UEMS Section of Psychiatry is invited to send representatives to attend the EFPT's annual Forum, to present the work of the Section to the trainee delegates. The two organisations work together on a range of collaborative symposia, articles and guidance documents.
EFPT and UEMS collaborate closely on multiple projects in a way that allows them to draw on each other's expertise and networks. One example is the 'Profile of a Psychiatrist' guidance document, which was co-produced by members of the UEMS Section of Psychiatry and EFPT, before being circulated to a wider group of stakeholders in Europe for further comment. EFPT and the UEMS Section of Psychiatry were also able to produce a practical tool for trainees to compare their own training with the UEMS' guidelines. The resultant 'Test Your Own Training' platform was advertised on both organisations' websites and can be accessed here: http://efpt.eu/tyot/.
The interaction between EFPT and UEMS Section of Psychiatry is an innovative example of how international organisations can work together successfully to improve education for psychiatrists across Europe.
The bidirectional collaboration between the UEMS Section of Psychiatry and EFPT represents a novel way that international organisations can bring about mutually beneficial change.

8EE12 (2930)
Exploring risks of international handover and training needs of healthcare professionals in a European border region

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Background: In the Euregion Meuse-Rhine (EMR) three countries meet: Germany, Belgium and Netherlands. Patients crossing borders for healthcare occurs regularly, and is expected to expand due to increased mobility of citizens and centralized expertise of healthcare professionals. This results in increased international patient handover. International patient handover is assumed to be increasingly complex compared to national handover. However, it remains unclear what major patient-safety risks of cross-border transfers and specific training needs of healthcare professionals in border areas are. The aim of this study is to investigate perceived risks and training needs of healthcare professionals regarding cross-border patient handover.
Method: We performed an exploratory survey study. A total of 846 healthcare professionals working in one of four large hospitals or for one of the regional emergency services in the EMR completed a survey about international patient handover in this border-region. Qualitative responses concerning patient-safety risks and training needs in the context of international patient handover were thematically analyzed to identify semantic themes.
Results: Of the 846 healthcare professionals who responded to the survey, 30% reported to be involved in at least one cross-border handover in the last month. Risks mentioned by healthcare professionals regarded awareness, communication, competency, facility, and information. General solutions for these risks regarded communication, facilities, shared standards, and training. When asking what training is needed to optimize international handover, language courses, training standardized processes and joint training were suggested. In the EMR, awareness, communication, competency, facility, and information are perceived as risks for patient safety during international handover. In order to overcome these risks, training aimed at standardized processes and language in joint settings is desired. This will facilitate a shared understanding of the process of cross-border handovers. It is important to further investigate training needs in settings in which frequent and/or systematic cross-border handover occurs, and eventually develop training that addresses healthcare professionals' needs.
Conclusion: If relevant, healthcare professionals should be trained for international patient handover. Training should address standardized processes and language, and should be provided in a joint setting.

8EE13 (3063)
IMPECD - Improvement of Education and Competences in Dietetics

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Presenter:
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Background: Globally connected teams and an increasingly global labor market with professionals and patients on the move highlight the importance of international collaboration. The IMPECD-project funded by Erasmus+ aims to improve online international collaboration competences by offering an online course with clinical patient cases for collaboration.
Method: A pilot test with students of four European countries answered the questions how learners experience the online learning environment, and where they see potential for learning online international collaboration competences. Five clinical cases, based on real patient cases, were collaboratively solved in small groups of five undergraduate nutrition and dietetic students (N = 25). An international setting was ensured by group allocation: each group consisted of at least one student from Austria, Belgium, Germany and Netherlands. The five groups were observed and guided by researchers while the students actively solved the clinical cases. Usability and User Experience were evaluated by an online questionnaire.
Results: Students experienced the online course as exciting, motivating and innovative, 60% would like to be frequently involved in similar online courses. More than half of the participants (56%) believe that the online course will improve their international collaboration between colleagues. Collaborative tasks for dietetic diagnosis, therapy planning and monitoring, and outcome evaluation seem most beneficial for solving the clinical cases, since these tasks are very challenging for students. English as medium of instruction is challenging for 64% of the students, which could hamper the acquisition of online international collaboration competences.
The course was well received, as it identified and addressed a need for innovative ways of training online international collaboration competences. The results will be used to re-design and improve the online course, focusing on methods to acquire online international collaboration competences. The re-designed course will be tested in a second research cycle in June 2018.

Conclusion: Providing a new learning environment for international online collaboration competences was highly appreciated by students. The online course provides an excellent 'best practice' that the participating Universities can use when designing and providing innovative online learning environments for their students.

8EE14 (3727)
Developing a Strategy to improve the integration of International Medical Graduates into the Great Ormond Street Hospital for Children

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Presenter:
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Background: IMG describes all foreign doctors that have qualified in a country outside the UK. IMG choose employment at Great Ormond Street Hospital for Children (GOSH) for many reasons. They have varying levels of experience and qualifications as well as individualized social and family responsibilities.
Method: IMG were identified by Human Resources and an electronic survey was distributed to this group. Seventy-two out of one-hundred-sixty-one (44.7%) doctors responded to the survey. This survey consisted of nineteen questions in the form of Likert scale answers and free text comments.
Results: Forty-six respondents were between the ages of 30 and 39 whilst fourteen were between the ages of 40 to 49. IMG's had an average of 12.6 years' experience (5 - 23 years) and for 39/60 (65%) of respondents, this was their first job within the NHS.
IMG's reported UK integration as mostly difficult (40.3%) or neutral (27.8%). Themes that make integration easy include: social factors, information packages and completion of GMC registration. Factors that make integration harder include: different culture, different hospital systems and administrative load. Integration into GOSH was considered easier for 51.4% but difficult for 30.5% of respondents. Factors considered to encourage integration include: previous NHS experience, colleagues and English proficiency. Factors that make integration harder include: administrative load, poor orientation and computerised systems.
Difficulties encountered include, correct salary level employment, finding a school, accommodation and banking. Sixty percent (36/60) reported lack of clarity around career progression to become an NHS consultant. Further exploration revealed a need for education regarding paths to consultant registration.
Conclusion: The following strategies have been identified to assist IMG integration into working at GOSH:
• Improving pre–onboarding information and communication.

• Improving the induction program and tailoring towards IMG's specific needs.
• Development of an educational package for IMG.
• Raising institutional awareness for the difficulties faced by IMG.
• Continuous monitoring through collection of data.
International medical graduates face multiple challenges when moving to the UK. A strategy to assist with integration is required and is best developed according to the particular healthcare environment

8EE15 (2485)
Development of an Advanced Pediatric Life Support (APLS) Simulation Training Program in Bhutan

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Presenter:
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Background: Early recognition of critically ill children is known to improve outcomes. While multiple courses have been created to improve care of seriously ill children, little is known about the impact of these in-service training courses in low and middle-income countries. World-wide, Advanced Pediatric Life Support (APLS) is considered the primary curriculum for recognition and resuscitation of emergently ill pediatric patients. Establishing a locally relevant, simulation-based Advanced Pediatric Life Support (APLS) train-the-trainer curriculum to teach healthcare providers in Bhutan to recognize and stabilize acutely ill infants and children could impact clinical outcomes in this remote and limited-resource country.
Method: This study will evaluate whether a APLS simulation train-the-trainer curriculum tailored for implementation in Bhutan will assist local healthcare providers to recognize and stabilize acutely ill infant and children, to develop a sustainable training network, and subsequently to improve pediatric resuscitative care in healthcare facilities in Bhutan. An APLS course was conducted in March 2016. Study objectives were to evaluate knowledge translation, pilot a clinical utilization tool to assess use of APLS-structured thinking, and identify course content needing revision. Pre- and post-test scores evaluated knowledge translation. Post-course surveys assessing clinical preparedness and post-course utilization of an APLS structured approach to critically ill pediatric patients are being conducted. Course quality was assessed using participant evaluations and comparison of pre-and post-test scores.
Results: Fifteen providers participated including all pediatricians and pediatric residents in Bhutan, as well as all general duty medical officers from the Jigme Dorji Wangchuck National Referral Hospital. Pre- and post-test identified knowledge gaps and improvement in APLS key-concepts. A revised APLS course will be presented with locally-trained facilitators in April 2018.
Conclusion: The APLS course prepared participants to practice using APLS structured thinking and to facilitate a regional rollout of the training course. Next steps include

developing a program for the monitoring and evaluation of regional hospital rollout trainings and a mechanism for mentoring the growth and sustainability of the training network.

Take-home message: Lessons learned from this pilot project can be used for developing effective in-service training service training programs in low and middle-income countries.

8FF: Posters: Curriculum Content including Humanities and Prescribing

Location: Hall 4.1, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

8FF1 (3315)
"Booster shots" of humanism at bedside teaching

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Presenter:
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Background: Studies have shown that medical students tend to show declining empathy as they advance in medical school. Part of the reasons could be less emphasis on medical humanities after entering clinical years.
For more than a decade, one of the authors (CWL) has been conducting bedside teaching in three teaching hospitals (National Taiwan University Hospital, National Cheng-Kung University Hospital, Koo Foundation Sun Yat-Sen Cancer Center where medical students from National Yang Ming Medical University rotates) for students rotating through neurology service. Efforts have been made to include not only teaching medical knowledge and skills, but also emphasizing bedside manners, sympathetic listening, and empathetic communication.
Method: We present two cases to illustrate how to enhance sensitivity to others' suffering in addition to teach neurological examination techniques, differential diagnoses and management:
1. A patient with myasthenia gravis suffering from diplopia: students were instructed to apply pressure to one eye themselves to induce double vision and appreciate the patient's suffering.
2. A patient at the end-stage of amyotrophic lateral sclerosis: students witnessed that "Even though we cannot cure the disease, we can still care for the patient." Initially students tend to recall cognitive learning, i.e. knowledge and skills, when their feedback is elicited after each round. But under prompting, they start sharing behavioral/affective aspects, e.g. empathy towards suffering patients and families.
Discussion: Attention to humanistic issues at the bedside demonstrates to students their relevance and application in individual cases and leads to a deeper appreciation of medical humanities.
Such bedside teaching can serve as "booster shots" during clinical years to enhance the humanism that medical students have learned in early years. However, it is difficult to expect lasting effects on the attitudes and behaviors of medical trainees unless such teaching can be frequently and widely practiced throughout clinical rotations. Consequently more attending physicians of teaching hospitals should be encouraged to teach humanism at the bedside.
Conclusion: It is recommended that medical schools set a high priority for clinical faculty to help students enhance sensitivity "to see the suffering" and develop empathy.

8FF2 (1681)
Need? Need not? – Medical humanities integration in problem-based learning (PBL) education

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Hung-I Yeh, Memorial Hospital, Taipei, Taiwan

Presenter:
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Background: Problem-based learning (PBL) is an important curriculum bridging basic to clinical medical sciences in our basic-clinical, double spiral, integrative course for our years-3 and -4 medics. To further integrate medical humanities (MH) education into this integrative course for a better longitudinal development of MH curriculum and a better link between "disease" and "humanities", MH teachers have been introduced into PBL case reviewer system. We compared PBL cases before the era of MH teachers in the reviewer system with those after.
Method: Our MH teacher has joined PBL case review and PBL case-writer training to enhance the integration of MH learning objectives into each PBL case since 2013. To retrospectively examine whether our PBL case-writers have become more active to bring up MH learning objectives in their cases after the era of MH teacher's participation, we randomly picked up 10 PBL cases before and after 2013. Each PBL case was evaluated by 5 aspects in MH, and each aspect was given 0-2 scores.
Results: The overall scores of PBL cases were significantly improved after MH teacher's participation (3.2+-2.3 vs. 9.2+-1.3; P<0.001). The changes of scores in each aspect of MH before and after MH teacher intervention were also substantially improved as shown below:
1. "Describing perception of the illness, in addition to symptoms" (0.9+- 0.7 vs. 2.0+-0.0; P<0.001)
2. "Containing descriptions pertaining to patients per se, in addition to physical signs or characters" (1.2+-0.6 vs. 2.0+-0.0; P<0.001)
3. "Describing physician's actions or behaviors, which do not pertain to therapy" (0.1+-0.3 vs. 1.6+-0.5; P<0.001)
4. "Containing not only aspect of objective knowledge but also aspect of subjective feeling" (0.6+-0.7 vs. 1.8+-0.4; P<0.001)
5. "Involving medical humanities issues" (0.4 +- 0.8 vs. 1.8 +- 0.6; P<0.001)

Conclusion: The appropriateness of a PBL case is determined by its final educational goal. Our goal of PBL education is not only to integrate basic with clinical medical sciences but also to well blend real world diseases with humanities.

MH teacher's participation may help steer the direction of PBL cases towards a more holistic end where medical knowledges and humanities are closely interrelated.

8FF3 (3031)
Simulated Patient Perspectives in the Assessment of Humanism

Authors

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Presenter:
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Background: Humanism is the foundation of the physician-patient relationship. Much of the research on trainees' humanistic characteristics focuses on empathy and provides data derived from self-reports. Such work offers important insight into how learners think; how they respond in actual patient care situations is more difficult to assess. Obtaining objective learner assessments from patients is complicated by limited trainee contact and patient vulnerability in actual healthcare settings. Simulated patients (SPs) offer a patient perspective and can be trained to rate learners using objective criteria.
Study Question: What does research reveal about the role of simulated patients in assessing humanistic characteristics of learners, and do ratings by SPs align with ratings from other perspectives?
Method: A systematic review of English language literature from 1996-2015 was undertaken. Search terms included humanism, integrity, empathy, compassion, altruism, respect, patient-centered care, or rapport AND standardized or simulated patients. Medline, CINHAL and a master database of SP-related articles were searched; bibliographic and forward searches identified additional citations. Inclusion criteria: research articles on learners of any healthcare discipline, data from the SP ratings of humanism constructs detailed in results. All papers were reviewed by two members of the study team.
Results: Of the initial ~1500 citations, 412 papers were reviewed; 44 met inclusion criteria. The majority of papers were from North America (84%) spanning 22 unique journals. Most described humanism in medicine (95.5%), predominantly undergraduate trainees. Empathy was the most common construct rated by SPs (38.6% of papers); global humanism was featured in 25%.   Numerous previously validated (13) or author created (24) rating scales were described. Training SPs to the rating scale was detailed in 50%. Studies comparing SP ratings with student

self-assessment or observer ratings showed SP ratings to have more variance and to be lower overall.
Discussion: Research incorporating SPs in the assessment of learner humanism is limited, mostly describing encounters with medical students. SPs offer a unique perspective, providing viewpoints on learners' humanism that differ from self- or third-person observers.
Conclusion: Our review supports the need for the development of tools and training protocols to facilitate more extensive application of SPs in humanism assessment.

8FF4 (1956)
"The Art of Medicine" Discussions: Integrating Medical Humanities into Clinical Medical Education

Authors

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Presenter:
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Background: Although medicine is often regarded as both an art and a science, most medical schools in Taiwan offer medical humanities courses only during the preclinical stage. Regular discussions with students about "non-medical" problems (i.e. not concerned with technical aspects of medicine, e.g. diagnoses, tests, medical interventions) encountered during clerkship have been found to be most effective for teaching "the art of medicine" clinically.
Method: Focus group discussions were held every fortnight with six to eight students and lasted for ninety minutes on each occasion. Students submitted cases and questions they wished to discuss beforehand, and staff such as nurses and social workers knowledgeable about the relevant situations were invited to attend. Facilitators ensured that everyone had the opportunity to express his or her opinions, that differing viewpoints were considered, and sometimes provided related literature for further reading afterwards.
Results: Common issues raised included problems arising from the novice status of the students, care for dying patients, doctor-patient relationships, and patients' emotional, familial, and/or financial difficulties. Through sharing of stories and expertise, students learned what they can say or do in future situations, combined theory with practice, and battled negativity and pessimism. The discussions helped them reflect more deeply on their own experiences.
Discussion: Clinical medical humanities discussions are most productive when students present their own problems and effectively frame the questions for discussion. It is also important for facilitators to stimulate the students to appreciate different points of view, examine various aspects of a problem, and draw

connections to larger socio-political issues when appropriate.

Conclusion: These discussions help medical students think about broader issues in their clinical practice, share ideas and creative solutions to those problems, and ultimately, learn to provide patient-centered and holistic care. They are also excellent opportunities for inter-professional education. Students especially value the perspectives offered by other healthcare professionals which often shed light upon better ways of understanding and handling various situations.

Take-home message: Medical humanities education should be extended to the clinical phase and student-centered, case-based discussions are useful for teaching "the art of medicine".

8FF5 (2976)
The Asklepios Lounge Project: Creating a Room for Reflection about Medicine and Medical Education through Art

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Background: Medical education must draw on both the humanities and natural sciences in order to grasp the complexity of modern medicine. Studies within the medical humanities and narrative medicine movement identify that the arts is a source for grasping this complexity. Often these studies focus on narratives and literature. As an experiment, we wished to expand the exposure of arts into medical education and medicine, by creating a space for the arts, and simultaneously activate a variety of learning styles at the 1st national medical education conference in Denmark (May 2017).

Method: We created 'The Asklepios Lounge', a library like space that exhibited posters and collages of doctors and medical education throughout history. We also displayed letters and poems, provided lists of movies and literature, showed short excerpts of movies, had playlists of music, and displayed a library of fiction – all featuring the doctors and the medical profession. In the lounge, participants could also collect "doctor" puzzles, draw or write.

Results: The lounge was created for the three days national medical education conference attended by 270 participants. It was established in a corner of the main conference hall used during breaks. Most participants enjoyed the lounge area, however, only a few collected puzzles, read, listened to music, and none drew nor wrote. Through different art forms, we created an opportunity for reflecting about medical education and medicine. The lounge contained stimuli that spoke to different learning styles and senses: auditive, visual, tactile, kinesthetic. As such, the experiment of a room for reflection at a medical conference succeeded. Even though many participants visited the lounge, few engaged in listening to music, drawing etc. This indicates that in order to fulfil the lounge potential, more out-reaching and workshop-like activities should be incorporated.

Conclusion: Different art forms are a source for reflecting about medicine and medical education, and give access to a variety of learning styles. However, out-reach activities are necessary in order to engage participants in all potential learning opportunities.

8FF6 (2449)
What did Behavior Sciences bring to first year students in Okayama Medical School, Japan?

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Presenter:
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Background: Behavior sciences is introduced systematically into a curriculum in medical schools in Japan however medical education in Japan focused to knowledge and skills previously. Many students enter in medical schools from their high schools directly and most of them had gone to cram schools for extra-study. High school students made their communication skills with their friends, teachers and families but not through volunteer activities and social activities.
Medical students during their medical school days previously developed their communication skills and social skills at the club activity, part-time job and so on.

Method: Okayama University started behavior sciences in first year medical school in 2016. Students learned communication skills in lectures for two days first and worked using the communication skills in various office and institutions, nursing homes, kindergartens, pharmacies, law offices, and hotels for five days. Students had a small group discussion and shared each experiences in the discussion in the last day. Students reflected about their communication in the office using e-portfolio every day. Evaluation includes an examination of knowledge of communication, the reflection skill about communication in e-portfolio, their behavior in the office by office person and communication skills in small group discussions.

Results: Few students struggled in communication with unknown person. Some students could reflect their behavior deeply however some students did not. Some students had gaps between a self-assessment to the assessment of office person.
Behavior in the office is not interrelated with knowledge or reflection skills. In other word students had different strengths in communications.

Conclusion: Behavior is not changed easily. Medical schools may prepare a spiral curriculum for better

communication of students before the clinical clerkship in Japan. Our medical schools just started behavior sciences in first year curriculum and developed every year as a spiral curriculum.

Take-home message: Behavior develops in practice, practice and practice!

8FF7 NOT PRESENTED

8FF8 (1955)
Healthcare student competence and confidence with prescribing: a mixed methods study

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Presenter:
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Background: Previous research has been conducted showing that prescribing competence is poorly correlated with prescribing confidence, and questions whether undergraduate programs adequately prepare interns and junior practitioners for safe and rational prescribing. Understandably, medical students are often the population this research focuses on, however with prescribing becoming a common activity for pharmacists in Alberta, Canada, there is a need for similar research for pharmacy students.
Method: The goal of this project is to assess prescribing competence and perceived prescribing confidence of fourth year pharmacy and medicine students at the University of Alberta to determine if prescribing competence and confidence are correlated. This will be a mixed method design where students will complete a competence assessment based off previous research published by Dr. David Brinkman. Following the competence assessment, students will complete a confidence survey tool, which will evaluate how confident they were that they answered each case of the competence assessment correctly. A 4-point Likert-scale will be used to evaluate confidence.
Currently there are no results to disseminate, however preliminary results are expected by July 2018. To assess the internal consistency of competence scores and self-perceived confidence ratings, cronbach's alpha will be used. The Spearman correlation coefficient (r) will be used to determine the correlation between prescribing competence and confidence for both cohorts independently. A significance level of $P < 0.05$ will be used. The overall level of prescribing competence and self-perceived confidence will be calculated and compared between the two cohorts of students. Possible regressions for prescribing competence and confidence will also be calculated for both cohorts of participants. Open-ended survey questions will be evaluated using thematic analysis. This project will help gauge the level of confidence and competence of future prescribers graduating from the faculties of pharmacy and medicine from the University of Alberta, which may guide curriculum changes and/or improvements.

8FF9 (1649)
Timing of rotation does matter: the effect on prescribing skills in short-stay ward among final-year medical students

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Presenter:
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Background: Prescribing skills are complex tasks for medical students and their errors are common. Tutorial courses are settled to solve the problems every 4 months (three times a year). Final-year medical students are rotating to the sessions prior to general hospital services. Effect of rotation timing on prescribing skills is still unclear.
Method: This study retrospectively assess the prescribing skills in three common short-stay ward scenarios; upper gastrointestinal bleeding (UGIB), acute pyelonephritis and community acquired pneumonia (CAP) among final-year medical students in Siriraj Hospital, Mahidol University. Rotation timing effects throughout academic year are evaluated.
Results: A total of 368 students' prescriptions during 2 years (127, 110, and 131 in the first, second, and third rotation, respectively) were reviewed. The total scores were statistically significant increase in order of rotations as 55.5, 63.2, and 66.2 out of 100 ($p<0.001$). Mean of UGIB scores were 35.5, 49.1, and 50.8, respectively ($p<0.001$ and 0.06). Proton pump inhibitor usages were 52%, 84.5%, and 85.5% ($p<0.001$ and 0.84). Serial of hematocrit were 32.3%, 54.5%, and 74.8% ($p<0.001$). Mean of acute pyelonephritis scores were 67.9, 72.6, and 77.0, respectively (p 0.01). Appropriate antibiotic used in acute pyelonephritis were 58.3%, 81.8%, and 90.8% ($p<0.001$ and 0.04). Mean of CAP scores were 63.2, 67.9, and 70.8, respectively (p 0.01 and 0.11). Appropriate antibiotic used in CAP were 15%, 22.7%, and 38.2% ($p=0.13$ and <0.001). Baseline internal medicine scores were not different among rotations. Average scores evaluated by general hospital staffs were significant higher in the third rotation (71.6, 71.2, and 73.5, respectively ($p=0.86$ and 0.01).

The prescribing skills are generally gained throughout the year. Some aspects improved earlier, but some revealed later especially if clinical tools guidance required. According to comparable baseline knowledge, effect of rotation timing on prescribing skills should be concerned and may contribute to better evaluation in the third rotation.

Conclusion: Good prescriptions are troubled for trainees. Tutorial courses and other supports are necessary to promote the appropriate practices for medical students especially in early academic year. Furthermore, novel methods are needed to minimize this academic disadvantage.

8FF10 (1479)
Teaching Medical Students How to Safely Prescribe Opioids: Preliminary Results

Authors
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Background: Medication safety is one of top priority in U.S. Training young physicians on medication safety at early stage is critical. The author recognized recent opioid epidemic in U.S., but lack of preparing medical students and residents on prescribing opioids and developed a curriculum on teaching medical students how to safely prescribe opioid. The goal of this curriculum was to test whether this curriculum could improve MS4' knowledge on safely prescribing opioids.

Method: This curriculum was unfolded in the following: 1) Preparation of basics of safely prescribing opioids. The basics of safely prescribing opioids was presented to MS4 of Class 2016 by the author or posted on online via PowerPoint slides for MS4 from Class 2017. In either way, the author performed pretests in the classroom; 2) In the classroom, students reviewed and discussed the six cases in paired (2-3 MS4) and then in big group (6-7 MS4) with the author as moderator; 3) The posttests were conducted at the end of geriatrics clerkship. Kirkpatrick criteria were used to measure outcomes for MS4 from Class 2017.

Results: Total of 305 MS4 were enrolled. Among MS4 from Class 2017, only 57.6% (76/132) students had written a prescription. The classroom teaching was highly perceived by MS4 and graded as 4.26 on the scale of 1-5 (1=poor, 5=excellent). Students' comfortable level in prescribing opioids was significantly improved (1.88 up to 3.17 on a scale 1-5. 1=extremely uncomfortable, 5-completely comfortable). Knowing MEDD (up from 14.7% to 86.2%), the most common side effect associated with opioids (up from 80.1% to 93.2%), and renal friendly opioids (up from 12.6% to 19.5% and liver friendly opioids (up from 18.8% to 22.8%) was significantly improved.

Conclusion: A simple curriculum for MS4 could significantly improve their comfortable level and knowledge on safely prescribing opioids. However, it is unknown whether MS4 can safely prescribe opioids for real patients.

Take-home message: A simple curriculum can be offered for MS4 to help them prepare how to safely prescribe opioids.

8FF11 (1694)
Exercise Physiology as a Preclinical Elective Course in Medical Education

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Background: Preclinical elective courses play an important role in medical education by increasing medical student knowledge and useful skills in field of special interest outside of the traditional curriculum. Exercise physiology course is one of the elective courses in Phramongkutklao College of Medicine's medical curriculum. Department of Physiology provides exercise physiology course for the third year medical student at the first time in academic year 2016. The course objectives are to acquire knowledge of physiological changes that occur in body response to exercise and experience in clinical exercise physiology for cardiovascular and pulmonary rehabilitation, physical activity and health and exercise in disease in order to use exercise and physical activity intervention as a fundamental part of patient care.

Method: In academic year 2016 (April 24 – May 5, 2017), ten medical students (6 males and 4 females) selected elective courses to participate in exercise physiology course. The course was an intensive 2-week that the number of credits was 2 (1-2-3), comprised of 15 lecture hours, 16 lab hours, 19 presentation/self-study hours and 5 visit hours. It was designed for small group and active learning. All students were asked to complete an open-ended questionnaire about their learning outcome and experience in the course at the end of the course. Learning achievement was measured using in-class activities, reflections, topic presentations and performance.

Results: All medical students got grade A. They gained deeper knowledge and valuable experience and felt good satisfaction with learning in exercise physiology course. However, they gave comment that course content was tough and so much to learn. The content should be reduced and laboratory experience and visit interesting-unit such as fitness center should be more.

Conclusion: Although, physiological basis of exercise could be integrated into formal medical curriculum. Exercise physiology as an elective course provided medical student with opportunity to learn in depth of knowledge and wide experience of their interest. By developing a better course, future course designs may be improved to optimize student learning outcomes.

Take-home message: Implementing preclinical electives should be assessed in order to improve the course in future.

8FF12 (1715)
Medical Students' Attitudes toward Active Learning in Radiology

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Presenter:
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Background: Active learning has been applied to radiology in medical schools, and a void in the literature exists regarding the attitude of all active learning methods in radiology. The objective of this study was to evaluate medical students' attitudes toward all active learning methods in radiology.
Method: 5th year medical students in Buddhachinaraj Medical Education Center in elective course of radiology in academic year 2016 were included in this study. They were assigned to study team based learning, case conference, topic, teaching film and ultrasound practice methods. At the end of the course, they were surveyed for their attitudes toward all active learning methods by using 11 (five rating scale) questionnaire items.
Results: Fifty nine medical students completed the questionnaires, with a response rate of 100%. TBL had the highest attitude (3.37±0.82) and ultrasound practice had the lowest attitude (2.43±0.84) in overall. Case conference had the highest attitude for communication skill, coordination, responsibility, presentation skill and lifelong learning; the lowest attitude for instructor feedback. TBL had the highest attitude for teamwork, coordination, harmony and lifelong learning; the lowest attitude for duration. Teaching film had the highest attitude for instructor feedback and duration; and no the lowest attitude. Topic had the highest attitude for preparation; the lowest attitude for instructor feedback and medical professionalism. Ultrasound practice had the highest attitude for medical professionalism; the lowest attitude for teamwork, community skill, coordination, responsibility, harmony, preparation, presentation skill and lifelong learning.
Discussion: Case conference had the highest attitude in five items because the students have to be good coordination and preparation for excellent presentation. TBL had the highest attitude in teamwork that corresponding with the objective of TBL. The students had direct benefit from teacher in teaching film, therefore they had the highest attitude in instructor feedback. While ultrasound practice had the lowest attitude in eight items due to low participation and inadequate time.
Conclusion: All active learning methods in radiology have different advantages and disadvantage that we should mix all active learning methods to increase the benefits.

8FF13 (3669)
Improving radiology teaching for undergraduate medical students at Exeter University

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Presenter:
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Background: Radiology is integral in the management of many patients. The ability to interpret basic radiological investigations is a vital skill for junior doctors to deliver safe clinical practice.
The European Society of Radiology and the Royal College of Radiologists urge on the importance of formal and structured radiology teaching delivered as a continuous thread throughout medical school curriculum. However, the lack of this is an issue frequently raised by medical students.
Our aim was to assess the impact of structured radiology teaching on medical students' confidence levels in interpreting chest and abdominal radiographs.
Method: A questionnaire was distributed to medical students at Exeter University, assessing their confidence levels when interpreting common radiographs. This was followed by junior doctors delivering case-based, interactive chest x-ray (CXR) and abdominal x-ray (AXR) sessions to 39 students on clinical placements over 4 weeks. A second questionnaire was distributed, focusing on students' confidence levels post teaching.
Results: All students reported receiving a 'moderate' amount of radiology teaching and expressed it was 'an add-on' in years 1-2 instead of being a subject of its own. Pre-teaching, 69% of students had no or little confidence in CXR interpretation and 88% in AXR interpretation. Post teaching, 94% felt relatively confident or confident in CXR interpretation, while 88% felt the same towards AXR interpretation. Furthermore, post teaching, 20% of students expressed an interest in a career in radiology, compared to 5% pre-teaching.
Conclusion: This project identified a lack of effective radiology teaching for medical students at Exeter University, affecting ability and confidence in interpreting radiographs. Based on our results, delivering regular, structured and interactive radiology teaching improves clinical skills and increases confidence significantly. This will have both short and long-term benefits, as students are more likely to perform better in clinical examinations and will ensure safe clinical practice in the longer term. Radiology is under-represented in the undergraduate medical curriculum
Take-home message: Effective undergraduate radiology teaching leads to delivery of safe clinical practice
More undergraduate radiology teaching increases interest in radiology as a career

8FF14 NOT PRESENTED

8GG: Posters: Competency Based Education and Entrustable Professional Activities

Location: Hall 4.u, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

8GG1 (1449)
Development of national competence-based framework for primary medical graduates in Georgia

Authors

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Presenter:

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Background: Globalization of medical education and demand for achieving international recognition have been the main incentives for development of competence-based national framework for primary medical degree in Georgia. In 2017 National Center for Educational Quality Enhancement set Task Force for the development of competences/outcomes for MD graduates.
Method: Development of competences and outcomes was based on recommendations of MEDINE2 (2013), WFME global standards for basic medical education (2015), CanMEDS Physician Competency Framework (2015) and Tomorrow's Doctors, GMC (2015) and national peculiarities of medical education. In total 13 competences have been defined and further detailed by corresponding outcomes. Framework describes each competence and related methodology of its achievement and assessment. Such approach made it more practical and useful for medical schools and might serve as a road map for further development of MD curriculum. The document has annex with a sample of how each competence might be achieved throughout 6 years of study with description of appropriate methods of teaching and assessment.
Conclusions: Development of national competence-based framework for primary medical graduates in Georgia has been an important step towards harmonization of Georgian medical education with international standards and for enhancing quality of undergraduate medical education.
Benchmarking of MD program can be used for medical schools national accreditation as well as a tool for medical schools to improve medical curriculum.

8GG2 NOT PRESENTED

8GG3 (1597)
Developing a Questionnaire to Explore Factors Influencing Clinical Teachers' Intention to Apply Emergency Medicine Milestones for Residency Training

Authors

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Chih-Ming Hsu
Fremen Chih-Chen Chou

Presenter:

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Background: Workplace-based teaching and assessment is crucial for implementing competency-based medical education (CBME). In order to implement the CBME, Taiwan Society of Emergency Medicine(TSEM) conducted a milestone program for residency training. The clinical teachers' intention to apply emergency medicine milestones for residency training plays an important role in the success of the milestone program. Based on the Theory of Planned Behavior (TPB), we developed a questionnaire to investigate the factors influencing the clinical teachers' intention to use milestones for residency training.
Method: The participants comprise clinical teachers working in the 15 hospitals with certified emergency medicine residency training program in Taiwan. The items were developed through iterative discussions and revision by research team, survey experts, emergency content experts and clinical teachers. A total of 386 questionnaires were distributed using a random sample technique. We took descriptive, item, factor, and reliability analyses to build up the constructs of the questionnaire items.
Results: Totally 274 valid questionnaires were returned (valid response rate of 70.9%). Based on TPB, five constructs were validated through factor analysis with a good model fit. The results show that the 5 factors (i.e., attitude, subjective norms, education accreditation units, self-efficacy, and environmental resources) can be applied to predict clinical teachers' intention to use milestones. The most influential factor is self-efficacy, followed by attitude. The final model explains 56.6% of the variance for clinical teachers' intention to use milestones.
An improved understanding of these factors that influence clinical teachers' intentions to apply milestone for workplace-based assessment and teaching could potentially inform more effective approaches to faculty development and contribute to the real implementation of CBME.
Conclusion: TPB can be used as a theoretical framework to develop a questionnaire to investigate clinical teachers' intention to use milestones for Emergency Medicine residency training. Self-efficacy and attitude are the most important factors influencing their intention.
More attention should be given to these two factors (self-efficacy and attitude) within faculty development programs and the implementation of workplace-based teaching and assessment in the future.

8GG4 NOT PRESENTED

8GG5 NOT PRESENTED

8GG6 (442)
Charting the flow of ideas in medical education: A Social Network Analysis of Entrustable Professional Activities

Authors
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Presenter:
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Background: Researchers have responsibility to broadly disseminate their ideas, scholarship, and best practices. To understand and optimize dissemination, several fields have applied innovative methodologies, such as social network analysis (SNA) to characterize patterns in scholarly communication. We employed SNA to study the dissemination patterns of a relatively recent medical education concept: entrustable professional activities (EPAs).
Method: Using Web of Science, we identified a core set of publications on EPAs and extracted their metadata, which included references and citations. This dataset was augmented by additional subject metadata from CrossRef. We examined publications to determine relationships among publications and authors. We generated visual depictions to analyze the global structure of the networks and identify influential publications and authors. We studied different types of connections (e.g. citations, co-authorships) and various notions of centrality and influence.
Results: We identified a core set of 197 publications that referenced 10,425 articles and were themselves cited 18,212 times. Within the core set of publications, a number of articles clearly emerged as central nodes of influence. Most were specific to EPAs but some addressed peripheral topics (e.g. accreditation). We found a large community of collaborators around the originator of the EPA concept and two additional particularly influential authors. Analysis of different types of centrality identified different persons of influence.
Discussion: SNA allowed us to explicate the diffusion process of a medical education concept using EPAs as a case study. It illuminated publication and authorship patterns helpful to understanding factors that might drive the uptake of a concept. For instance, the emergence of a paper on graduate medical education accreditation in the USA as an influential node suggests it was an important context for propelling the EPA discussion in the literature. It not only identified authors who were influential through their publications but those who were influential through other means (e.g. role in connecting collaborators).
Conclusion: Social network analysis can be utilized to understand the dissemination of a medical education topic. Specifically, it can identify peripheral concepts and

person roles that help drive topic growth within the published literature.

8GG7 (2836)
Feasibility of EPA entrustment decisions as assessment in undergraduate medical education: one year experience in an integrated clerkship

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Background: Entrustable Professional Activities (EPAs) have been adopted in the competency framework of the undergraduate medical education program of the Utrecht University. In September 2016 EPAs were introduced to assess Master year 1 medical students in a new longitudinal integrated clerkship, combining gynecology, pediatrics and clinical genetics. Students follow this clerkship for 12 weeks either in the University Medical Center or in one of the 9 affiliated hospitals.
Method/Results: To complete the clerkship, students must reach entrustment at a predetermined supervision level. This study evaluates the documentation of formative assessments, which are used as a source to ground the summative entrustment decisions. Furthermore, insight is provided into factors associated with incomplete documentation.
The clerkship includes five core EPAs on medical consultation: the basic gynecologic, obstetric, pediatric, neonatal and clinical genetic medical consultation. To support entrustment decisions, students must document a minimum of 2 practice observations and 2 case-based discussions per EPA in their digital portfolio.
We evaluated the portfolios of the first 183 students in this new clerkship. Furthermore, by consulting students and supervisors, we identified factors associated with insufficient documentation.
The percentage of students with at least 2 documented observations and 2 documented case-based discussions per core EPA were: gynecology 72 and 70, obstetrics 64 and 58, pediatric 85 and 96, neonatology 84 and 61, clinical genetics 99 and 99.
Discussion: Factors associated with insufficient documentation can be divided in student-associated features (insecure, modest, disorganized, indulgent), supervisor-associated features (too busy, disagreeing with new e-portfolio system), and organization-associated features (too many forms, unclear system, technical issues, suboptimal work environment). Large differences were found regarding the documentation to support entrustment decisions. Documentation of formative assessments differed between students, disciplines and

hospitals. Initial exploration indicated that this is likely caused by multiple factors.

Conclusion: The introduction of a novel, EPA-based assessment system in undergraduate medical education requires adjustment of all stakeholders. Students, supervisors, educational board and digital teams need to cooperate to overcome the challenges and make this system feasible and successful.

8GG8 (3314)
Updated Entrustable Professional Activities for a Family Medicine Residency Training Program

Authors

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Background: The College of Family Physicians of Canada (CFPC) recently released CanMEDS-FM 2017, an updated competency framework designed for all Canadian family physicians regardless of practice type, location, or populations served. Although the framework defines a set of general attributes of a good family physician, it does not define the actual activities that a competent physician performs in practice. Subsequently, the CFPC released the Family Medicine Professional Profile, which taken together with CanMEDS-FM 2017, forms an overall picture of the roles and responsibilities of Canadian family physicians along with the competencies required to support their work.

Method: Using the CanMEDS-FM 2017 framework and the CFPC's Family Medicine Professional Profile, the University of Manitoba Family Medicine Residency Program sought to refine a list of Entrustable Professional Activities (EPAs) for to guide curriculum development and resident assessment.

Results: The residency program developed an initial list of EPAs in 2015 (prior to the release of CanMEDS-FM 2017) and further refined it by integrating new concepts from the CanMEDS-FM 2017 framework and the CFPC's Family Medicine Professional Profile, as well as through input of local family medicine educators at the University of Manitoba using a modified Delphi process.

Conclusion: A list of 25 updated EPAs was developed which collectively defines the type of care that the family medicine residency graduate should be trusted to perform competently upon graduation.

Take-home message: Updated EPAs will be rolled out in the 2018-2019 academic year and the program will monitor how these EPAs perform.

8GG9 (1702)
Validation of a novel assessment tool to evaluate how well medical residents are prepared to lead Serious Illness Conversations with oncology patients based on the competency-based medical education (CBME) model – a qualitative analysis

Authors

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Presenter:
Jenny Ko, BC Cancer, Abbotsford, Canada

Background: The Serious Illness Conversation Guide (SICG) has emerged as an evidence-based framework for conversations with patients about a serious illness diagnosis. The objective of our study was to validate a novel assessment tool, the SIC-Evaluation Exercise (SIC-Ex), designed to facilitate assessment of resident-led conversations with oncology patients.

Method: We developed the SIC-Ex based on the Boston SICG framework and on the Royal College of Canada Medical Oncology milestones for the Entrustable Professional Activity (EPA) "Discussing serious news" and "Transitioning away from active anti-cancer therapy". Seven resident trainees and ten preceptors were recruited from three cancer centres. Each trainee conducted a SIC with a patient, which was videotaped. The preceptors watched the videos and evaluated each trainee using the novel SIC-Ex and the reference Calgary-Cambridge Guide (CCG) at months 0 and 3. Three open-ended questions from SIC-Ex included "What was done well?", "What could be improved?" and "Other comments". Two independent coders used template analysis to code the preceptors' narrative comments and identify themes.

Results: Template analysis yielded 5 themes: (a) resident behaviors related to SICG; (b) resident behaviors related to CCG; (c) resident's personal characteristics and attitudes; (d) preceptor mis-classification of comments; and (e) comments on the SIC-Ex itself. Under (a) – (c), narrative comments explored numerous verbal and non-verbal attributes essential to SIC. Some comments applied to both SICG and CCG (e.g. empathy, open-ended questions, clarity, exploration, planning), whereas others were specific to a given theme (e.g. SICG - prognosis, fears, hopes, goals, family, trade-offs).

Discussion: Narrative comments generated by SIC-Ex provided a detailed and nuanced insight into resident competency in SIC, beyond numerical ratings and general communication skills assessed by CCG. Template analysis explored themes important to a successful SIC in overlapping and unique domains of SICG and CCG. The presence of mis-classified comments suggests the need for open-ended questions designed more specifically for a single theme.

Conclusion: Qualitative analysis of preceptor comments has provided additional validity evidence for use of the SIC-Ex in the teaching and assessment of oncology resident competence in discussing serious illness with patients.

8GG10 (909)

Inter-program variance in ACGME Reportable Pediatrics Milestones. Can Residents' ACGME PM levels be compared among programs?

Authors

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Presenter:
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Background: Pediatrics Milestones are competency-specific behavioral descriptions of learner performance across the medical education continuum. Semiannually, U.S. Pediatrics residency programs report milestone levels for each resident to the Accreditation Council for Graduate Medical Education (ACGME). The Pediatrics Milestones Assessment Collaborative (PMAC, consisting of the National Board of Medical Examiners, American Board of Pediatrics, and Association of Pediatric Program Directors) developed workplace-based assessment tools for measuring readiness to serve as an intern in the Pediatric inpatient setting. Context experts mapped behaviors from six milestones to workplace-based assessment items, observers at residency programs collected data with those items on residents, and PMAC aggregated responses into competency scores.

Method: We examine PMAC scores and program-reported ACGME milestones of 114 interns at 8 U.S. Pediatrics residency programs. We measure relative variance in milestones and PMAC scores using random effects models with competency, learner, program, and program x competency components. For each competency, we measure association between PMAC score and milestone, accounting for the clustering of learners in programs.

Results: Program-related milestone variance was substantial (54%), both in comparison to learner milestone variance (22%), and program variance in the PMAC scores (12%). On the contrary, learner variance represented 44% of variance in PMAC scores. Within programs, PMAC scores were significantly positively correlated with milestones for all but one competency related to recognizing limitations and engaging in help-seeking behaviors, which had significantly higher mean milestones and greater program variability.

Discussion: PMAC workplace-based assessments provide scores with little program-specific variance and that are sensitive to differences in ACGME reported milestones within programs. Milestones, however, reflect greater differences by program than by learner. This finding may represent overall differences in the performance of first-year residents from program to program but also may reflect differences in how programs use the Milestones as a reporting scale.

Conclusion: All U.S. training programs must report trainees' performance to the ACGME using milestones. However, comparing individual learner milestones among programs may be challenging if there are large differences in variances by program. PMAC and similar workplace-based assessments may provide performance evidence with greater sensitivity.

8GG11 (2298)

Residents in Taiwan rate themselves lower than attending assessments on ACGME milestones

Authors

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Presenter:
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Background: Recent evidence showed that most residents in the US over-estimated themselves in the ACGME Milestone assessment. (Goldflam, Bod et al. 2015, Tichter, Mulcare et al. 2016, Watson, Borgert et al. 2017) Whether such a phenomenon was the case in a non-US society, especially in a Confucian context such as Taiwan, might need to be further examined. This study aims at verifying such a hypothesis and investigating the correlation between self-assessment and evaluation by attending.

Method: Taipei Medical University Hospital has introduced the evaluation of ACGME Milestone to all 80 residents from 20 specialties since April 2017, including carrying out self-evaluation and two assessments by attending physician. The rating scale was set from 1 to 9 or 0 to 9 based on the guidance ACGME provided. The averaged mean difference, Pearson correlations and analysis of covariance (ANCOVA) between evaluates and evaluators were both analyzed.

Results: Our results showed that the means of self-rating scores were significantly lower than those rated by the attending physicians in general (MD=-0.465, F=5.379, p=0.022), as well as the domains of medical knowledge (MD=-0.610, F=8.388, p=0.004), system-based practice (MD=-0.546, F=6.551, p=0.011), problem-based learning and improvement (MD=-0.454, F=4.201, p=0.042), and inter-personal communication skills (MD=-0.456, F=4.350, p=0.039). Moreover, the correlation coefficient of average scores between evaluators and evaluates were above moderate overall (r=0.649, p<0.05), especially in the domains of medical knowledge (r=0.770) and patient care (r=0.748).

Discussion: This study overthrew the assumption that all residents might overrate their own clinical performance as those did in the US. Further studies, such as qualitative

research might be needed to bring such issue to light in the future.

Conclusion: Residents' self-report of milestone level was correlated to their clinical teachers' perspectives both in the US and Taiwan. However, unlike the American experiences, Taiwanese trainees often under-estimate their own clinical competence.

8GG12 (1563)
Stay Alert! "Generation Z" and the Teaching of Gynecology and Obstetrics in Undergraduate Medical Education Through Active Methodologies, Entrustable Professional Activities (EPAs) and Digital Medias

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Presenter:
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Background: Our medical students belong to the new generation of digital natives, as known as Generation Z, Centennials, iGen and more. They are constantly multi-tasking and want fast access to information. The teaching of Ob-Gyn in medical undergraduate becomes more attractive if we respect their different ways of learning, and active methodologies and EPAs keep students engaged and interested in new contents.
Method: The learning of Ob-Gyn in our medical school begins in the second year through active methodologies. Observing that our students want to get information quickly and apply the content in practice, we proposed the use of EPAs built for the teaching of Ob-Gyn in undergraduate and the previous study of the content by their own means, such as flipped classroom. To each group of six students, we gave an EPA which should have been fulfilled at the next meeting. The EPAs were about anamnesis, pelvic and clinical breast examination, prenatal care, delivery and puerperium.
Results: Students showed acquisition of learning and skills using digital media for textual, video and interview researchs about proposed themes. All the six groups were able to execute each EPA partially, occurring mistakes that were discussed at the debriefing session, based on medical literature. Each EPA stays available for the student's training as many times as needed.
Discussion: EPAs represent tasks that students might be expected to carry out without direct supervision on entering residency. EPAs operationalize the medical education results as essential professional activities that a professional should be able to perform. "Generation Z" feels comfortable and demonstrates more participation in activities in which active methodologies are associated to digital medias, bringing the learning closer to their own reality. To execute an EPA, students search the digital medias for videos, images, blogs and podcasts and associates these to the medical literature content, making the learning process dynamic and individualized.
Conclusion: Bringing the teaching of Ob-Gyn closer to the reality of the digital native student improves outcomes. Generation Z has shown preference for active

methodologies that allow both individual practice and study, favoring personal style.

8GG13 (1104)
Clinical practical assessment of Entrustable Professional Activities in undergraduate veterinary students at Vetmeduni Vienna: A pilot study

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Background: Entrustable professional activities (EPAs) concept allows assessment of theoretical knowledge and practical skills on the level of supervision required by trainees. At Vetmeduni Vienna an OSCE format, called KLIPP-VET, was introduced to test four EPAs in fifth year students after their clinical rotation. Summative assessment was realized by global rating scales and formative assessment by pre-defined supervision levels.
Method: Examiner workshops were installed to explain KLIPP-VET rules: a) rotation in four stations, each station testing an EPA (1, history taking; 2, clinical examination performing; 3, differential diagnoses listing; 4, therapy proposing), including a minimum of three species and four clinical experts in the field with a maximum testing time of 10 min/station; b) overall cut-off level of 60 points/100 over all stations in summative assessment; a red flag was used to demonstrate any (suggested) action that potentially harms life of animals or persons; c) formative assessment on EPAs by supervision levels was piloted for optional use.
Results: Implementation of KLIPP-VET was challenging, but successful. At the time of abstract submission 93 students were examined. Regarding summative assessment, 77 points/100 were achieved on average (range 45 to 95) over all stations and equally distributed among EPAs. In total, eleven red flags were used, leading to seven full repetitions and four single station repetitions. Concerning formative assessment, deliberate feedback on supervision level was hardly used and refused by most examiners.
Discussion & Conclusion: Practical constraints shaped the testing format, however KLIPP-VET was a feasible tool to assess EPAs in different species at various locations in acceptable time and standardised format. Since examiners reported formative assessment to be overburdened in addition to summative assessment, faculty decided to suspend the former in this pilot study. Therefore focussed training on formative assessment should be highlighted in examiner workshops and be trained in clinical rotations.
Take-home message: EPAs including their (summative and formative) assessment have to be shaped to local needs and minimum standards.

8GG14 (2986)
Evaluating Fam Med CPD as an Expression of CBME, Using Curriculum Mapping

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Presenter:
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Background: The Office of CPD is involved in the development of numerous programs for family physicians (FPs). It is difficult to ascertain if the programming addresses the broad range of competencies needed to maintain or improve their knowledge and skills.
To evaluate our Fam Med CPD programming we analyzed it as a comprehensive curriculum and mapped it to a framework of competencies.
The goals were:
• to verify that our CPD programs met the broad range of competencies and FP needs.
• to design a competency framework that could be attached to this "curriculum".
• to demonstrate that curriculum mapping could be useful in the evaluation and design of a CPD curriculum.
Method: FP competency frameworks were analyzed to determine which would best represent the abilities of FPs and could be a useful mechanism for curriculum mapping. Team members, using a portion of the program, met three times to achieve a consensus about terms and methodology. Researchers analyzed the learning objectives for each individual course of the last two years (n=27) and mapped them to the competencies framework, using an Excel database.
Results: The research team chose a competency framework published by the College of Family Physicians of Canada, and added the CanMEDs-FM competencies. The completed curriculum map provided a visual representation of our FP curriculum, which now can be used to plan appropriate courses that will include the competencies that had not been covered previously. It also identified which CanMed FM roles could be elaborated on, aside from the ubiquitous Medical Expert role.
Conclusion: The results of mapping do enable identification of gaps and can serve as a basis for curriculum analysis.
However, researchers indicated a wish for greater of detail of the competencies. They also commented that the current mapping tool took a lot of work.
For CBME to function in CPD, a competency framework must be devised. The framework can be used in a curriculum map that is useful in evaluating a CPD program.

8GG15 (1267)
Using Eye Tracking to evaluate students' needs and usability of a visualised curriculum

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Presenter:
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Background: At LKCMedicine, a new curriculum map, CLUE (CurricuLUm Explorer), was developed. We aim to evaluate students' needs and usability of CLUE, using both eye tracking (ET) and traditional usability methods. To our knowledge, there are no previous studies using ET to evaluate the usability of curriculum maps. We are using this novel approach to further explore usability and functionality of curriculum visualisation.
Method: 17 medical students (11 male, 6 female) were recruited from LKCMedicine. Traditional usability methods such as pre- and post-test questionnaires were administered. Participants' eye tracking data were recorded in the form of gaze-plot videos. They were then asked to complete the System Usability Scale (SUS), and to 'retrospectively think aloud (RTA)' while their gaze-plot video was being shown. The RTA-gaze plot videos were analysed for usability problems and categorised. Visualisations of participants' gaze patterns were also obtained.
Results: Students' needs for the curriculum map were mainly centred on accessing learning outcomes and resources. The mean SUS score was 55.7 ± 16.36 (scored 'below average'). 94.1% of participants were unaware of curriculum mapping as a resource. A total of 53 usability issues were identified, and ET was used to evaluate these problems. Problems were detected either verbally (n=36), observed clicks/eye movements (n=8), or both (n=12). CLUE, although it met students' needs, requires some usability improvements. ET gave invaluable insight into the problems detected. Through this study, we were able to identify the areas for improvement to better develop CLUE to suit our users' needs. The study was able to engage various stakeholders of LKCMedicine in curriculum evaluation and development, promoting a more inclusive approach to curriculum design. We hope this study would serve as a guide for researchers interested in using ET to perform in-depth usability studies on visualised curriculum.
Conclusion: This study was able to identify recurring usability issues for incorporation into future versions of CLUE. ET was a useful tool in our usability study - it helped to prompt users to give verbal feedback, and explain user behaviour beyond traditional usability methods.

8HH: Posters: Continuing Professional Development 1

Location: Hall 4.u, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

8HH1 NOT PRESENTED

8HH2 (3146)
Quality improvement events as accessible, adaptable and diverse learning platforms

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Presenter:
Nadine Dyar, Peninsula School of Anaesthesia, Torquay, UK

Background: "A promise to learn – a commitment to act"; in 2013, Don Berwick discussed the importance of learning in the pathway to achieving better care. In a subject as vast as 'Quality Improvement' (QI), how can this learning be achieved? Considering the pressures faced by staff in the UK National Health Service, I believe QI events are an opportunity that we should promote.
Method: In the South West of England, we have hosted multiple patient safety and QI events over the past five years. These have created an opportunity for all healthcare professionals to learn from others and share their valuable experiences.
Each year feedback is reviewed and new contributions invited to improve the events. Collaborations between QI Fellows, Peninsula and Severn Deaneries, and the Academic Health Sciences Network, generate programmes that are diverse and relevant to the patient safety issues of the time.
Each event involves keynote speeches, workshops and time for presentations from abstract submissions. The learning opportunities vary from identifying key problems, through data analysis, to the practical elements of starting, succeeding and sustaining a project.
Results & Discussion: The structure of the event appears key in establishing a learning environment. Our feedback shows that keynote speakers who engage and inspire their audience have lasting impact on attendees. The growing evidence base that greater staff engagement leads to better care for patients strengthens this feedback (2012; West).
Inviting patients, relatives and clinicians who have been involved in safety-related incidents contextualises the learning. Workshops with better feedback scores reflected more interactive sessions and relevant topics.
Listening to peers and professionals present their original work allows the attendee to improve their own presentation skills, with positive feedback reinforcing the great work accomplished.

Take-home messages: QI events are an excellent opportunity for healthcare staff to learn about patient safety and how to achieve better care
We have demonstrated that structured events generate a positive learning experience through inspiring, engaging and teaching practical applications of QI work.
References: Berwick (2013) A promise to learn – a commitment to act
West and Dawson (2012) Employee Engagement and NHS Performance

8HH3 (2357)
Effects of a Training Program on End-of-Life Caring for ICU Nurses on their Attitudes and Care Behaviors Toward DNR Patients and Families

Authors
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Presenter:
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Background: End-of-life (EOL) decision-making in acute care is complex. Nurses are vital to EOL care as they are the ones present at the bedside.
The purposes of this study were to: (1) examine clinicians' knowledge and attitudes toward DNR (do not resuscitation), (2) design a training program on EOL that can fits the characteristics and needs of ICU nurses; (3) evaluate the effects the training program on nurses' knowledge and attitudes toward DNR.
Method: The study adopted two groups pretest-posttest experimental design. The structured questionnaires were administered to 200 nurses who worked in the ICU for more than six months and agreed to participate in study from three hospitals. There were total 153 nurses responded to the questionnaires. Participants were randomized into the control (N=78), and experimental (N=75) group. After the pretest, the experimental group participated in a five-hour training program on caring and received a posttest assessment two weeks later.
Results: The results showed that before the training program, nurses' knowledge about DNR was insufficient, and only 62.56% correct response rate. For the attitudes toward caring DNR patients, the score of the item "discussion about DNR" was the lowest. For the DNR attitudes, the score of the item "taking care of the patients' physical needs" was the highest. After the training program, the scores of the DNR knowledge, DNR attitudes, and care for the DNR patients increased obviously (F=66.36, p< .01; F=19.65, p< .01; F=37.73, p< .01). The results suggest that the training program on EOL caring is effective on improving nurses DNR knowledge, DNR attitudes, and care behaviors for the DNR patients and families.
Conclusion: The training program on caring for ICU nurses could significantly improve their knowledge and attitudes in DNR. The ICU care is life-saving oriented, it is essential to

enroll the EOL caring concept into the ICU and guide nurses how to approach and take care for the DNR patients and families.

How to approach the DNR patients and families in a positive attitudes, and how to take care for them.

8HH4 (1668)
Scoping review on how to support "seasoned but difficult learners in medicine" to get re-trained

Authors
Harumi Gomi

Presenter:
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Background: Lifelong learning is the mainstay in medical education. Insufficient training in the early stage of career in medical practice may lead some physicians to get "re-trained." This study aimed to investigate how to support "difficult learners" in re-training in medicine.
Method: Literature was searched using key words of "difficult learner," "re-training," "support in medical training," "clinical reasoning," using PubMed, Google Scholar, and Web of Science.
Results: There were very few literature on the topic. However, when searching with the term "difficult learners" with PubMed, there were 332 articles. Among them, titles and/or abstract were reviewed for screening. Then there were only few relevant articles left. One article indicated that residents in difficulty would be just slow learners, but that their performance could be positively related in their medical school performance such as the number of re-examinations, and the time to complete medical school.
Conclusion: Amendment programs for physicians with insufficient competency in medical practice should be more strategically developed and implemented to ensure patient safety. Further studies are needed to investigate how to support "difficult learner" physicians in re-training. Effective supportive strategies should be sought for physicians who require re-training in their mid-career.

8HH5 (2749)
'Learning Set' for the 'Upskilled' Multi-professional Workforce in Primary Care

Authors
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Presenter:
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Background: There is an emergence of 'upskilled' workforce in primary care in UK due to current demands. This workforce may consist of nurses, paramedics, pharmacists and physiotherapists who have transferred their skills to undertake work that general practitioners (GPs) have historically done such as telephone triage, clinical consultations and home visits. We have identified a need to support our colleagues in their unique evolving roles.
Method: We adapted the 'learning set' model, which is used locally for GP trainees to facilitate the educational process. The sessions were facilitated by a GP and structured based on the group's learning needs, initially identified from a survey, followed by feedback and discussions. The sessions ran every 6 weeks with its frequency defined by feedback from survey and consensus from the group due to availability.
Results: Triage and same day consultations were the main themes of the sessions, aligning with the roles of the multi-professional participants. Examples of facilitated sessions include 'Making Sense of Triage', 'Putting Illness into Context' and 'MSK Examination Skills and Red Flags'. Feedback has been positive. All participants found the session to be useful with encouraging comments made about sharing ideas and experiences as well as the opportunity to discuss them.
Discussion: The multi-professional 'learning set' has the benefits of small group learning and provides a flexible way of continuously addressing specific educational needs to this emerging cohort. It contrasts other training courses which tend to be topic-based. It also enables this workforce who might be working in isolation to have peer support and share educational experience as well as clinical skills. Regular attendance of the formed group is required for participants to benefit maximally from a small group learning set. We continue to evaluate the sessions in addition to considering collaborating to developing a formal curriculum for this evolving professional group.
Conclusion: The 'learning set' model can be a platform to facilitate multi-professional education. The sessions can help participants develop their competence and confidence working in the primary care setting in a supportive environment, addressing their wider learning needs.

8HH6 NOT PRESENTED

8HH7 (1312)
EUROPE Sim (EUropean Readiness for Pediatric Excellence using SIMulation) in Latvia

Authors
Madara Blumberga
Baiba Ziemele
Reinis Balmaks
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Marc Auerbach
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Presenter:
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Background: Pediatric preparedness in Latvian emergency departments (EDs) is currently unknown. In most hospitals in Latvia, pediatric emergencies are attended by general pediatrician, while more severe cases referred to adult intensivists, surgeons, or anesthesiologists.
The purpose of this study is to 1) measure pediatric emergency preparedness in Latvia using in-situ simulations and surveys of emergency departments, and 2) improving preparedness through gap analysis and action plans.
Method: This prospective multi-center cohort study will involve all 16 Latvian EDs participating in the EUROPE Sim program. This program involves 1) designation of a pediatric champion in each ED 2) assessment of performance by inter-professional teams caring for four standardized simulated pediatric patients using case specific performance checklists and a teamwork/communication assessment. Each site champion works with the study team to complete a validated survey to assess pediatric preparedness across six domains (QI, policies, safety, staffing, equipment, coordination). Two weeks after the session the pediatric champion is provided report out summarizing the hospitals performance on the assessment.
Results: To date, we have conducted the study at 6/16 sites, one pediatric emergency department (PED) with 70,000 pediatric visits/year) and one general emergency department (GED) with 2,029 pediatric visits/year (Figure 1). PED (79.3%) GED (33.7%). The lowest domain was equipment (63%) in the PED and policies/procedures (8.1%) and pediatric staffing (2.5%) in the GED (Figure 2). Performance during simulation cases in GED and PED are shown in Figure 3. The CTS teamwork and communication was 76% at the PED and 40% at the GED.
Discussion: Pediatric preparedness in the PED was higher than in the GED measured by simulations and surveys. Further PED and GED visits in other areas of the country will help further characterize this finding.
Conclusion: Pediatric preparedness in Latvia seems to differ when comparing a PED with a GED. Simulation could be a valuable method to assess pediatric preparedness.

8HH8 (3551)
The relationship between age and knowledge of core medical competencies and multi-day CPD activities

Authors
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Michael V. Williams

Presenter:
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Background: Medicine is a field of ever accelerating knowledge. As such, maintaining currency becomes increasingly problematic as professional and personal responsibilities expand across the lifespan. The correlation among age, medical knowledge, and performance is of central concern to continuing professional development (CPD) efforts.
Method: Data from a series of CPD activities specifically focused on issues in the core competencies related to interpersonal and communication skills, professionalism, and systems-based practice were aggregated to explore the relationship among knowledge of the core competencies and age of the learner. The activities were conducted over several sessions and provided to physicians identified as underperforming in those core competency areas.
Results: The dataset comprised the records of 120 CPD participants. To adjust for small differences across activities, the data were aggregated into three Activity periods: Initial Activity (prior to instruction); Middle Activity (second or third instructional session); and, Late Activity (fourth, fifth, or sixth instructional session).
The data employed included a measure of knowledge of the meaning and effect of the core competencies, the Activity (when the measure was taken), and the age of the participant (ranging from 28 to 75 years).
Age of the participant as well as the Activity were significantly related to Core Competency Knowledge. The interaction between the explanatory variables was not significant.
Discussion: The Activities appear successful in increasing knowledge and skills relevant to the three core competencies and their relationship to practice. All age groups appeared to demonstrate improvement across Activities, with each Activity period's performance improving over prior performance.
Age appears to be related to knowledge about the core competency areas in a way consistent with the literature. This framework was adopted after the older cohorts had matriculated. As anticipated they performed less well on the knowledge measure. However, they benefited from the educational activity equally to the younger cohorts. This may be because the nature of the training (small group learning; intensely interactive).
Conclusion: Age does not appear to be an impediment to learning in appropriately structured learning activities. CPD interventions can benefit all ages of participant.

8HH9 (824)
Factors influencing medical specialists' situational motivation for practice

Authors
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Presenter:
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Background: Keeping up to date with rapid developments i.e., continuing professional development is required for medical specialists. When specialists cannot cope with this demand it leads to more adverse events and less patient safety. Appreciative inquiry into the basic psychological needs (autonomy, competence, relatedness) and factors important for their motivation for daily work (situational motivation), for medical practice and lifelong learning (contextual motivation) is necessary. The aim of this study was exploring what factors influence medical specialists' motivation for practice and the interplay between situational and contextual motivation.
Method: Twenty five medical specialists from several disciplines and three hospitals in Netherlands were recruited through convenience, snowball and purposive sampling until sufficiency was reached. Specialists were asked to fill out a motivation questionnaire, after which they were shadowed for two days each ending with semi-structured interviews. Transcribed data were open coded in a constant comparative manner independently by two researchers, using Self-determination theory as the framework. Through selective coding and iterative discussion consensus was reached.
Results: Specialists scored high on autonomous motivation (5.6 on a Likert scale of 7). From the six themes found to be stimulating or thwarting motivation, the combination of patientcare and teaching was the most important and stimulating one. This combination makes all three basic psychological needs come together. Several factors thwart motivation through autonomy and competence, namely: technical issues (informational or operational tools), non-cooperative colleagues, and not being in control of their own schedule (because of administrative tasks for example). The interviews show that fulfilment of relatedness ensures that motivation on the contextual level can remain high.
Conclusion: Autonomy, competence and relatedness are important for specialists' situational motivation. Fragmentation of medical practice and efficiency-mindedness of the healthcare system makes fulfilment of these needs difficult. When factors negatively influencing situational motivation continue for a long time, they can become demotivating and need thwarting for contextual motivation and hence decline the quality and safety of the delivered patientcare.
Take-home message: Fulfilment of autonomy and competence is of high importance to keep medical specialists autonomously motivated in their daily practice.

8HH10 (3415)
Science in the clinic: Positioning MD-PhDs in the everyday clinical settings

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Presenter:
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Background: The PhD education is a form of continuing professional development (CPD). The MD-PhD is a dual degree that includes a degree in medicine (MD) and a PhD-degree. Medical doctors with a MD-PhD-degree are prepared for careers as physician-scientists. MD-PhDs have been hailed as significant to the advancement of medicine and health care. Some even argue that decrease in the number of MD-PhDs poses a threat to medical science and clinical practice. Yet when it comes to which positions MD-PhDs should hold in the clinic and the academic world, there seems to be no real consensus. To the best of our knowledge no empirical studies have been made concerning the ways in which a PhD-degree contribute to MD-PhDs' professional practice in the clinic. Hence, this study explored how MD-PhDs are positioned in the clinic and the ways in which CPD in the form of a PhD-degree contribute to medical doctors' clinical practice.
Method: The study was explorative and qualitative, based on 27 individual interviews with MD-PhDs, their physician colleagues without a PhD-degree and their leaders, supplemented with four group interviews with 36 members of appointment committees. Positioning theory was applied as a social constructivist framework for data analysis.
Results: We found two opposing positions cutting across the groups of informants. One side criticizing the MD-PhDs for not doing enough research and for using the PhD-degree to climb the career ladder, while the other side emphasized the ways in which MD-PhDs increase the clinical focus on evidence based medicine and integrate it with clinical decision making, thereby enhancing patient care.
Discussion: The central discussion is whether MD-PhDs must either pursue research (and rarely see patients in the clinic) or practice medicine (and have nominal research activity), or whether it is possible to have a career path that can unify the two positions.
Conclusion: A debate is needed to establish more clearly how we wish to position MD-PhDs in the clinic, which in turn will give us a better idea of how many to educate and how to make better use of their competencies.

8HH11 (348)
Using online simulation to improve physicians' competencies in HPV-related problems

Authors
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Sam J. Daniel

Presenter:
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Background: The majority of sexually active Canadians will have a sexually transmitted HPV infection at some point. However, only 12% of Canadians under 30 were vaccinated in 2012. This rate is in part due to clinicians' lack of knowledge about vaccination guidelines and to their difficulty in communicating their recommendations to patients.
Method: As an accredited CPD provider, the FMSQ developed an e-CPD module designed to assess and improve physicians' competencies with HPV-related problems. An online simulation module, with interactive patients approach, was designed to address CanMeds roles—Medical Expertise and Communication.
The module uses an immersive approach where the learner interacts with a patient in the clinical setting as part of a regular visit. It includes assessment strategies where learners have to make clinical decisions and get personalized feedback. The CPD REACTION questionnaire, based on the theory of planned behaviors, is used to evaluate the impact.
Results: Based on the responses from 155 participants, Self-reported Efficacy beliefs increased by 20%; and 85% of participants planned to change their screening practice to meet the new guidelines and improve their vaccination recommendations. The most prevalent indicators of change were the influence of the social (mean of 5.82) and moral (mean of 6.44) norms related to the expected behaviors.
Discussion: Online patient simulation is an innovative approach that appears to have the potential to improve knowledge and skills of physicians. Long-term follow-up questionnaires should validate if the participants changed their practice. Providers need to consider this approach when developing competency-based CPD activities.
Conclusion: Although online CPD may not be the panacea it was originally thought to be, there are financial and educational advantages in exploring this approach in competency-based CPD.

8HH12 NOT PRESENTED

8HH13 (1704)
Developing an online case study repository for continuing medical education

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Presenter:
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Background: We explore the development of an institution-wide, online case study repository for the documentation of valuable learning experiences of healthcare educators for continuing medical education. Harnessing technology as a means of managing knowledge allows one to learn vicariously, and presents an easily accessible archive of knowledge for retrieval, future reference, and education of healthcare professionals.
Method: An online survey was disseminated to clinician educators and non-clinician trainers in National Healthcare Group, Singapore to gauge their familiarity with case studies in teaching, how likely they were to use them, and their preferred case length and topics. An existing institution-wide e-learning platform will host the repository to ensure accessibility of case materials. Potential contributors will also be able to propose suitable materials through an online form.
Results: Majority of respondents (75.9% (n=141) of clinician educators; 56.7% (n=30) of non-clinician educators) indicated that they wanted to learn how to use case studies for teaching. Half (54.6% of clinicians, 50% of non-clinicians) responded that they were very likely to use case studies in their teaching next year, and indicated communication as the most useful topic (71.6% for clinicians and 60% for non-clinicians).
A case suggestion form was created to allow contributions from respondents, who could also indicate if they wanted to be trained as casewriters. The existing portal tracks log-ins and downloads, providing information about "in-demand" topics.
Educators indicated that the case repository is a learning and teaching resource that is beneficial to them. It functions as a self-sustaining partnership between different educator groups in the institution, providing a platform for educators to develop materials that are contextualized to their specialties and institutional settings, without much additional resourcing.
Conclusion: A case study repository harnesses technology effectively and can represent a powerful tool for teaching complex but healthcare transformation issues, such as leadership, professional development, managing change, and communication, allowing individuals to learn vicariously in an organization

8HH14 (169)
Project T – boundary-spanning, innovative problem solving capabilities in medical professionals

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Presenter:
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Background: In a complex and dynamic healthcare environment, medical professionals are required not only to deliver high-quality clinical care but also to solve complex organizational problems which may fall outside the clinical arena. This requires the development of T-shaped medical professionals with deep clinical knowledge (the vertical bar of a "T") as well as broad, boundary-crossing competencies to enable them to innovate solutions to complex problems with multiple stakeholders (the horizontal bar of the "T"). The current study aims to identify these capabilities, and to understand their development.
Method: This was a qualitative study carried out in two phases: the first phase comprised an online survey sent to senior doctors in major acute general hospital in Singapore, asking them to nominate peers with a consistent record of solving complex, novel problems outside of clinical practice. The second phase comprised in-depth, semi-structured interviews with eighteen individuals who had received multiple nominations from the peer review process. These interviews explored their conceptions of the capabilities needed to solve complex organizational problems.
Results: In addition to cognitive capabilities (strategic thinking, systems thinking, knowledge of the organization), "soft skills" such as interpersonal and self-management skills were deemed critical to navigate organizational systems, conceptualize a working plan, corral and motivate team members. Attitudes such as empathy, being unafraid to challenge norms, and perseverance were also mentioned. Participants reflected that their development was shaped by salient experiences during their formative years. On the other hand, current experiences in healthcare, role models and mentors provided them with motivations to address system-level, organizational problems. Participants also reflected that having a supportive team or organizational culture was also critical.
Conclusion:: These capabilities and attitudes mentioned will be useful when designing continuing professional development programmes to equip physicians to take on problem-solving in non-clinical areas. They can also be incorporated into interviews for healthcare leadership roles. The importance of supportive environmental influences is also acknowledged.
Take-home message: This study identifies both individual and environmental factors needed to develop T-shaped

medical professionals needed in a complex and dynamic healthcare of the future.

8HH15 (3251)
Transforming Postgraduate Medical and Dental Education: The Creation of Overarching Governance Arrangements to Improve and Monitor the Delivery of CPD in Wales

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Presenter:
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Background: The Wales Deanery delivers postgraduate medical and dental education in Wales, providing approximately 3000 training grade doctors, 4500 dental professionals and 2500 general practitioners access to a range of CPD opportunities to enable them to provide effective and safe patient care and achieve career aspirations. The aim of this review was to develop a set of high level principles and governance arrangements to underpin these principles and thus improve the quality management of all CPD activity.
Method: A project was initiated and divided into four phases: (1) Scoping, (2) Collation, (3) Development and Implementation of Principles, and, (4) Creation of Governance Arrangements. Colleagues and stakeholders were asked to complete online surveys which collected data including the number and type of courses delivered and the demographics of attendees. Furthermore, discussion groups with key section leads supplemented the data collection and enabled us to gain a deeper understanding of what was delivered. Focus groups were used to consult with Deanery stakeholders.
Results: The creation of new governance arrangements to oversee CPD activities across the Wales Deanery and a set of principles to underpin future activity.
The creation of the new governance arrangements included an overarching Governance Committee and a CPD support unit. This enables us to standardise our approach to all aspects of CPD activity leading to more effective development and delivery.
Discussion: With the development of new governance arrangements we have achieved standardisation of all processes governing CPD activity. In addition there will be opportunities to collect, analyse and disseminate information around the effectiveness of CPD undertaken by Healthcare Professionals and how it enhances clinical practice. Ultimately the opportunity to drive change will enable us to establish the "quadruple aim" in the 2018 Parliamentary Review of Health and Social Care in Wales by healthcare professional education and training.
Conclusion: In order for CPD activity to be effective, robust systems must be in place to ensure it is high quality, meaningful and relevant with outcomes that are measurable and which show improvement in patient care as well as being value for money.

8HH16 (774)
The role of Journal Clubs in Continuing Professional Development

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Presenter:
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Background: While bridging research to clinical practice, journal clubs are a learning method that stimulates critical thinking and encourages continuing professional development informed by evidence-based medicine.
We present the experience of a founding journal club conducted in Ukraine.
Summary of work: Ten Ukrainian practicing ophthalmologists, mean age 35 (SD 9.71), (3 male) held 10 journal club meetings (Jan - Nov 2017). The chairperson proposed and accepted clinical relevant topics to discuss for overall aim agreement, circulated the topic in advance by email and guided the discussions.
Meetings were structured to a) explain the clinical question that led to the literature research; b) consider the authors and journal; c) appraise if the constructed research question observed the PICO components (Population, Intervention, Control, Outcome), d) appraise standing evidence, the study design, methodology, results and the clinical practice impact. A content expert was invited for each meeting.
A satisfaction survey, (graded 1 to 5, 5 standing for full satisfaction) and a multiple choice questions pre and post-test were undertaken per session.
Summary of result: The satisfaction survey Grade 5 was chosen in 80% of all meetings.
The T Test of mean classifications comparing pre and post-tests with an average classification of 51 % (SD 19.5) and 75 % (SD 15.3) respectively showed significant statistical learning improvement (p<0.05) for all sessions. 92,4% of participants showed improvement in post-test results.
Discussion and Conclusions: This first year's experience of a Ukrainian group of ophthalmologists journal club was welcome as an engaging learning method and a) facilitated critical thinking, b) allowed to practice the formulation of a clinical question, c) improved research literacy, d) didn't require special setting facilities and e) included Internet communication tools.
The program evaluation showed learning advancement and encourages to expand the onsite group to others interested in remote Ukrainian regions, include the digital visiting professor as content expert and measure the impact of the program on clinical performance.
Take-home Messages: Journal clubs
-Can be an effective learning method
-Facilitate lifelong learning informed by evidence-based medicine
-Suit the scope of continuing professional development

8II: Posters: eLearning/Virtual Reality

Location: Hall 4.u, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

8II1 (3170)
Guideline for distance learning studies for graduate medical students

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Background: Learning development in distance learning (EaD in Portuguese) requires unique student services and pedagogical actions. The Guideline for distance learning studies (GDLS) is a teaching material devised for guiding and facilitating studies in a virtual learning environment (Moodle). It has been validated by graduate medical students of a postgraduate course in Family Health. Its creation is the result of previous exploratory studies, which detected that distance learning requires self-regulatory and digital competencies so that students can perform well.
Method: This work presents the creation, validation and analysis processes of GDLS as a new pedagogical resource, created with the active participation of the students. The GDLS contents have been defined based on the analysis of the learning difficulties detected in previous exploratory studies. The Guideline's validation by the students occurred during an on-site activity. The analysis was put together from the answers given by 105 students when filling out an assessment for with 6 questions. Each question address a different category with regard to GDLS. The analysis carried out was based in the following categories: usefulness, appropriateness, clarity and objectiveness of the material.
Results: The analysis of each question in the form generated the following results: 87% of the students deemed the material appropriate; 79% of them found the information in the material useful; 58% of them said they received new information; 84% of them said they understood all the information; 81% of them found GDLS useful and 88% of the students said that receiving GDLS at the beginning of the program was an interesting idea.
Discussion: The analysis of all the data indicated that GDLS had a high level of acceptance among students, who evaluated all categories in a positive way. The results demonstrated the importance and relevance, as acknowledged by the students, of creating resources aiming at generating positive attitudes and motivation within the learning process, as well as encouraging students to do well and engage in self-regulatory processes.
Conclusion: The creation of guidelines for distance learning studies may provide support to self-regulatory processes and quality to teaching-learning relationships.

8II2 (2230)
Optimising online tutors' support and development within a distance learning programme

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Background: With the increase of online distance programmes, there has been an associated increase in the numbers of online tutors recruited to support the learning of students. The provision of support and development for online tutors can be challenging due to their heterogeneous nature(1). This study aimed to explore the ways to optimise online faculty support and development from the tutors' experiences from a large online programme in medical education.
Method: Qualitative methods were employed. All tutors were invited to participate (n=60). Eighteen completed the online questionnaire; four took part in a semi-structured interview, and one elite interview was conducted with a core faculty member. Thematical analysis was used to explore the data.
Results: Participants suggested ways to optimise their support and development covering five areas of 1) processes of induction, ongoing and mentoring, 2) fostering a sense of community, 3) more responsive to tutors' development needs, 4) enhancing communication between tutors and staff and 5) clearer policies to support tutors. The availability and prompt responses of ongoing support from core staff were positively highlighted. Most participants reported a limited sense of community coupled with low expectations of such a community. A number of ideas on strengthening community membership were suggested; some of which would have policy/reimbursement considerations e.g.supporting student discussion forums, engagement in broader programme activities. Mentoring by more experienced online tutors was suggested to support newer recruits in order to promote engagement and professional development.
Discussion & Conclusion: This study enhances the understanding of how to optimise the online tutors' support and development from their experiences and informs future activities for faculty support and development.
Areas to be considered in optimising online tutors' support and development include 1) processes of induction, ongoing and mentoring 2) fostering a sense of community 3) actively support tutors' development needs 4) enable

two-way communication 5) policies should underpin support for tutors.

1) Cornelius S, Macdonald J. 2008. Online informal professional development for distance tutors: experiences from The Open University in Scotland. Open Learning, 23(1):43-55.

8I3 (1979)
Exploring medical students' use of internet search engines in radiology

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Presenter:
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Background: Nowadays use of internet search engines has become an essential part of medical students' lives due to accessibility and availability. In academic purpose, they also use a general search engine to get more information rather than consult a medical or official website. However, the usability, effectiveness and decision making of the search engine use by Thai clinical students are still questionable.
Method: A cross-sectional questionnaire-based survey was conducted among 180 medical students from 4th to 6th academic years with a response rate of 100%. The main aim of the self-administered questionnaire was to explore how students use the search engine gathering radiologic information.
Results: Almost all medical students (98.3%) had personal electronic devices and 58.3% used smartphones as a major tool to obtain radiologic information. The students frequently sought at hospital workplace (48.3%) in many purposes, particularly for clinical problem-solving (81.7%) and academic activities (70%). In the usability, most of them (83.9%) had intermediate to good searching skills by self-appraisal, 86.1% learned it themselves and 84.4% took searching time less than half an hour. They performed a search by applying a specific keyword (65.6%), many keywords (14.4%), and keywords with citing websites (15%). With regard to choosing search results, they considered on headings (40.6%), short descriptions (40%), first-page results (37.8%), well-known URLs (30.6%) and alternative images/videos (11.1%). The effective use of search engines by nearly all of the students (98.9%) was quite high; however, most of them (80%) still need to take an extracurricular course for improving their expertise. Problems of the usage included low speed of internet (87.2%), language barriers (58.9%), accessibility of medical publications (46.1%) and big data (16.1%).
Discussion: Basically, majority of all medical students have already been good searching skills to establish radiologic information in different manners; however, they constantly need to learn more. The language barriers are

intrinsically problematic in Thai medical students although otherwise problems are extrinsic.
Conclusion: Education in search engine optimization and English proficiency is crucial to individual skill improvement and lifelong learning.

8I4 (2582)
Application of an integration framework for using a Massive Open Online Course in undergraduate classroom teaching

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Background: Massive Open Online Courses (MOOCs) are a new way of delivering interactive learning activities and the number of these courses in Medicine is increasing rapidly. The materials in a MOOC such as lectures, movies, games, interviews, quizzes, and online discussion forums, are a valuable addition to regular face-to-face teaching. However not much is known on how to effectively blend the online resources with classroom teaching.
Method: In our previous study an integration framework for applying MOOCs in face-to-face teaching has been developed. The model presents 5 settings ranging from using single assets to the entire online course. In the current study a MOOC on the topic of Clinical Kidney Transplantation has been implemented in a regular undergraduate medical school curriculum using three different designs from the framework. In setting A, small parts of the online course have been offered as additional learning materials to face-to-face teaching. In setting B, a week of teaching activities has been replaced by participation in the MOOC. In setting C, the full online course was offered as a compulsory activity for entering a face-to-face training program. In all settings clear instructions to students were provided.
Results: In all three settings the students rated the use of the MOOC resources as interesting and motivating. Over 60% of the students explored more teaching materials than was requested for by the faculty. In setting C where completion of the full MOOC was compulsory the engagement of the students with the online materials and their participation in discussion forums turned out to be much larger than in the other settings.
Conclusion: Using the designs from the framework, the MOOC has been successfully integrated into regular classroom teaching. Students rated the combination of resources and strategies positive. The use of open materials offers opportunities for reforming and innovating regular face-to-face programs with free available high quality teaching content. The frameworks proved to be a very helpful tool for integrating online resources into regular classroom teaching.

Take-home message: An integration framework is very helpful for including MOOCs into face-to-face teaching.

8II5 (804)
Internet addiction among medical students in clinical year at Nakornping Medical Education Center

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Background: Internet has become the part of life of medical students. Not only academic purpose and communication, internet is also a very effective tool to relax stress among medical students. However, excessive or inappropriate internet use can lead to internet addiction that caused psychological disturbance and social problems.
Method: Cross sectional online survey was conducted in medical students in clinical year 2017. The internet addiction test developed by Dr. Kimberly Young was used to determine the level of internet addiction.
Results: 53 of 60 medical students (88.3%) participated in the survey. All of them used internet everyday for searching medical information, social communication and entertainment and 43.4% spend time on the internet between 3-5 hours per day. 32 students (60.4%) were classified as internet addiction (mild-39.6%, moderate-20.8%). There were no association between level of internet addiction and grade point average (GPA).
Conclusions: The prevalence of internet addiction was high among medical students. We should increase awareness and prevent the problem of internet addiction to them.
Take-home message: Medical students are among high risk of internet addiction because they use internet for both academic and non-academic purposes.

8II6 (783)
The use of Moodle in medical education: Literature review

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Background: Moodle is one of the most famous learning platforms in the world. Since it has many features such as quizzes, forums, glossaries, and assignments, Moodle can be considered as a Swiss Army knife for e-Learning. However, this abundance of features can sometimes become troublesome for new users. Case studies and research on Moodle can be helpful, but there are no review articles about the use of Moodle in medical education.
Method: This literature review aims to identify the usage of Moodle in medical education. The review was conducted using PubMed. The search term "moodle" was used. Papers were limited to those published in English between 2002 and 2017.
Results: A total of 91 papers were identified, out of which 20 were excluded because the papers were unavailable and 10 were excluded because they were not about the educational usage of Moodle. Of the remaining 61 papers, 16 (26.2%) used a single feature. Further, 27 papers (45.9%) mentioned the usage of "resources" modules such as Page, URL, Book, and File. About the "activity" modules, 25 papers (44.2%) used Forum, 18 (37.7%) used Quiz, and 7 (21.3%) used Assignment. A few papers used other activities such as Wiki, Glossary, Chat, Lesson, and Blog. Most of the Forums were used for posting and discussing tasks. Quizzes were used with feedback features so that learners were able to find why they were wrong and what they should do by themselves.
Discussion: Although some studies used Moodle effectively to provide an active, self-directed learning environment, others used only a few, simple features. This might be because of a lack of knowledge of Moodle, since most medical educators are specialists of medicine, not of Moodle or other educational technologies. Teachers and instructors should collaborate with resource developers who are familiar with educational technologies.
Conclusion: Although some studies used limited features of Moodle, it can create a more effective learning environment. A collaboration between medical and educational technology specialists may help improve the use of Moodle in medical education.

8I17 (1887)
A unique e-learning education platform for health practitioners

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Background: The promise of exciting, interactive e-learning is yet to be realised by most health services. Our department currently uses physician time to deliver ad-hoc Induction programmes for junior staff up to 20 times per year, with limited ability to audit content, education outcomes and teaching efficacy.
Method: We developed an interactive e-learning platform allowing insertion of text, images and videos to immerse learners in relevant, interactive clinical scenarios. To test its efficacy, we piloted this platform by creating two different educational programs, including an Induction program for junior doctors.
Results: The platform enables authors to present clinical scenarios in a structured 'Situation, Question, Interaction and Feedback (SQiF)' format. Each clinical scenario unfolds in digestible 'chunks', with frequent opportunities for learner interaction and reflection. The modular design allows busy clinical staff to access the material both on- and off-site at convenient times. The format conforms to adult learning principles and manages cognitive load. The content is fully customisable and, includes built-in questionnaires for immediate feedback to learners. Each module ends with curated links to further information to be used at the learner's discretion.
Discussion: The piloted Induction programme was created by clinicians in 3 months working in association with an Instructional Designer. It uses commonly available tools such as personal smartphones and editing software.
Across 8 lesson modules (each with 5 parts) the 90 minute curriculum included:
- 40 Clinical micro-situations (video or image)
- 40 Questions and required learner interactions
- 40 Feedback segments (video or image)
 Qualitative pre- and post- evaluation of the program including comparison to the previous Induction program is underway.
Conclusion: The SQiF system is a unique platform for video-based scenarios which prioritises interactive clinical learning. It is a more efficient way of teaching roles and responsibilities to junior doctors, whilst engaging their higher order thinking. It more reliably demonstrates professional competencies than previous clinician-run didactic systems of induction and orientation.
Take-home message: This new innovative platform allows clinicians to utilise everyday tools to create highly engaging, interactive and auditable e-learning content customised for their audience.

8I18 (3323)
Developing the Virtual Pathology Lab experience

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Presenter:
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Background: Learning pathology is a challenge, students must develop the skills to identify microscopic abnormalities, explain the interaction of functional disorders, and its causes.
Method: This study assesses whether an online approach, that combines digital images, online slides and a learning management system, provides a practical and effective teaching method for medical students, both inside and outside the classroom. The development of the Virtual Pathology Lab experience was performed on 3 phases: design, implementation and analysis. Design phase included the search and selection of samples and material, digitalization of slides, configuration and preparation of files using DeepZoom app, and loading the material on the webserver. Implementation considered the design and operation of web page, functionality and maintenance of the slide viewer, and using the images on class. Analysis was performed to assess the results of the educational experience for continuous improvement, considering students' perception.
Results: Satisfaction of 83 students in the Pathology class was assessed with an online survey, using a Likert scale from 1 to 5 where 1 stands for total disagreement and 5 for total agreement.
Regarding the impact of virtual pathology lab experience in their academic performance, 97.6% of students believe this approach was useful to achieve learning objectives as it allows self-directed learning, easier feedback, and collaboration between peers.
Discussion: Feedback obtained in this project has been positive regarding the interest and appreciation of students towards technology. The responses indicate considerable advantages, including that all students have easy access to images and course information. It favors self-directed, as well as collaborative learning. However, there are still few limitations inherent to the format, such as less direct interaction with the teacher.
Conclusion: Teaching pathology is based on microscope observation, limited to perform group practices; however still images or slides do not provide the student with a broader panorama of morphological alterations on the examined tissue. The inclusion of technology in medical

education allows the ease of access and portability of information, favoring self-directed learning

8II9 NOT PRESENTED

8II10 (2646)
Student-developed virtual patient application to foster students' learning and assess their clinical reasoning

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Presenter:
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Background: Virtual patient application was developed by two medical students to introduce an easy-to-use and cost-effective tool for self-directed learning during a pediatric course in the 5th study year. This study aimed at examining whether interactive virtual patient scenarios fostered students' learning in a clinical study module measured with an online examination.
Method: Voluntary fifth year medical students were asked to use the virtual patient application in preparation for the entrance examination of a pediatrics study module. 24 of 56 students participated in the study. We collected data on students' background, performance and user experiences in solving virtual scenarios and combined this information with their examination results. The study was reviewed by the ethics committee. We analyzed the correlation between the examination result means (M) and items indicating performance in solving the virtual scenarios.
Results: The participants' ages ranged between 23 and 32 and they had 2-7 months of clinical working-life experience. Choosing the correct diagnosis (M=17.9 out of 30 examination points, incorrect M=11.0/30) was the most distinctive predictor of a high score in examination (p=0.006). Prescribing the correct medicine (M=17.8/30, incorrect M=13.5/30) showed a tendency towards a high score but was not statistically significant (p=0.056). Being able to make 'very important' queries also showed a correlation (Pearson r=0.434, p=0.034). No similar correlation was detected with 'important' queries (r=0.227, p=0.287). 54% of the participants filled in the feedback questionnaire. They reported that the application helped them to study (M=4.6 in 5-point Likert-scale) and self-assess their skills (M=4.5).
Discussion: This pilot study shows that the students' performance in this type of simulation correlates with the performance in an examination. The study also strengthens the evidence of the value and validity of the versatile use of virtual patient scenarios in digital learning environments in medical schools. We suggest virtual patient scenarios to be integrated into the digital learning platforms and used in online assessment. When used in summative assessment, the virtual patient scenarios require validation.
Conclusion: Virtual patient scenarios provide a safe, cost-effective tool for both self-directed learning and online assessment in clinical medicine.

8II11 (3470)
Medical students' perceptions of virtual patients, using natural language processing, as a tool for developing history-taking skills

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Presenter:
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Background: Many institutions use virtual patients to complement the teaching of clinical reasoning and patient management. Programmes that utilise natural language processing allow for the creation of virtual patients that can respond to a free choice of user inputs. Such tools have the potential to allow healthcare students, especially non-native English-speakers, to practise communication and language skills in a safe and standardised environment.
Method: We have created a series of virtual patients that allow students to develop their history-taking skills via text or speech input with online virtual patients. Photo-realistic avatars and text-to-speech software make the user interface more realistic and engaging.
Sixty third-year Japanese medical students were given access to the virtual patient simulation programme over a 2-week history-taking course. Feedback was obtained from each student via an anonymous written questionnaire asking for opinions on the system's utility, ease of use, limitations, and suggestions for improvement. The amount of time each student spent using the system was also documented.
Results: The average amount of time spent on the system by each student was 1.5 hours over the two-week course. The majority of students (87%) described the system as 'useful' or 'very useful' as an additional resource for developing skills in history taking, allowing them to practise oral communication, pronunciation, and listening in an interactive environment. Fifty eight percent of students described the programme as 'easy to use', with students citing difficulty learning to use the software as being an obstacle. Limitations given by the students included a small library of patients currently available and occasional difficulties with the programme failing to recognise certain accents.
Discussion: Natural language processing virtual patients were well received by our cohort of students and largely seen as a valuable and innovative new resource for helping them develop history-taking skills. Students cited difficulties using the software as the most common limitation with the system.
Conclusion: Virtual patients show great potential in complementing current teaching strategies in medical

education. Further research is needed to quantitatively assess their benefits and limitations in the classroom.

8II12 (1549)
The association between different learning styles and students' satisfaction with the use of virtual patients

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Presenter:
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Background: Virtual patients (VPs) are modern educational method for e-learning. Different VP aspects have already been examined, however, little is known on how students' different learning styles (LS) affect user satisfaction. In particular, qualitative studies show that some students show greater dissatisfaction with VPs as others. They categorize them as unrealistic, time-consuming or difficult to focus. The aim of our study was to understand possible differences in VPs satisfaction with respect to the different LS. Outcomes would then allow us to adapt teaching with VPs according to the needs and abilities of individual students.

Method: This preliminary study examined fifty-one undergraduate 3rd and 4th year medical students previously taught with VPs. Information acquired from the validated Virtual Patient Integration Rating Scale (VPIRS) questionnaire on VP satisfaction in the undergraduate curriculum was compared with responses to Kolb's Learning Style Inventory (LSI). Data analysis was done using the Spearman's rho correlations test and descriptive statistics.

Results: Forty-two of the students were female and nine students male. The students' average age was 22.3 years (SD 1.4). None of the analysed LS, which are i) assimilating, ii) converging, iii) diverging and iv) accommodating, were significantly correlated with the VPIRS domains. Especially in the VPIRS domain "inauthentic learning", where difference was expected between the converging, diverging LS and others, there was no correlation (rs=0.074, p>0.604); rs=-0.196, p>0.168; rs=0.178, p>0.211, and rs=-0.080, p>0.576; respectively).

Conclusion: Our ongoing study shows that there is no significant difference in satisfaction with the use of VPs between students with different LS. In comparison with Shinnick et al, evaluating LS impact on knowledge gain with a Human Patient Simulator, our data currently does not support the need to adapt different teaching approaches based on LS. However this study is still recruiting students and we expect a greater student group to improve the statical power and quality of evidence on LS with VPs further.

Take-home message: Students with different LS did not show any difference in satisfaction with the use of virtual patients.

8II13 (1171)
The influence of process versus outcome oriented feedback on students' behaviour while solving virtual patient scenarios

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Presenter:
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Background: Virtual patients (VP) in the form of interactive on-line scenarios are used to foster clinical reasoning. A plethora of software systems are available for this purpose, but at the same time there is a lack of clarity about the impact of individual VP features on student performance.

Method: In the academic year 2017/2018, a set of 12 VP scenarios were introduced in the fifth-year's Laboratory Training of Clinical Skills course at Jagiellonian University. The aim was to activate clinical reasoning skills in students prior to high-fidelity simulation scenarios. The VP assignment was mandatory and three new cases were presented each week for self-directed learning. The VPs were enhanced by a tool (Hege et al, JMIR Med Educ 2017;3(2):e21) to allow construction of structured concept maps while solving the case. In group O (outcome-oriented), expert concept maps were available only after students completed their case and map. In group P (process-oriented), a progressively unfolding series of expert map views was available all the time. In the last "examination" week all VPs had outcome feedback only.

Results: Seventy (n=70) students from group O and seventy-one (n=71) from group P completed all cases. The time spent accessing the VPs in the first week was similar in both groups (O/P:115±106min/111±56min;p=0.78), but the difference subsequently increased, reaching a statistically significant difference in the examination week (O/P:79±46min/106±75min;p=0.01). The number of concepts in student maps was also different between the groups: in the first week (O/P:69±25/77±19;p=0.03) and the examination week (O/P:68±29/82±27;p=0.004).

Discussion: The study is limited by a naturalistic design that does not exclude group contamination and confounding. Yet despite this, our results show differences in students' behaviour in the examination week. The study is still on-going with more data to be included until June 2018. We are working on grading and comparing the quality of maps between the groups.

Conclusion: The presence of process-oriented feedback in the learning phase resulted in more thorough construction of clinical reasoning concept maps in the examination week, when compared with groups only receiving expert map feedback at the end of the scenarios.

8II14 (2170)
Virtual reality Fully Immersive Interactive Technology. A new way to deliver a lecture?

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Background: With the birth of the smart phone there is now a rapid expansion in the use of this technology to improve and enhance medical education. A recent literature review by Valle et al. (2017) concluded "Smartphone use is clearly an effective and efficient method of enhancing patient care and medical education in the health care industry."
Recent technology advancements allow a smartphone to be converted into a virtual reality headset. We have developed a method of Virtual Reality Fully Immersive Interactive Technology Teaching (VR FIITT) where a student may be fully immersed in a virtual reality teaching session.
The aim of this project is to see if delivering teaching material in this format improves student engagement and learning compared to the standard lecture environment.
Method: 40 people attended a day of lectures and were asked to score their experience on the standard feedback sheets. Of the 40 attendees 17 were recruited who were asked to watch the same lecture online and then in a VR FIITT format. At each stage their opinion of the VR FIITT lectures was assessed. Students provided feedback across three domains, engagement with delivery, enjoyment of learning, and interactivity and learning opportunity, scoring each domain using a Likert scale.
Results: VR FIITT scored highest across all three domains when compared to a standard lecture or video lecture. Comparing VR FIITT to a standard lecture for engagement it scored 4.88 vs 4.2 (P=0.001). On enjoyment of learning VR FITT scored 4.82 vs 3.76 for the standard lecture (P<0.001), and for interactivity and learning opportunity VR FITT scored 4.53 vs 3.59 (P<0.001).
Conclusion: VR FIITT has been shown to be the preferred teaching method compared to a standard lecture or video lecture. Using this format can enhance student learning and engagement, as well as allowing it to be widely accessed to all students, due to no timetable constrains.
Take-home message: This research project highlights that in this fast-growing field, VR will have an ever more important role in being using alongside/replacing standard teaching methods.

8II15 (473)
Augmented Reality in Medical Education: A Systematic Review

Authors
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Presenter:
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Background: The field of augmented reality (AR) is rapidly growing with many new potential applications in medical education. We conducted a narrative literature review on the current state of AR scholarship in medical education.
Method: We conducted a PubMed literature review with the phrases "Augmented Reality Medical Education" (n=108), "Augmented Reality Surgery" (n=598), "Augmented Reality Medicine" (n=327), and "Augmented Reality Medical Training" (n=138). We conducted additional searches on Google Scholar (n=1600), Cochrane Library (n=63), and the Web of Science (n=688). Exclusion criteria included articles that were a) published prior to 1995, b) related to Virtual Reality (VR) in medicine, c) quantitative or qualitative reviews, and d) described AR outside medical education settings (e.g., surgical procedures). We categorized the studies by publication date (< 5 years ago; 5-10 years ago; > 10 years ago) and focus (anatomical visualization and imaging; knowledge acquisition; and surgical training). In addition, we assessed the quality of the studies using the Grades of Recommendation, Assessment, Development, and Evaluation (GRADE) guidelines; points (6=maximum) were assigned based on randomization, use of control groups, a sample size greater than 50, external validity, blinding, and length of follow-up. High-quality studies were defined as those scoring > 3 points.
Results: The original search yielded 38 papers. Ten studies met the inclusion criteria; 90% (9/10) were published in the last five years. Two papers focused on anatomical visualization and imaging, one on knowledge acquisition, and seven on surgical training. Common AR applications in anatomical visualization included the use of mobile devices to improve anatomical and medical imaging training. Applications of AR in knowledge acquisition included study aids and simulations designed to train students in clinical interactions. In surgical education, AR applications included modules for procedures in neurosurgery, obstetrics and diagnostic cardiology. Six papers were deemed high-quality per GRADE guidelines.
Conclusion: Augmented reality in medical education remains a young field with most original papers published in the last five years. The primary focus is in surgical training, though AR applications in anatomical visualization and knowledge acquisition are becoming increasingly prevalent. More research is needed to demonstrate the efficacy of AR in improving medical education.

8JJ: Posters: Clinical Teaching 3

Location: Hall 4.u, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

8JJ1 (1189)
Are medical students going to sea at all? The current state of clinical teaching at a university hospital

Authors

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Presenter:
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Background: Clinical teaching (CT) involving real patient encounters may occur within in-patient, ambulatory or community settings, and is recognised as vital to medical education. However, its usage is apparently diminishing, with various reasons being hypothesised. [1]
In this study, we seek to describe and evaluate medical students' current experiences of CT, at a tertiary, university hospital.
Method: 96 final phase medical students on their 10-week senior general internal medicine rotation were surveyed on their experiences of CT. Questionnaires included five-point Likert-type and free-response questions. Details included approximate number of encounters, setting, grade of tutor, organisation and quality indicators including enjoyment, relevance, improvement to practice. Free-response questions enquired about most/ least useful elements and suggestions for improvement.
Results: Number of sessions per student: mean= 20.759; mode= 20; range= 8-40. Volume is considered less than adequate. CT provided by all grades from first-year graduates to consultants, only 17 students received teaching from all grades.
Overall quality: mean= 4.167/5 mode= 4/5.
Bedside CT quality: mode= 4/5
Out-patient CT quality: mode= 4/5
Ward round CT quality: mode= 2/5
Enjoyability (mean= 3.967; mode=4/5)
Relevance (mean= 4/5; mode= 4/5)
Improvement to practice (mean= 4.067; mode= 4)
Themes expressed by free-text responses include value placed on real-patient exposure, and opportunities for feedback on performance. Negative comments relate to number of students present, poor ward round teaching and organisational issues. Students' suggested improvements include these issues and desire for more CT.
Conclusion: The volume of teaching in particular is concerning, with students reporting an average of only two CT sessions/week. These students are on their final general internal medicine placement. Students particularly value experience and feedback gained from CT. At our institution the quality of CT is good, without being stellar. However, students have a desire for more, better

organised CT. Ward rounds in particular appear to be a missed CT opportunity
Take-home message: The number of CT sessions taking place at our institution is concerning. Students value CT, and desire more of it. Consideration must be given to methods of improvement.

8JJ2 (1303)
Quality Assurance Visit to Whittington Health Trust: A Model of Medical Student and Faculty Co-creation to Identify Current Reality and Desired Future

Authors

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Grace Sutton, UCL Medical School, London, UK
Camilla Massardi, UCL Medical School, London, UK
Charlotte Perry, UCL Medical School, London, UK
Caroline Fertleman, Whittington Health Trust, London, UK

Presenter:
Caroline Fertleman, Whittington Health Trust, London, UK

Background: Whittington Health NHS Trust (the Trust) is one of three central sites providing clinical placements to UCL Medical School's students. The Trust provides a wide range of placements in the hospital and community. The Director of Undergraduate Medical Education requested a quality assurance visit to reflect on student feedback, identify the current reality of teaching and facilitate improvements to medical and surgical teaching.
Method: Current clinical students were integral to the preparation of the visit by working alongside faculty and directly liaising with the Trust's chief executive. Feedback from years 4 and 5 students for the academic years 2015-16 and 2016-2017 was reviewed, comprising of satisfaction scores and written comments related to individual modules. Data and up-to-date feedback were analysed in a series of meetings enabling immediate actions, such as upgrading the undergraduate common room's examination equipment. Specific strengths and weaknesses of each module were presented to the visiting personnel and an increase in benchmark satisfaction from 60% to 75% for 2017-18 was established.
Results: Overall, the students highly praised the Trust's friendly culture and the community placements. The feedback analysis revealed exceptional student satisfaction in paediatrics, respiratory medicine, anaesthetics and care of the older person. Lower satisfaction was mostly related to quantity rather than quality of teaching; limited numbers of inpatients in certain surgical specialties were reported. For some teaching sessions, lower satisfaction was related to lack of consultant capacity.
Discussion: The visit generated good opinions, improvement ideas and agreement from the visit team. Suggestions included introducing more case-based sessions and placements in integrated care centres to compensate for lack of patients. Tutor guides were proposed by the students to make educators more aware of the curriculum teaching, which led to the production of a template paediatric guide. Additional Clinical Training

Fellows as a cost-effective way of boosting clinical and educational capacity received considerable interest.

Conclusion: This quality assurance process, co-created by students and faculty, provides an effective and cohesive model of reflective practice. Constructive review of feedback with student involvement enables immediate actions and identification of realistic solutions.

8JJ3 (1725)
Quality and Safety of clinical medical internships in low- and middle income countries

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Presenter:
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Background: The interest of students in Global Health has been noticed at all Dutch universities; every university has adopted a form of 'Internationalization', "the growing trend to operate across national boundaries", within their areas of interests and offers Global Health educational activities. Over the past two and a half years, almost 500 medical students from Utrecht University have gone abroad for a clinical internship, with about 350 students going to a low or middle-income country (LMIC). Although a checklist provided by the International Office guides students throughout the practical and preparational procedures, there is minimal control over the students when they leave for their internship. Neither the quality of these internships nor the safety of the students are supervised in a predetermined framework. The need for a structured system for these internships came to light. This research aims to assess the views of various stakeholders on clinical internships in LMICs.

Results: The results showed that students from the UMC Utrecht mostly do their internships abroad in LMIC's and that there is a need for obligatory tropical/predeparture courses for students and a language proficiency for outgoing students. Furthermore, it showed that learning outcomes and objectives of internships abroad are held to different standards and should not be compared with internships at home. Internships at home have significantly higher learning outcomes in comparison to internships abroad, due to the learning environment. Preparation of students should exist several topics: health, ethics, cultural competence, language competence, emotional preparation, host characteristics, and pre determined specific goals (SMART). Next to this, supervision is one of the most important factors, the experts concluded that a supervisor should have experience in a western-healthcare system to successfully supervise Dutch students. To find institutions that match the required criteria, a proposed checklist is made.

This research aims to show multiple views on internships in LMICs to support the quality and safety of these internships. And shows the importance of a complete preparation of students. With input from these perspective, a change within the electives in LMICs should be made, to ensure the quality of these internships and the safety of the students.

8JJ4 (1527)
The use of mock on-call bleep simulation sessions to provide experience and improve confidence in Year 3 Medical Students in the UK

Authors
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Fatima Yusuf, Princess Alexandra Hospital, Harlow, UK
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Presenter:
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Background: In UK based medical schools, there are few teaching sessions that focus on preparing students for being on-call. This is frequently cited in the literature as being a source of anxiety for many newly qualified doctors. Thus, at Princess Alexandra Hospital, we designed mock on-call sessions for 3rd year medical students.

Method: In total, there were 5 sessions each containing between 3 and 5 medical students. Each session was specific to the module the students were studying and comprised of 5 cases located on different wards within the hospital. Each case contained mock patient briefs, relevant investigations and drug charts. Each student initially started at different cases and were given individual bleeps along with contact details for senior advice. Throughout the session, the facilitators would bleep the students with different tasks to complete and students were expected to prioritise the cases. After the simulation, all students attended a debriefing session.

Results: In total we received 19 feedback forms. The evaluation of the session was very positive. Students rated on a likert scale from 1 to 5, with 5 being strongly agree, with the following statements.
The results below are mean averages.
The cases were useful to my learning: 4.58
The session was of high quality: 4.53
I would recommend this session to other students: 4.74
Exploring confidence levels, there was an increase in confidence for being on-call by a mean average of 40% (95% CI: 30.8%-52.8%), an increase in priotising jobs by 28.4% (95% CI: 16.8%-40.2%) and an increase in prescribing medications by 32.8% (95% CI: 22.2%-43%). All these results had a p value <0.0001 on paired t-test analysis.

Conclusion: Students enjoyed the hands-on experience the mock on-call sessions provided and the ability to make decisions with senior support. Many have requested similar sessions to be organised more frequently and at later years. However, more studies are required to explore the objective and clinical impact of these types of sessions. Practical sessions that give medical students hands on experience are important to help prepare them for future on-call shifts.

8JJ5 (942)
Exploring Perceptions of Clinical Beginners in Teaching Clinic by Activity Systems Analysis

Authors
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Background: Outpatient services comprise important clinical settings in which to manage patient problems. Teaching clinics have limited time for teaching and learning due to the high volume of patients. How to deliver clinical education effectively is a question of importance. We analyzed 5th-year medical students' perceptions of these teaching clinics.
Method: Following their participating in various teaching clinics in different medical subspecialties, 12 5th-year medical students (mean age = 23.7 years; male:female =7:5) were recruited for one-to-one semi-structured interviews in 2017. Each interview lasted 60-90 minutes. We used Activity Systems Analysis (ASA) as a framework for analyses.
Results: There were instructional gaps between students' expectation and teaching clinics. Not all tutors provided the opportunities for real patients' practice in the aspect of the "division of labor". Some tutors didn't follow the "rules" to provide effective feedback. Most students could not understand the roles of the assessment "tool" (mini-CEX).
Discussion: After analyses by ASA, possible factors that hinder students' learning expectations in teaching clinics were identified. Although the clinical curriculum of teaching clinics is well established and recommended, the implementation, discrepancies in instructional methods, assessments and feedback differences in tutors may result in inconsistencies. Tutors' and students' understanding of the objectives, roles, and applied assessment tools before their teaching activities, and following them during, might produce better outcomes. Faculty development and the promotion of active learning for students could enhance effective teaching and learning in the clinical setting.
Conclusion: The expected and ideal outcomes were not completely achieved in the time-constraints of teaching clinics for novice medical students. Regular monitoring and improving clinical curriculum via learners' views and revisiting the programs of faculty development will enable learning results to be more effective.

8JJ6 (2319)
On-site Clicks to make situational learning easy and accessible

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Background: Clinical learning is closely related to clinical context. In digital era, learning materials could become easily available for learners upon situational context while mobile devices has become so popular. The transformation and categorization of learning materials into digitalized information accessible upon clinical context would make clinical learning much easier.
Method: We first digitized and categorize our educational materials into documents or multimedia files and tag them with QR code. Students are allowed to access these materials at different sites in pharmacy department. Also, Pokémon adventure-type learning process was created to improve the flexibility and interest of self-learning.
Results: Over 15 educational films were accomplished including hand-washing, personal protective equipment, etc. Some important documents such as "LASA" list, patient education information, policy and procedures are also tag with QR code in different site to allow access by students. Students used these for self-directed learning and patient education.
Discussion: Our approach for providing educational information incorporated modern technology of mobile devices and the linkage of education to context. By the visualization of the materials, not only did the repeatable teaching contents can be replaced, but also the learning process may make sense and fun in every clinical encounter.
Conclusion: Digitalization of education information must be closing linked with clinical settings. Adding some sophisticated ideas like "on-site clicks" into situational learning environment combined the habitual use of smartphone by learner can increase the motivation and making learning everywhere and anytime.

8JJ7 (484)

Taking games seriously - training visual diagnostic skills in a virtual radiology department

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Presenter:
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Background: Acquiring visual diagnostic skills is important in many medical specialties. It requires the perception of abnormalities or normal findings, the analysis of their features, and synthesis of findings into a differential diagnosis. To acquire visual diagnostic skills, extensive training is needed. Training should be focused on specific tasks, with feedback and opportunities for repetition and improvement. Serious games can be valuable tools to facilitate these training principles by means of gaming elements that stimulate both the student's motivation and participation in learning activities. In this study, we develop a serious game for medical students to enhance their motivation for learning radiological skills. Motivated learners are expected to invest more time and effort in practicing and use deeper learning strategies. Our research question is: To what extent do game elements add to medical students` motivation and learning activities in visual diagnostic reasoning?
Method: The users of the game are undergraduate medical students. Learning objectives are: 1) recognizing and describing relevant anatomical structures on radiological images, and 2) interpreting radiological images with acute diseases. Learning objective 2 is subdivided in obtaining perception, analysis and synthesis skills.
Results: The setting of the game is that of a radiology department. The player has the role of a first-year resident. The resident has the responsibility to assess the images of critically ill patients that are referred to the radiology department for imaging. Game elements are interactive feedback, scores on speed and accuracy, levels, competition, and patient feedback.
Conclusion: The relation between game elements and students` motivation and learning activities in visual diagnostic skill training will be evaluated.
Take-home message: Serious games may have the potential to stimulate motivation and learning activities in visual diagnostic skill development.

8JJ8 (2585)

An Evaluation of Early Undergraduate Medical Clinical Placements in Primary Care in a New Medical School in the Middle East - What are the students' perceptions?

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Presenter:
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Background: Early clinical placements, particularly in primary healthcare, are common in European undergraduate medical programmes. This practice is rare in the Middle East where clinical skills' practice in a laboratory with simulated patients is currently the mainstay of practical clinical exposure before Clerkships.
Method: At the College of Medicine in Qatar we introduced clinical placements in primary healthcare from the beginning of a new systems-based pre-clinical medical undergraduate programme, alongside our clinical skills programme. Uptake by some students diminished over the year. We performed a detailed evaluation (questionnaire and focus groups) to determine student satisfaction and perceived barriers to learning during the clinical placements in primary care.
Results: Evaluation completed by 39/46 students showed placements support learning about clinical care, multidisciplinary teams and the management of common clinical problems, ethical and professional dilemmas. The main perceived barriers to clinical placements were: A lack of understanding of clinical medicine at this stage (63%); clinical faculty too busy to teach (66%); and learning outcomes being unclear (50%). Currently knowledge assessment focuses on the basic sciences and students do not yet link the improvement of acquisition of skills-lab tested competences to seeing patients in the clinical environment.
Discussion: Many students benefited from early clinical placements. Some do not yet view clinical placements as a means of improving their regular clinical skills assessments. The drive to achieve medical knowledge scores for progression means clinical placements are often seen as a distraction rather than a method of improving clinical learning. Our detailed evaluation shows early clinical placements are useful alongside our clinical skills programme for clinical learning in our new College. More intense faculty and student development is needed to make benefits transparent and to support faculty in providing high quality clinical placements at this early stage.
Conclusion: Assessment drives learning. Evaluation of new programmes is vital. Students devote time to what is assessed. Our assessment of clinical learning needs better alignment to participation in clinical placements. We are

introducing a clinical logbook and portfolio reflections; alongside improved faculty and student development for our next cohort.

8JJ9 (669)
The improvement of abdominal X-ray describing and interpreting skills by discussing the case through an interactive feedback chat board

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Presenter:
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Background: It has always been a challenging task for medical students to be able to read the abdominal x-ray correctly without having sufficient experiences and skills. To be able to discuss with experienced people through an online chat boards such as "google doc" like interactive feedback may help the medical students describe and interpret the abdominal x-ray more accurately.
Method: In the period of medicine rotation, sixty five of the fourth-year and the fifth-year students were applied one of two learning model. Formative feedback model, each student was assigned to describe their patient abdominal x-ray, interpret and submit their readings by using chat boards and share with the group. Everyone in the group can see each other's interpretations. The teacher can correct the students' works through chat boards. The second model is Interactive feedback, like the previous one but the teacher can throw back question to medical students immediately. Everyone in the group can answer and share opinions. The OSCE was applied at the end of rotation.
Results: Interactive feedback model had significant higher abdominal X-ray OSCE scores than formative feedback model (66.09±14.1 vs 49.24±18.7, p=0.00) with comparable similarly resulted in both 4th year and 5th year medical students (62.33±15.8 vs 41.47±14.6, p=0.001 and 69.41±12.0 vs 41.47±14.6, p=0.04, respectively)
Discussion & Conclusion: The Interactive feedback model can gain better students' engagement and provide better abdominal x-ray reading because the students can interact and discuss with their peers and teacher immediately leading to accelerate in depth learning of x-ray interpretation skill. Interactive feedback model enhances self-inquiry learning in students. An online chat boards application also create learning atmosphere among peers to get in-depth learning in clinical context for an x-ray interpretation skill.
Take-home message: Interactive feedback between students and teachers via an online chat boards discussion

enhance students' experience in describing and interpreting the abdominal x-ray more skillfully and accurately.

8JJ10 NOT PRESENTED

8JJ11 (1954)
Cultivating effective utilization in medical students provides cost awareness and beyond

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Background: Inappropriate laboratory testings and treatment for hospitalized patients are common causing errors and costs. Efforts to reduce utilization targeted on ordering behavior which most studies intervened in postgraduate level.Medical students are hardly aware of these costs. This study aimed to assess cost awareness and perceptions of medical students after teaching effective utilization.
Method: Forty medical students in their fifth and sixth year, were asked to order laboratory tests and treatment for common diseases, then estimated the cost themselves. After learning about utilization, cost and its impact, they ordered the same case again. The costs of treatment orders were observed and their perceptions about utilization were surveyed.
Results: All students underestimated the costs of tests and treatment. After the class, the costs were reduced by 53.6%, 59.2%, 21.3%,46.5% and 31.8% in acute pyelonephritis, dengue fever, pneumonia, upper gastrointestinal bleeding (UGIB) and pancreatitis, respectively, overall average of 42.5%. The costs were saved in dengue fever, acute pyelonephritis and UGIB; the orders before class showed unnecessary serologic and septic work up tests in dengue fever and acute pyelonephritis with over blood component matching in UGIB. All students realized the importance of appropriate utilization, with 68.6%, 20.0% and 8.4% concerned most about the impact on their patients (complication, suffering, payment), cost and workload of hospital staff , respectively. The class was well received by the students. Most of them agreed that it helps them think meticulously before ordering.
Discussion: The result showed that teaching utilization in undergraduate level can cut the cost of treatment. It also made them more aware before ordering any tests. Not only did it save the cost, other aspects, particularly those concerning the patient, were in consideration. They realized the highest cost of the treatment is patients' lives.
Conclusion: Teaching utilization at undergraduate level provides a positive change in perspective of medical students concerning patients. Not only are they more aware of the cost, but also other related aspects. This should be an effective practice to cultivate professionalism for students.
Take-home message: Utilization teaching in undergraduates helps cultivate professionalism.

8JJ12 (3475)
Assessing undergraduate medical students' satisfaction regarding the clerkships in emergency departments

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Presenter:
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Background: Assessing undergraduate medical students' satisfaction regarding the academical and the clinical teaching during clerkships in emergency departments.
Method: Retrospective descriptive multicenter observational study. Eligible undergraduate students were invited to fill-in an online questionnaire and rate their clerkships, using a web-app called « GELULES ». For this, closed-ended questions were used and rate given to the items « academic quality », « care activities », « working atmosphere » were included clinical clerkships in emergency departments accredited by a medical school, rated by undergraduate students from 1st january 2014 to 19th june 2016 on GELULES. Preclinical and residency clerkships were excluded.
Results: The study included 630 evaluations of 84 emergency departments and ambulance emergency teams, accredited by 14 medical schools. The average score given to care activities, academic quality, and working atmosphere were respectively 8.2/10, 6.9/10, 8/10. Students' goals were introduced for 61,9% reports. Clinical workload was mainly reported « heavy » or « very heavy » (63,8%). General ratings were proportional to workload and heavy ones got a better rank than ligth ones. The study also highlights the importance of dedicated sessions for medical students (courses, case reports, bibliographic meetings) which increased their clerkship satisfaction. Although, these sessions are not regularly scheduled. Moreover, students preferred being under the supervision of a medical doctor, rather than a resident. At last, 94.3% of the students recommend their clerkship to a peer. Students are willing to take profit from these clerkships. Medical students rate better clerkships implementing educational academic programs in parallel to wellsupervised clinical trainings.
Conclusion: We suggest introducing such programs with presentations, and courses designed in relevance to department theme. We also recommend to introduce students'training objectives at the beginning of the clerkship.

8JJ13 (3274)
"Role models from popular culture" - Learning the skills of medical decision making with Sherlock Holmes and Dr. House. Description of a teaching concept and qualitative evaluation

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Background: Over 90% of students in medical school report having professional role models. Of those, only one third are medical doctors. It has been argued that students need support in order to identify good from bad role models. In recent years, it has been shown that doctors from medical television shows have a subtle influence on medical students attitudes. On the other hand, medical television shows contain readily usable content for medical education.
Method: We designed, conducted and evaluated a seminar using the pop-cultural models of the famous detective Sherlock Holmes & his medical counterpart, Dr. House, for teaching philosophical concepts (expertise, dealing with uncertainty) and psychological pitfalls (bias, heuristics) in medical decision-making. Students had to deal with problems from real life (Firefighters, Mount Everest Expedition), criminology (Holmes) and medicine (House). Medical problems were solved by groups of students in a game-bases manner. Finally, each student analysed a case story from Sherlock Holmes and one episode from House, MD. Prior exposure to medical TV shows and existing role models was assessed at the beginning of the course.
Results: 280 students from seven consecutive years completed the course. 100 essays were separately analysed by two independent reviewers. Semi-structured interviews with ten students from two subsequent years were conducted after the students' completion of the course. During interviews, we probed about group dynamics when solving medical problems, reflection, critical thinking, decision-making, clinical reasoning strategies, and the use of role models to solve medical problems.
Discussion: We discuss the students ability to apply meta-cognition between disparate sets of logics, as witnessed by their ability to explicate problem solving strategies and their ability to highlight sources of bias in their essays. During interviews, students showed a high degree of reflexivity concerning the influence of role-models as well as their peers on their behaviour.
Conclusion: Students are able to translate problem-solving strategies between the contexts of literature, medicine and everyday life. Using the popular models of Holmes & House proved a stimulating and fruitful strategy to teach basic philosophical & psychological concepts.

8JJ14 NOT PRESENTED

8JJ15 (1326)
Holistic Learning in Early Clinical Exposure: A Qualitative Analysis of Reflective Writings

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Presenter:
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Background: Early clinical exposure (ECE) programmes evaluation has traditionally focused on assessing quantitative parameters of students' academic performance. To walk the patient's journey is a key objective of our Year 1 ECE, which takes place 4 to 6 weeks after start of medical school. Over a 5-day ECE, a pair of doctor and nurse supervisors creates patient experiences that immerse a team of 6 students. Students submit a 500-word reflection at the end of ECE.
Method: A randomised selection of anonymised reflections (n = 100) from academic years 2015-16 and 2016-17 were qualitatively analysed and coded. Grounded theory and an iterative approach were used to determine themes and subthemes.
Results: Students discussed aspects of the Patient's Journey (n=95), among other themes. They reflected on the patients' journey through the healthcare system, the impact that illness has on them and family members, the stress and uncertainty that illness brings, and most significantly, the patient's perspectives (57%).
Discussion: The immersive ECE where students put themselves in the patients' shoes allow students to experience deeply how patients process their hospital journey. This sets the stage to inculcate empathy and build good communication skills right from the beginning. With clear objectives, committed supervisors who use innovative teaching methods, students focus on understanding the patients' journey instead of accruing medical knowledge and skills: a reminder that they are first a carer before they are a care deliverer.
Conclusion: Structured learning experience in an ECE focusing on the patient's journey followed by reflective writing is helpful for students' learning of empathy and patient's perspective. ECE is the opportunity, and reflective writing the tool for students to attend to how they develop into empathetic patient-centred physicians of the future.

8KK: Posters: Flipped Classroom/Games/Management

Location: Hall 4.u, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

8KK1 (405)
A comparison of case-based learning and traditional lecture in endocrine session

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Background: Teaching methods in medical education are now promoting active learning strategies to enhance the learning process and engage students in higher levels of learning. Case-based learning is one active learning strategy that builds on individuals' strengths by allowing them to collaborate and work as a team to achieve a common learning objective.
Method: From an endocrine class of 4th-year medical students, 20 students were divided into 2 groups. Half were participated in the sessions of traditional lecture (TDL) and case-based learning. To analyze the recent and long-term retention of knowledge, of these 2 methods, the mean MCQ scores after class 1 month and 1 year of students who underwent case-based learning method (group 1) were compared with those who undergo TDL method (group 2).
Results: Students belonging to the case-based learning group performed significantly better than the students who did not undergo case-based learning (p=0.01). The mean multiple choice question (MCQ) score after class one month of the case-based learning group was 6.8 and tradition lecture group was 4.9. One year later showed no significant difference in the scoring between groups. The mean score of the case-based learning group was 5.2 and tradition lecture group was 5.5.
Discussion: The 10 students included in the study achieved higher mean test scores on MCQ that assessed their recent knowledge of endocrine session learned using the case-based learning method compared with TDL method (p = 0.01). In long-term, one year later the mean test scores were not different. Self-direct learning needs to be implemented to promote lifelong learning and retention of knowledge.
Conclusion: Case-based learning not only improved knowledge but it promotes critical thinking, problem-solving, interpersonal and team work skills and lifelong learning for the medical student.

8KK2 (216)
Medical Students' Response to Integrating Kahoot Application Into Lecture Lessons: a Pilot Study

Authors
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Background: Lecture is a very economic way to transfer knowledge from an expert to a larger group of audience. Yet, lecturing has many downfalls. Thus, it is not the most efficient learning method. Instead, interactive activities in classroom plays an important role to improve understanding of students, but can be difficult to manage within a large classroom. This study aims to investigate the impact of implementing the Kahoot application on mobile phone - a game-base platform with questions and multiple choice (up to 4 choices) answers under time limit - in classroom on medical students' learning curve.
Method: Kahoot application on mobile phone was introduced to 4th-6th year medical students as a method to assess their understanding at the end of each lecture. The students participating in the trial of Kahoot enrolled in medical oncology, department of internal medicine, Sawanpracharuk hospital, during July 2017 until December 2107 2018. Afterwards, the students were asked to anonymously respond to a questionnaire concerning the use of Kahoot application. The answers were used to evaluate the effectiveness of integrating Kahoot application into teaching.
Results: Out of the 55 students who participated in the programme, more than 85% agree that using Kahoot application on mobile phone helps them concentrate in class, recalls more information, and eases communication between instructor and students. Most of the medical students also enjoy using Kahoot application alongside lecturing and prefer to continue using the application in the future.
Discussion: The implementation of Kahoot application in classroom, coupled with lecturing, gathers a positive response from the medical students. Using Kahoot proves to be an effective method for interactive learning, as it engages student participation, improves short-term retention of the content, and can be easily assessed.
Conclusion: From the medical students' perspective, Kahoot application on smartphone improves their understanding in lecture-based lessons and is an effective method of teaching.
Take-home message: Kahoot application on mobile phone is one example that can be incorporated in lecture to improve the efficiency of teaching in large classroom and easily to assess.

8KK3 (3374)
Tagging improves the usage of lecture podcast by medical students: results of a randomized trial

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Presenter:
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Background: The recording and dissemination of lectures as video-based podcasts has become a common practice in undergraduate medical education. However, their usage by medical students is less than anticipated. Tagging refers to a technique, used often in the internet, to annotated sections of larger videos and thereby separating them into smaller parts. Tagging of lecture podcast may have a positive effect on their usage by medical students, but has not been investigated.
Method: We conducted a randomized trial comparing the use the standard podcast lectures (standard group) with those annotated by tags (tagging group). We invited medical students of the 5th year of our competency-based, 6-year undergraduate curriculum to utilize lecture podcasts provided online in addition to the teaching in the module "diseases of the child and adolescent". The tags indicated the themes covered in the lecture and were linked to the learning objectives of the module. Students´ podcast accesses and play time of were recorded and analysed by quantitative statistics.
Results: A total of 124 students were enrolled (34% of the invited ones), 59 (48%) were randomized to the standard group and 65 (52%) to the tagging group. In the standard group, students accessed the podcasts 277 times with a total play time of 63 h, 16 min. This was significantly increased in the tagging group (750 podcast accesses and 120 h, 03 min play time, p<0.01). The mean play time per podcast was significantly lower in the tagging versus the standard group (9 min, 36 sec versus 13 min, 45 sec, p < 0,01).
Conclusion: Tagging is a relative easy to apply approach to lecture podcast as a common form of eLearning resource in medical education. This study provides empirical evidence that tagging substantially increases the access and play time of lecture podcast in an undergraduate medical education setting. The result may have been facilitated by meaningful tagging, i.e. referring to key lecture themes and module learning objectives.
Take-home message: Tagging of lecture podcast is a simple to apply approach to increase their usage by medical students.

8KK4 (374)
Controversy over the Effectiveness of the Flipped Classroom: In-class Video Blended Learning versus Out-of-class Video Flipped Classroom

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Background: Key to the success of the flipped classroom is that students take responsibility to prepare before class. We tested the effectiveness of the two teaching methods regarding pre-class preparation, the in-class video watching blended learning(IN) and the out-of-class video flipped classroom(OUT).
Method: We assigned the fourth-year medical students who registered for the 'Seizures and Epilepsy' module, to attend either the IN or OUT class. The OUT students were instructed to watch a pre-class video lecture individually, while IN students had to view the video during the class time. In-class activities of both groups included case quizzes and interactive discussions. The outcomes were a post-test score and the student satisfaction.
Results: A total of 105 students were enrolled; 52 were assigned to the IN group and 53 to the OUT group. For the OUT group, 77% reported video viewing, and a mean watching duration was 71% of total video length. The mean scores on the post-test did not differ significantly between the IN group and the OUT group (7.81 vs. 7.15,p=.107). However, the subgroup analysis showed that the mean score for post-test of the IN group was significantly higher than the OUT subgroup who did not view the video (7.81 vs. 6.08,p=.024). There was no significant difference in the mean scores for overall satisfaction between the IN group and the OUT group (4.27 vs. 4.25,p=.873). Pre-class video watching was acknowledged as the strength by 42% of the OUT students; however,11% did not like the video, and 83% of the OUT who did not view the video claimed they had too many workloads.
Conclusion: Our study confirmed an essential role of students' responsibility on the successful flipped classroom being observed from the higher post-test score for the IN students over the OUT subgroup who did not watch the video. Although many OUT students praised the pre-recorded lecture, some disagreed and claimed no enough time for viewing. These reasons could lead to the non-different score on satisfaction between the IN and OUT groups.
Take-home message: Students' responsibility and the out-of-class workloads should be considered for implementation of the flipped classroom.

8KK5 (2892)

Using medical record review in flipped classroom to improved OB & GYN learning achievement

Authors

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Background: Flipped classroom move students away from passive learning toward active learning by having students study on their own outside classroom and encourage them to engage in content using various in-class activities such as peer review, debate, laboratory experiment. Using medical record review as in-class activity in flipped classroom may be useful to improve students knowledge and performance. So this study was intended to assess the effectiveness of medical record review in flipped 4th year OB & GYN classroom.

Method: We used study guide to inform 4th year medical students about learning 3 OB & GYN topics (fetal assessment, pre and postoperative care, contraception) by reading textbooks or websites outside of classroom and use medical record review as in-class activity to engage 3 groups of students in content by participating in collaborative discussions that reinforce higher order clinical thinking skills such as medical problems description, analysis, diagnosis and problems solving. We carried out pretest and posttest to evaluate students' knowledge and used questionnaire to evaluate their opinion in OB & GYN learning by using medical record review.

Results: In these 3 topics, 30.1 - 80.3 % improvement of class average score was observed in posttest. 55.6% of students think medical record review is interesting and enjoyable because they were actively engaged, motivated and self evaluated. 77.8% of them gain more knowledge and all of them got better understanding of content that they can apply in clinical practice.

Conclusion: In OB & GYN learning, medical record review is an effective in-class activity in flipped classroom. It promote students engagement, motivation and self evaluation. It helps them to understand content, achieve better score in posttest and develop appropriate clinical thinking skills, besides, they get used to medical records. This activity shows medical record examples that should be or should not be followed in daily practice. It will be of great help to them in future clinical practice.

Take-home message: Medical record review is one of the effective in-class activity in Flipped classroom.

8KK6 (1772)

Improving the turnout: Factors affecting student attendance

Authors

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Presenter:
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Background: Factors affecting medical student attendance during clinical attachments include ill health, lack of interest in the subject matter and poor teaching strategies. Poor attendance may be related to stress, burnout, and has been identified by the General Medical Council (GMC) as an area of 'low level concern' with regards to professionalism.
This quality improvement project aimed to identify factors that affect student attendance during their anaesthetics rotation, with a view to improving both attendance and the students' experience of the specialty.

Method: Student attendance was monitored for three separate groups of students during their anaesthesia clinical attachments in March, May and October of 2017. The teaching timetable and methods were adjusted, and students were reminded about the impact poor attendance has on learning opportunities and its implications for professionalism and fitness to practice. Students were then asked for specific feedback with regards to attendance and areas in which the anaesthesia rotation could be improved.

Results: Attendance improved from 37% (March) to 68% (October). Three students experiencing difficulty were identified and referred to the University for additional support. Factors improving attendance included feeling useful and receiving one-to-one teaching. Factors deterring attendance included feeling ignored, lack of mentorship and a lack of exposure to practical procedures. Students felt being assigned a trainee mentor would improve their experience. Interventions such as reminding students of their professional responsibilities and adjusting teaching timetables can improve student attendance. However, it is difficult to determine precisely what improved attendance over time given that three separate groups of students were monitored.
Monitoring attendance can identify students in difficulty, and may to help identify professionalism or fitness to practice concerns. Feedback relating specifically to attendance has revealed a desire for mentorship during the clinical attachment to anaesthesia, which may help to improve the student experience in the future.

Conclusion: More robust methods for monitoring attendance are required to ensure students who are experiencing difficulty receive access to appropriate support.

Take-home message: Focused feedback relating to attendance can uncover different aspects of the teaching curriculum which need to be adjusted.

8KK7   **WITHDRAWN**

8KK8 (2784)
Classroom attendance is not a marker of examination performance in pre-clinical medical students

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Background: Studies completed with undergraduate populations have shown that attendance positively correlates with academic performance. These were primarily done before the current era of the internet with online streaming of in-class sessions and multiple sources for content. We evaluated how attendance at in-class sessions affected performance on summative assessments in this modern era.
Method: The study was performed during the second-year Gastrointestinal and Renal systems module of the 2017/18 academic year. Curriculum was divided into mandatory and voluntary sessions. The mandatory sessions included team-based learning and small group case-based learning sessions. In contrast, the voluntary sessions consisted of lectures and small group application exercises of material previously covered in the curriculum. All lectures were recorded and all other materials (e.g. PowerPoint files, small group case materials and answers) were available to students online whether or not they attended in person. Attendance was recorded for all sessions using a Bluetooth enabled smart-phone application (Tealpass). Performance was determined based on the 118 multiple-choice question final examination at the end of the 6-week module covering all material presented. This study was IRB-approved and students gave informed consent.
Results: The study group consisted of 78 students (68% of 114 total). The percentage of attendance in the study group was not significantly different than that of the whole class. Attenders made up 67% of the group (3% to 92% attendance) with 33% attending none of the non-mandatory sessions. The non-attenders performed better on the final exam than the attenders group (87.4±6.2% versus 82.9±8.4, P=0.02 Student's t-¬test), which was consistent with their performance in previous modules. However, there was no correlation between the percent of classes attended and performance on the final exam (R^2=0.02, n=78).
Conclusion: We conclude that attendance at in-class sessions is no longer a good marker for those who will do well in a course. Further work is needed to characterize the nature of student engagement and effective approaches to study.

Take-home message: Examination performance is not predicted by the level of face to face classroom attendance.

8KK9 (1286)
Attendance in Medical School: Should it be Mandatory?

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Presenter:
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Background: Alfaisal University is known for its strict regulations regarding student attendance. Recently, the attendance policy for the College of Medicine has been changed to allow maximal 15% absenteeism. The University's mandatory raise in attendance to 85% is based on the perceived assumption that attendance contributes to improved overall students' performance.
Method: A total of 160 medical students (Years 1 to 5) were surveyed regarding their preferences and general outlook on the attendance policy. Additionally, the students' academic performance and the impact of attendance were evaluated. The aim of this study is to analyze any significant association between attendance and improved performance.
Results: After analyzing the results, a total of 81% of the students do not approve with the attendance policy. However, a significant improvement was observed in the attending students' cGPA. Those who attend the lectures have a cGPA of (3.5); whereas, those who do not attend have a cGPA of (3.3).
Discussion: The results indicate that attendance has a statistically significant effect on students' learning. Furthermore, attendance is proven to be positively correlated with the overall academic achievements. Further aspects have been examined to determine the effects of applying mandatory attendance on medical students.
In our university, no previous studies examined the inter-relationship between attendance and educational performance. Therefore, after conducting the study, we concluded that the attendance policy implemented has contributed to improved academic performance. The results indicate that students, regardless of their gender and socioeconomic status, perform exceptionally better when present.
Conclusion: Studies can examine several other factors in relation to attendance, but it all comes to the conclusion that students are required to be more academically engaged throughout the learning process to gain the utmost knowledge. It might also be indicative that certain fundamental aspects are only acquired through active attendance.

8KK10 (2085)
Experience first then engage learning in classroom – An Innovative learning model combined with simulation for medical students

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Background: In the past, learning model is a process from lecturing, practicing to performing.
From the aspect of medical students, most of them have little or lower motivation of learning basic knowledge compared with after starting clinical exposure.
Therefore, unlike the traditional learning theory and model, our medical students experienced clinical scenario and learned to perform skills without any lecture before our courses called "Saving Life, Learning Safe".
We hope to stimulate greater learning motivation, to decrease the gap between medical school and clinical condition, and to lower anxiety of making decision or performing skills on real patients.
Method: The course is divided into three parts:
1.Short play of resuscitation: Let learners to know what to do
2. Resuscitation Skill stations: IV, AMBU+ENDO, BLS, DEFIBRILLATOR
3. Scenario challenges: Emphasizes tteam work, experiencing the pressure, practicing skills, and o debriefing for learner's performance
Results: Obtain positive help of the curriculum: YES (98%)
Satisfaction survey of the curriculum: total 137 medical students, 1st-4th grades, 2016/10 – 2018/01, overall satisfaction: 4.76/5
Feedback or suggestion from the learners: fun, interesting and edutainment. Unlike lectures, we wanted to experience this kind of courses and try to find the answers in classes.
Discussion & Conclusion: According to our results, our design can enhance the motivation of learning in the future, decrease the sense of anxiety of being clinician in the beginning.
In addition, learners were satisfied with faculties teaching and experiences in a resuscitation based on our questionnaire, and they suggested that series of courses can be held and edutainment get less boring, etc.
Last but not least, prospective, large samples follow-up cohort studies should be conducted in the future. A series of courses like this may enrolled into formal medical academic curriculum if evidence shows assistance in learning efficacy or clinical abilities for medical students.

Take-home message: It would be an innovative learning model for students engagement. To experience in simulation before to learn in class can significantly increase the motivation of lectures learning, decrease the anxiety of the future effectively and minimize the gap between medical school and clinical condition

8KK11 (770)
The King and the Immune Warriors: Digital Storytelling for Fostering Students' Learning

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Presenter:
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Background: As there are limited teaching aids for the immune system lessons, students in my school struggle to grasp the fundamental concepts of the body's defense mechanisms by lectures alone. Therefore, there is a need to develop an additional instructional tool for the teaching of the immune system.
Method: Having a purpose to explain adaptive and innate immune defense mechanisms, I created a digital story in PowerPoint by using still images. The story was four minutes in length, and I narrated it live. In the story, I used an analogy of how the king was protected from his enemies, where the king represented a human being, the enemies were pathogens, and the soldiers were the components of immune defense mechanisms.
As I want to explore students' learning experiences with digital storytelling, I conducted an online survey. The survey consisted of five questions constructed with a 5-point Likert scale. Students' responses to each question and an average score for five-questions described how they perceived the digital storytelling.
Results: Out of 220 nursing students from School of Health Sciences, Nanyang Polytechnic, Singapore, 175 (80%) responded to the survey. Regarding students' perceptions, 96% agreed that the tool enhanced their understanding of the topic and 87% believed that they would be able to answer the immune system questions. Moreover, the digital storytelling fostered students' engagement as 94% stated that they became more interested in the topic and 92% recommended using this approach for hard-to-understand lessons. The analysis shows an average score for all five-items as 4.3, indicating that students had a positive attitude towards digital storytelling.
Discussion & Conclusion: This study indicates that the learners reacted favorably to digital storytelling (Kirkpatrick's level 1); therefore, I should move one level up to evaluate students' learning (Kirkpatrick's level 2). I would recommend the before-and-after study design to measure the extent students acquire the intended knowledge. In conclusion, the digital stories are innovative instructional tools and have potential in facilitating students' learning.
Take-home message: The digital stories can increase the interest, attention, and motivations of students in our classrooms.

8KK12 NOT PRESENTED

8KK13 (1146)
'Go with the Flow' – is adopting a 'gamification' approach beneficial to the understanding of cannula choice and flow rates?

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Background: Flow rates and intravenous cannula choice play an important role in the resuscitation of the critically unwell patient. Undergraduate teaching on the basic science of fluid dynamics, as governed by the Hagen-Poiseuille equation, is variable. Across the globe, institutions are increasingly using games to teach abstract, scientific concepts such as fluid dynamics. In this study, we aim to assess if an interactive, competitive game is of benefit when teaching the Hagen-Poiseuille equation, cannula choice and associated clinical knowledge.
Method: 24 third and fifth year medical students undertook a pre-intervention MCQ questionnaire to assess students pre-existing knowledge. Following this, an interactive multi-modal teaching package was implemented. This consisted of a didactic lecture, a live demonstration of fluid flow through cannula and culminated in an interactive 'race' where students were encouraged to alter variables such as cannula length, cannula gauge and fluid pressure in order to drain their bag the quickest. Independent, post intervention focus groups were then conducted to assess student's views on understanding gained, clinical relevance and enjoyment.
Results: A pre-intervention questionnaire showed 13% of students were correctly able rank cannula size by colour, 67% correctly identified that flow was inversely proportional to cannula length and 71% correctly identified that flow was proportional to radius4. Scores post intervention were 96% in all domains. Preliminary thematic analysis shows students felt the game based component increased interaction, understanding of core principles and retention of knowledge. Despite this, students reported that an introduction to concepts through the lecture component was essential for full engagement in the game.
Discussion & Conclusion: Although the use of an interactive, competitive game was beneficial in furthering students understanding of cannula and flow rates this must be supported by discussion of the relevant background theory in order to maximise its effectiveness. As a result of the interactive 'race' students felt that a deeper understanding was achieved, that they would retain knowledge for longer and that their clinical practice would be altered.
Take-home message: The use of games in medical education must be supported by discussion of the relevant background theory to maximise learning.

8KK14 (1692)
BMBOC-Gamification as an Innovative Tool of Medical Education in Phramongkutklao College of Medicine

Authors
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Presenter:
Thanakrit Vichasilp, Department of Biochemistry, Phramongkutklao College of Medicine, Bangkok, Thailand

Background: Successfully integrating e-learning into traditional classroom is a major challenge for medical education because engagement in online programs is difficult to maintain. We have faced this problems in the Biochemistry and Molecular Biology Online Course (BMBOC) since 2010. Gamification is the recent trend that offers to increase engagement through the application of game elements and gaming techniques to non-game contexts. This study aimed to develop a gamification in the BMBOC and improve student's participation and engagement.
Method: The BMBOC-gamification was developed using the Moodle software. It allowed students to check their course activities, points, levels, items, and leaderboards. Students earned eXperience Point (XP) from completed activities. They had to collect the required amount of XP to level up. There were 51 activities to be completed before receiving the course certificate. All year 2 medical students (N=99) were assigned to attend this course. After the course end, the evaluation data were collected using questionnaires (5-point Likert-type items) and self-reflections (open coding scheme).
Results: The BMBOC-gamification is developed and used for the first time. The survey showed that XP and levels, virtual goods (items), challenge activities and leaderboards are the most important gamification methods ($\mu \geq 4.5$). The reflection data gathered was examined and classified into 3 categories: fun, gamification, and education. 95% of the students were satisfied with the system as a whole. 91% of them were satisfied that the system enhance student motivation and engagement. 99% of them love the formative assessment part of the system. Moreover, all students believed that the system was a beneficial revision tool to test their learning and less stressful than studying in class.
Conclusion: The evaluation results showed positive effects on the student's engagement toward the BMBOC-gamification. Moreover, students considered the gamified instance to be more motivating, interesting and easier to learn as compared to other courses, thus they strongly recommended using it in another courses.

Take-home message: The BMBOC-gamification gives a great advantage to medical education by encouraging learners to explore and learn as they move toward an end goal.

8KK15 (1651)
Mixing Things Up: Adding Gaming into the Flipped Classroom

Authors
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Jamie Gray, WCMQ, Doha, Qatar
Syde Latifi, WCMQ, Doha, Qatar
Sean Holroyd, WCMQ, Doha, Qatar

Presenter:
Douglas Bovell, Weill Cornell Medicine Qatar, Doha, Qatar

Background: Evidence suggests that Millennial learners prefer more active teaching methodologies (1). Implementation of activities such as gaming have seen an increased adoption in health professions education over the last decade (2-3).
Method: A flipped classroom session was augmented with a review activity conducted using gaming. Students were assigned materials to review prior to the session, and then assigned into randomly selected small groups, each to consider one of five clinical vignettes to solve and present their findings. Based on the pre-session and in classroom activities, student groups then participated in a gamified quiz. Points were awarded based on answers chosen by the team - +2 pts for a correct answer and -1 pt for no answer within 15 seconds. The winning team members received a prize.
Results: A total of 31 students provided feedback to improve the session - 90% found the quiz game moderately to highly effective in helping them engage and understand the material. 84% reported the game as highly effective in making them feel engaged. Interestingly, among seven classroom activities problem based learning and facilitated discussion were ranked as the most beneficial for individual learning.
Conclusion: Overall, the gaming activity appeared to be an effective complement to flipped classroom pedagogy. Students reported high engagement levels while participating in both activiies. Steps to improve the quiz game for future sessions may include additional time for quiz question feedback, improved mechanisms for identification of each team during the game, and additional notification around class preparation.
Take-home message: Students find Gamification very engaging and effective in delivering the review session.
1. Desy, JR et al. Milestones and Millennials: A Perfect Pairing—Competency-Based Medical Education and the Learning Preferences of Generation Y, (2017) Mayo Clinic Proceedings, 92 (2), pp. 243-250.
2: Boeker M, et al. Game-based e-learning is more effective than a conventional instructional method: a randomized controlled trial with third-year medical students. PLoS One. 2013 Dec 5;8(12):e82328.

3: Akl EA, et al. The effect of educational games on medical students' learning outcomes: a systematic review: BEME Guide No 14. Med Teach. 2010 Jan;32(1):16-27.

8KK16 (819)
Game-Based Learning for Final-Year Medical Students in Preparation of Medical Licensing Examination

Authors
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Che-Wei Lin, Clinical skill center, Division of Nephrology, Wan Fang Hospital, Taipei Medical University, Taipei, Taiwan

Presenter:
Chung-Yi Cheng, Department of Internal Medicine, Division of Nephrology, College of Medicine, Medical University/Wan Fang Hospital, Taipei Medical University, Taipei, Taiwan

Background: A two-steps competitive educational game is supplemented to the didactic lecture for our final-year medical student. The learning objective is to strengthen the competency in medical knowledge in our final-year medical students to prepare for their medical license exam and for future patient care.
Method/Results: A team-based game entitled, Medical Knowledge Forum, is devised for the final-year medical students using clinical cases collected from the different specialist fields. Questions are developed to demonstrate the overall medical knowledge required for final year-medical students meet for their future patient care goals. Twelve pre-competition review classes are carried out to select top-ranked students to enter the final competition. The top-ranked students are assigned to six teams, each of two students. The remaining of the class and junior students composed the audience. Overall, 55 students attended the class each year. Twenty multiple-choice questions are presented to students using PowerPoints. The incorrect answered questions are open to the audience. Each question is approximately three minutes and is followed by a two minutes immediate feedback from the faculty in the related field. The team with the most correct answered questions at the end of their session wins.
Discussion: The "Medical Knowledge Forum" program has been operating in two consecutive years in our hospital. Ninety-four and ninety-nine percent of students showed their great appreciation to attend the class in the first and second year respectively. Accurate responses to questions indicated that students had reviewed the materials previously learned. Students' willingness to reason publicly demonstrated growth in professional maturity. Junior medical students also reacted positively to the game.

Conclusion: Despite the limited evidence to support the use of educational games in medical education, it still has its potential effectiveness. Our students viewed the session as a positive learning experience, and faculty members gained insight about which elements of the game were effective. The integration of fun and excitement in the learning process is the key element to succeed our " Medical Knowledge Forum" program. A further qualitative designed study may be needed to validate the outcomes.

8KK17 (3218)
Pedagogical Game in Teaching-Learning Process of Biochemistry

Authors
Tamires Fortuna
Amanda Guimarães Azevedo
Felipe Colombelli Pacca
Tatiane Iembo

Presenter:
Tamires Fortuna, Faceres, São José do Rio Preto, Brazil

Background: The use of games as a teaching tool is a pedagogical possibility that can enhance the teaching of biochemistry for students entering the medical course.
Method: Elaboration, application and assessment of knowledge from pedagogical games about metabolism of carbohydrates, lipids and proteins. The games were developed by students of the sixth semester for first semester students and applied during pedagogical activity on the subject at a medical teaching institution in the interior of São Paulo, Brazil. A questionnaire with five objective questions of each subject was applied before and after the dynamics of the games so that the answers were compared. In addition, a gaming satisfaction verification tool was also used.
Results: Among the three topics addressed, there was an average of 11.6% increase of hits on carbohydrates, -11.2% for lipids and 6.0% for proteins. Regarding the perception of contribution to learning in the subject, on average, 72.4% of the students considered themselves satisfied with the games. Regarding the possibility of indicating the game to another colleague to learn about the subject, 89.3% of the students responded positively. Of the participants, 92.2% considered the dynamic games and 51.8%, the games as easy.
Discussion: Despite the high level of satisfaction of the participating students, there is little difference in the improvement of the verification questionnaire responses from the use of the games. It is discussed the possibility of the game, even, to disrupt the students' understanding of the subject, as in the case of the game about lipids, depending on its type. Finally, we also question the number of questions and the lack of a control group as possibilities of methodological improvement of process evaluation.
Conclusion: Playing games has a positive impact on the acceptance of first-semester students. Playful methods of impacting teaching may enable greater adherence to studies on the subject, especially in the Brazilian reality.

SESSION 9: SIMULTANEOUS SESSIONS

Tuesday 28th August
1600-1730 hrs

9A: Symposium: Managing the Tension -- From Innovation to Application

Location: Event Hall
Date: Tuesday 28th August
Time: 1600-1730 hrs

Presenters:
Ara Tekian, University of Illinois at Chicago College of Medicine, Chicago, Illinois, USA
Ronald Harden, Dundee, UK
David Cook, Mayo Clinic, Rochester, USA
John Norcini, FAIMER, Philadelphia, USA
Dan Hunt, LCME/AAMC, USA
Yvonne Steinert, McGill University, Montreal, Canada

Summary: The demand for better teaching and assessment of health care professionals has led to a number of educational innovations which provide detailed guidance on improving practice. Recent decades have seen the rise of competency-based medical education, milestones, entrustable professional activities, team-based learning, and so on. However, these innovations have come at a price. Resources are not available to accomplish all that is recommended, nor does the research offer much insight into the absolute effectiveness of the various options facing educators. The symposium will describe some of these tensions as they relate to curriculum, instruction, assessment, evaluation, and faculty development. Strategies for balancing these innovations against one another and in the context of constrained resources will be discussed.
Who should participate in the symposium? This symposium might interest all the participants of the AMEE meeting, since every educator from any profession or specialty faces some problems in adjusting the magnification and attention to details of innovations in curriculum, instruction, assessment, and evaluation. This will be of interest for people working both at the undergraduate and postgraduate levels.
What will they gain from participating? The participants will have first-hand opportunity to hear from experts how they are dealing with tensions created by innovations in curriculum, instruction, assessment and evaluation when research does not offer much insight into the absolute effectiveness and resources might not be available. Additionally, they will know about some strategies to balance these innovations against one another.

9B: Symposium: Learners as Educators - Realizing Potential, Sharing Best Practices

Location: Montreal, 2nd Floor, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

Organised by the AMEE Postgraduate Committee
Presenters:
Rille Pihlak, European Junior Doctors, University of Manchester, UK
Matthew J. Stull, Case Western Reserve University School of Medicine, USA
Simon Gregory, Health Education England, UK

Summary: *Docere*, the Latin word from which our professional name is derived, quite literally means to teach. Physicians are expected to teach each day, from their clinical practice to the trainee in the classroom. While this expectation tends to be ubiquitous it is rare that educator skills taught throughout the formal medical education continuum. This symposium will review the opportunities and challenges in building teacher training into postgraduate training and other ways to support young educator development around the world.
The session will introduce attendees to the need for such programs and outline initiatives from a number of continents to better incorporate this important skill set into training. Following a discussion of the "why and how," the major challenges of such programs will be discussed in a plenary (discussant) format by presenters. Challenges discussed will include the motivation underlying both deans and trainees interest in building such programs, sustainability efforts of trainee-driven efforts, where these lessons can fit into already crowded curricula, and what the most meaningful outcomes of such programs should be. Finally, the session aims to show how these programs can stimulate postgraduate medical education and research and what the postgraduate community around the globe could do to develop the next generation of clinician educators.
Who should participate in the symposium? Trainees of all levels, supervisors, programme heads, policy makers, stakeholders and all AMEE delegates interested in this topic and postgraduate education and training in general.
What will they gain from participating? For learners stimulation to develop as educators and empowerment to do so whilst in training. For learners and educators examples of good practice to support transfer of learning from "teacher programs" globally, with discussion of challenges, solutions and opportunities. All participants are invited to share their personal perspectives and challenges on this topic to learn from each other.

9C: Symposium: Are medical schools selecting students with the appropriate values for 21st century medicine?

Location: Sydney, 2nd Floor, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

Presenters:

Katrina Dima, IFMSA
Harm Peters, Germany
Sharon Peters, Canada
Trudie Roberts, UK
Val Wass, UK
Peter Dieter, Germany

Summary: Trudie Roberts raised the question at the 2017 AMSE/AMEE symposium of whether doctors will exist in the future? - Almost certainly they will. But future doctors may well need a different skills mix. We face increasing challenges through globalisation, shifts in population needs, social determinants and health inequity. Arguably the current medical workforce is failing to meet these. Other health workers and robotic technology development may increasingly subsume current responsibilities.

This symposium will explore this question from an international perspective. The views of European medical schools will be aligned with the increasingly international participant input offered by AMEE. Why are we currently focused on academic success as an entry criterion for medicine? Has this resulted in the current mismatch between medical school output and the deficit in specialties such as family medicine, psychiatry, emergency medicine? Can we foresee the future challenges doctors will need to address? If individuals with a different, more resilient and flexible skills mix were selected might we avoid the current burn out experienced by some of the clinical workforce?

A panel will be selected to offer a full international stakeholder perspective to support audience debate and identify whether these questions are valid and how they might be addressed.

Who should participate in the symposium? The symposium will be designed to maximise audience discussion fully embracing the international perspective. Each speaker will be limited to 10 minutes offering 30-40 minutes of discussion. This will be chaired by Trudie Roberts (AMEE) and an AMSE executive.

The audience (and Panel) will share views to reach a consensus of whether selection into medical schools should change from the current focus on academic ability and examination performance to embrace a different skills mix. The symposium will offer debate and conclude on what this should be.

9D: AMEE Fringe 2

Location: Singapore, 2nd Floor, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

9D1 (3398)
A plea for pessimistic doctors

Authors
Menno de Bree

Presenter:
Menno de Bree, University Medical Center Groningen, Netherlands

Background: Optimism seems to be a cardinal virtue in medicine. But why? Optimists, after all, are horrible naïve people – and dangerous too.
Both optimists and pessimists value their situation negatively. Optimists then use to think that they can improve it - a mindset that leads to an endless stream of usually not very effective educational initiatives, quality improvement projects and organisational changes – often motivated by a very nice sounding, but utterly unrealistic utopian goal ('affordable high quality care for everyone'). The pessimist, however, knows that if you win at one side, you inevitable loose somewhere else, that much of our goals and plans are vain and often not worth pursuing, that much of our efforts keep us busy without necessary improving anything, and that, whatever we do, the end game will always be the same: often suffering, always death.
In this talk I therefore plea for the pessimistic doctor. Since pessimistic doctors will not engage in all kinds of fancy projects, will not blame reality if things are not going as they want, and are not primarily oriented towards the future, they have more time and energy to be in the here and now – which enables them more to look at their patients, to relate to them, and to relieve their pains and problems, within the often small limits of their possibilities.

9D2 (3458)
Once Upon a Time: Storytelling in Medical Education

Authors
Meghan Treitz
J Lindsey Lane
Janice Hanson

Presenter:
Meghan Treitz, University of Colorado / Children's Hospital Colorado, Aurora, USA

Background: Humans have been dubbed the "storytelling animal" for good reason: from novels and television shows, to daydreaming while driving to work, to sales pitches heard in the office or on the radio, to accounts of our day that we share at the dinner table – our lives are filled with stories.
As medical professionals, we listen to the stories of our patients' lives and diseases. We tell our own stories of success, of despair, and of lessons learned. We tell stories of things that have happened and things we wish to change in the world.
It has been said that we cannot learn without stories. The fancy name for story, or "narrative," is from a Latin root meaning "to make known." We use stories to communicate information, but we also come to understand ourselves through them.
The fiction we read from childhood through adulthood is full of storm and strife – there is always the scary forest, the mean stepmother, the villains to conquer. There is also storm and strife in the real-life stories of our learners and colleagues. After prompting learners, pediatricians, educators, and others to tell their stories, we ended up with a wonderful collection of hurdles overcome, struggles, and growth with an unusual glimpse into the minds that are processing the nuances of medical practice and medical education.
This presentation will draw on literature (not only THE literature [medical literature], but also children's literature and classic literature) to illustrate the importance of storytelling in medical education. We will then allow the audience to sit back for story time as we share short stories written by a medical student, a resident, and a medical educator.

9D3 (3726)

Is it time to get Serious about Play? How does Medical Improvisation Influence the Development of CanMEDS-FM Competencies in Family Medicine Residents?

Authors
Anne Wideman, University of Toronto, Toronto, Canada
Jeremy Rezmovitz, University of Toronto, Toronto, Canada
Hartley Jafine, McMaster University, Hamilton, Canada
Elizabeth Wooster, OISE/University of Toronto, Toronto, Canada

Presenter:
Jeremy Rezmovitz, University of Toronto, Canada

Background: Improvisational theatre ("improv") is a form of collaborative storytelling, in which actions of the performers are unscripted and created spontaneously in a reciprocal and collaborative manner. Most recently, applied improv is being adopted in health professions education and termed 'medical improv' which embraces the use of "principles and training techniques of improvisational theater […] to improve cognition, communication, and teamwork in the field of medicine". Several health professional training institutions such as Northwestern University and Johns Hopkins University have begun exploring the utility of medical improv (1). The division of Family Practice at Sunnybrook Hospital conducted a needs assessment with its current and past residents from the last 5 years, to assess knowledge of the CanMEDS roles, as well as identify which competencies may require better facilitation in order to improve their development during residency. Of the 23/70 residents that responded, there was interest for better facilitation, more role modeling and extra training for all competencies but the leader, scholar, medical expert and health advocate Roles stood out on top.

This project aims to:

1. Develop residents' knowledge, skills and attitudes related to all CanMEDS-FM Roles through an arts-informed intervention.

2. Provide opportunities to reflect on intrinsic CanMEDS-FM Roles and how it relates to their clinical practice.

3. Use interviews and existing data collection processes (Satisfaction surveys, Field Notes) to assess residents' knowledge, skills and attitudes towards CanMEDS-FM Roles.

For the fringe presentation, a short improv scenario will be undertaken. The participants in the improv scenario will then be asked to share their feelings regarding the experience. The facilitator of the session will lead a discussion about how this sort of session can be implemented and help to inform medical education and the training continuum.

9D4 (1282)

Neuroscience Ghost Stories: Applying supernatural and scientific perspectives to metaphysical experience

Authors
Tan Chay Hoon
Derek Soon

Presenter:
Derek Soon and Tan Chay Hoon, National University of Singapore, Singapore

Background: Current theories of cognitive neuroscience remain limited in their capacity to provide a comprehensive explanation for the entire gamut of human experience. A range of recurring reported phenomena still defy scientific explanation. Such experiences fall within the purview of what is popularly termed "supernatural". In short, there is much that modern science cannot explain. However, an increasing number of experiences which would otherwise be explained in supernatural terms have been observed in organic brain illnesses. Such experiences are profound and often influence perception, consciousness and identity. Discussing such experiences with medical undergraduates provides a fresh perspective into neuroscience, altered brain states and their role in constructing consciousness and human existence. In this session I explore the interface between the supernatural and neuroscience through theatrical story-telling and audience participation.

Activity

We tell a series of stories from personal experience which may have scientific or supernatural underpinnings. The audience cast votes through an anonymous public polling (www.polleverywhere.com) system on whether they think the experiences are best explained in scientific or supernatural terms. The audience are then invited to provide explanations through the same platform. Explanations will be explored before we present my own explanation of the experience, rooted in science and (sometimes) in the supernatural.

9D5 (2475)
Medical students at St Elsewhere's

Authors

Sandra Petty, University of Melbourne, Australia
Kate Taylor, Oculo, Melbourne, Australia
Jayne Lysk, University of Melbourne, Australia

Presenter:

Sandra Petty, University of Melbourne, Australia

Background: We wanted our first year medical students to start their course by thinking about the experience of being a patient. The Ormond Hospital Experience was written to highlight potential adverse issues in the delivery of healthcare and the clinical environment. Scenarios were written. Actors would play the parts of clinicians, some patients, and hospital staff. An appropriate venue was selected. Signage, props and even a PA system were procured to create a hospital environment set where students become "patients" and "carers" then would proceed through a series of stations as observers and experience behaviour in essentially an Objective Structured Clinical Exam format. This fringe session offers you the opportunity to hear the story of how two very busy clinicians and passionate educators came together to write and orchestrate the introduction to the MD course at the University of Melbourne. A story and a play which has now been successfully running for seven years. You will hear about the scenarios, the behaviours witnessed, the student experience and the way the group debriefing sessions places the experience in context. The experience was created to foster an understanding of the concepts of empathy and compassion in an overcrowded simulated clinical environment. When the story ends we will ask the audience for their reactions, their thoughts and how they would create their own Ormond Hospital Experience if given the chance.

9D6 WITHDRAWN

9E: Research Papers: Identity, Interactions & Embodiment

Location: Delhi, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

9E1 (15)
What Trainees Grapple With: A Study of Threshold Concepts on the Medicine Ward

Authors
Mark Goldszmidt, Schulich School of Medicine & Dentistry, University of Western Ontario, London, Ontario, Canada
Chirag Bhat, Schulich School of Medicine & Dentistry, University of Western Ontario, London, Ontario, Canada
Sarah Burm, Schulich School of Medicine & Dentistry, University of Western Ontario, London, Ontario, Canada
Tricia Mohan, Schulich School of Medicine & Dentistry, University of Western Ontario, London, Ontario, Canada
Saad Chahine, Schulich School of Medicine & Dentistry, University of Western Ontario, London, Ontario, Canada

Presenter:
Mark Goldszmidt, Schulich School of Medicine & Dentistry, University of Western Ontario, London, Ontario, Canada

Introduction: Socialization theories of professional identity formation consider clinical rotations to be critically intense transformative experiences. However, few studies have explored what trainees grapple with during these transformative experiences or their influence on performance. Applying a Threshold Concepts (TC) lens, this study investigates and documents "Troublesome" and "Transformative" concepts that junior trainees may encounter during a clinical rotation. Insights gained are essential for supporting trainee development.
Methods: Constructivist grounded theory was used to guide the collection and analysis of data for this two-phase study. Phase 1 involved direct observation and field interviews with seventeen junior trainees over two observation periods during a clinical rotation on the inpatient medical team and phase 2 involved in-depth interviews with thirteen attending physicians who work with trainees on those teams. The theory of TC was used as a sensitizing concept.
Results: In total, nine TC were identified and thematically grouped under the headings: Developing as a Professional, Providing Patient Care and Working Collectively. Across the interviewed attendings, there appeared to be a shared understanding of TC strong trainees had crossed and weaker trainees struggled with. Observational and field interview data suggested that individual trainee actions were strongly influenced by the identified TC and whether or not the trainee appeared to have crossed any given threshold. Moreover, individual clinical practices could be influenced by more than one TC. Trainees were also observed to vary in the thresholds they had already crossed or struggled with.
Discussion & Conclusions: Our identification of TC in the context of an internal medicine inpatient rotation provides new insights into the type of identity work that trainees may need to struggle with during clinical rotations. Our findings suggest that the way a trainee views their role is fundamental to doing clinical tasks effectively and may be intricately linked with aspects of identity development. The identified TC can therefore support educators to: 1) pro-actively share typical challenges with trainees and help them to work through them and 2) identify particular trainee behaviors that are less effective and offer insights into potential troublesome concepts that may be underpinning these. Similarly, TC may also serve to guide and support the development of novel methods of assessment.

9E2 (8)
Tension between Individual Identity and Collective Identity in Medical Trainees: An 8-year, Longitudinal Qualitative Case Study

Authors
Dorene Balmer, University of Pennsylvania, Philadelphia, PA, USA
Boyd Richards, University of Utah, Salt Lake City, UT, USA

Presenter:
Dorene Balmer, University of Pennsylvania, Philadelphia, USA

Background: From the perspective of social constructionism, identity construction is both an individual undertaking and a collective activity. Tension between "who I am" (individual identity) and "who we are" as members of highly specialized medical professions (collective identity) may emerge as medical training progresses, but is seldom studied through time. We analyzed a subset of longitudinal qualitative data to answer the question "What can we learn about identity construction through time if we consider identity work as both an individual activity and a collective activity?"
Methods: We (the authors) conducted serial, in-depth interviews with 6 trainees: 3 interviews in preclinical and 2 in clinical phases of medical school; 2 in internship and 1 at the end of 2nd and 3rd year residency (n=50 interviews in total). After general inductive analysis of the full dataset, we used the Listening Guide (1), a form of narrative analysis, for an in-depth examination of the voices we heard in a subset of data to which identity-related codes were attached. Both of us are PhD educators and have been conversational partners with the trainees since 2010.
Results: Expressions of individual identity and collective identity were more frequent in residency compared to medical school, and changed in focus, e.g., students spoke of "doing" a doctor's work whereas residents spoke of "being" a doctor. Individual identity was expressed in 1st-person voice, whereas collective identity typically was expressed in 2nd-person voice: (e.g., "I was one watching her saturations drop"; "I was the one who documented time of death"; "You can't allow yourself to feel both at the same time"). Tension was evident in narrative analysis of all 6 cases, but most salient in 2 cases whose individual identity seemed radically different from the collective identity of the specialty in which they were training. For example, Zoey was raised in a family dedicated to helping underserved populations. She obtained a business degree to prepare her to improve systems of care for these

populations. She chose to pursue a surgical specialty because she was "good with her hands"; but in time she "fought" this decision because the specialty was not known for system-orientation. Consequently, as 2nd year resident, Zoey feared that conflict between her individual identity and collective identity would leave her without purpose: "I get scared that because my interests are so far apart from each other, I am going to come out of residency in the middle, which is nothing." Unlike the other 4 cases, the 2 cases where tension was most salient had completed a dual degree and were in minority groups by virtue of their gender or sexual orientation.

Discussion: Expressions of individual identity and collective identity increase in frequency and change in focus through time. Schwalbe's model of identity work (2), defined as anything people do individually or collectively to give meaning to themselves or to others, helped explain the tension voiced in our data. In our longitudinal case study, trainees perceived a costly dichotomy: either they were not true to their individual identity or they were not true to the collective.

Conclusion: While future research should investigate the process of how medical trainees actually do identity work, our study highlights an immediate need for residency programs to provide safe spaces for trainees to navigate the tension between individual identity and collective identity.

References: *Gilligan C, Spencer R, Weinberg K, T. B. On the Listening Guide: a voice-centered relational model. In: Hesse-Biber S, Leavy P, eds. Emergent Methods in Social Research. Thousand Oaks, CA: Sage; 2006:157-72.*
Schwalbe M, Mason-Schrock D. Identity work as group process. Advances in Group Processes 1996;13:113-47.

9E3 (42)
Scenes, symbols and social roles: raising the curtain on OSCE performances

Authors
Gerard Gormley, Queen's University Belfast, Belfast, Northern Ireland
Mairead Corrigan, Queen's University Belfast, Belfast, Northern Ireland
Kathy Cullen, Queen's University Belfast, Belfast, Northern Ireland
Jennifer Johnston, Queen's University Belfast, Belfast, Northern Ireland

Presenter:
Gerard Gormley, Queen's University Belfast, Northern Ireland

Background:
Introduction: OSCEs are a widely used form of assessment in health profession education. The dominant psychometric discourse in OSCE related research has conferred many insights into this form of assessment. However such a positivist discourse does not paint an entire picture of their contextual and social dimensions [1].They are socially situated activities where candidates interact with SPs, in the presence of examiners – i.e. the OSCE triad. Social environments impact on the way individuals present themselves and interact with others.

With OSCEs becoming more sophisticated and scrutinised, there is an imperative, and the aim of our study, to explore in-depth the social roles and interactions that occur within them. Such information has potential to reframe our thinking about OSCEs and their future development.
Methods: Analysis was sensitised by symbolic interactionism, particularly Goffman's dramaturgy metaphor [2]. Senior medical students, examiners and SPs were invited by email to participate. A matrix of willing participants was used to select a maximal variation sample of 18 OSCE station encounters. Consenting subjects in the study were allocated to one OSCE circuit that already had unobtrusive ceiling mounted videocameras. Candidates were not aware of which OSCE station was being recorded and each examiner/SP combination did not know which candidate was being recorded. Footage of all 18 triadic encounters (128 mins) was transcribed. Using transcripts / video footage, analysis was inductive and iterative, focusing on the social roles and interactions within the OSCE triad. Consensus on themes across all triads - was reached by the research team – with constant reflexivity checks.
Results: Four themes were identified:
'Creating the right impression?'
On entering the station (front stage), candidates focussed on impression management with a desire to conform to examiners' expectations and 'play the OSCE game'. However, performances were often formulaic with a digitised questioning style and an absence of the natural to-and-fro of normal conversation.
'A performance of contradictions'
Contradictions occurred that were in direct opposition to assumptions about OSCEs. Competency and compassion are key tenets of what make a good doctor. However within the framework of OSCEs, the pursuit of displaying competency was often placed in opposition to displaying compassion to 'patients'.
'Simulated patients: instrumentalised and industrialised'
OSCEs induced dehumanization behaviour. Despite SPs providing a 'human face' to their role candidates interacted with SPs as if they were more a prop than a person.
'Examiners hold the power: hierarchy within OSCEs'.
OSCEs bring about social order and hierarchy within the triad. Examiners, as the primary audience, hold the greatest power which is mediated by possessing of the OSCE checklist.
Discussion and Conclusions: OSCEs are a complex form of drama that do not necessarily reflect the true social interactions of clinical practice. They promote a contrived reality, with a concerning shift from patient-centric to checklist-centric behaviours. Whilst checklists provide objectivity, they also encourage a presentation of self that is not entirely in keeping with the qualities of being a good doctor. Assessment drives learning but could OSCEs be distorting learning in the wrong direction. Rooted in empirical and contextually (i.e. summative setting) rich data, the findings of this study open up new ways of thinking about OSCEs. This unique study challenges us to reframe future assessment practices – for example by informing OSCE station design, examiner / SP training and external regulatory organisations that shape OSCE practice.

References: *Hodges B. The objective structured clinical examination: A socio-history. 2nd ed. Koln: LAP Press; 2009. Goffman E. The presentation of self in everyday life. London, New York: Double Day; 1959.*

9E4 (228)
Normal and abnormal: a phenomenological study of family physicians' experiences of physical examination

Authors
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Lisa Freeman, Nova Scotia Health Authority, Nova Scotia, Canada
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Presenter:
Martina Kelly, University of Calgary, Canada

Background:
Introduction: Medicine is the study of the human body. Early medical education focuses on the body as a site of objective learning through dissection of cadavers and microscopic examination of the tissues. These objective practices are re-enforced through repeated performance of physical examination skills, assessed in objective standardized exams. The physician's body is neutral and objective, rarely the focus of specific attention. Yet the body is inherently subjective, all experience is mediated via the body, through sight, smell, and touch. The physician's body is the site of subjective interpretation, through which physical findings, normal and abnormal are constituted. In this study, we wanted to explore physical examination as experienced through the physician's body by asking 'what is the lived experience of physical examination?'
Methods: This is an interpretative phenomenological study, set in family medicine. A purposive sample of family physicians, with a range of experiences, male, female, in urban or rural practice with varying levels of clinical experience, described in detail their experiences of physical examination. Interviews were recorded, transcribed verbatim, and field notes recorded. Data were analyzed using template analysis, and reflective writing. The team engaged in a process of dialectic questioning, moving back and forth between the data, emerging interpretations, paying explicit attention to how prejudgments impacted our analysis[1]. Findings were situated within the phenomenological writings of Husserl, Sartre and Merleau-Ponty[2], amongst others. Data collection stopped when we had sufficiently rich exemplars to deeply inform the phenomenon of performing physical examination.
Results: Sixteen family doctors participated, 8 women. 5 participants worked in rural practice; 5 were recent graduates.
Study participants described physical examination as core to practice, to diagnose and to communicate, a fundamental part of being a doctor. Routine examination affords a way for for physicians to evaluate working diagnoses and to reassure, through touch, patients' concerns and expectations, through 'doing something, which only takes a moment'. Performance of physical examination became automatic over time but a disruption to the expected caused physicians to pause. Participants described this as a slowing of time where they became conscious of the body of the patient and their own body, intertwined in a moment. Physicians experienced affective, intellectual, and physical phenomena, which integrated to guide their behavior, diagnosis, and management of the patient. The role of physical examination was to not only diagnosis as an evidence-based medical expert, but was experienced as a form of embodied, nonverbal communication, which expressed care.
Discussion: Merleau-Ponty's 'body-subject'[2] is used to examine these findings. He proposed that through habits of practice, the body is develops schema of performance, which are enacted pre-reflectively. Body schema integrate experience to inform future practice. On a day-to-day basis these schema direct our bodies as the 'lived body'. Encountering the unexpected disrupts the habitual body, and brings time, body, and mind into play demonstrating the embodied nature of physical examination.
Conclusion: Physical examination plays an important role to reassure and communicate trust in the doctor-patient relationship, enacted through the body of the physician. Complimenting diagnosis, the laying on of hands remains an essential element of patient care. Promoting a more conscious awareness of embodied experience, through the development of body pedagogics in medicine, offers a novel way to unite the objective, subjective dichotomy that pervades current discourses in medical education.
References: *Moules NJ, McCaffrey G, Field J, Laing C. Conducting hermeneutic research: From philosophy to practice. US: Peter Lang Publishing; 2015.*
Merleau-Ponty M. Phenomenology of Perception. London: Routledge & Kegan Paul; 1962/1945.

9F: Short Communications: Patient as Educator

Location: Helvetia 1, 1st Floor, Swissotel
Date: Tuesday 28th August
Time: 1600-1730 hrs

9F1 (1799)
Patient involvement in medical students' communication skills training

Authors
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Anne Mette Morcke
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Presenter:
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Background: One of the most common issues patients complain about is communication, which suggests that patient-centered communication training needs to be developed further. Therefore, the communication training community now looks towards the patient involvement movement for inspiration and begins to involve patients with chronic diseases in communication skills training for medical student as a supplement to simulated patients. However, little is known about how this involvement of 'real' patients prepares the medical students to respond to the patients' unique needs and challenges.
Method: This study is based on qualitative methods. Following a well-established communication skills course that involves patients with chronic diseases, we conducted 11 individual semi-structured interviews and 3 focus groups. In all 33 medical students participated in the interviews. The interviews were transcribed. Emergent themes were found by multiple readings and codings organized with the use of the qualitative data administration software NVivo.
Results: The students described that the 'real' patients' added real emotions and expressed unique needs and challenges due to their personal diagnosis and life condition. This created unpredictability in the conversation. Even though, the students found the unpredictability rather frustrating, they additionally described it as an authentic learning experience, which felt reassuring and relevant to their forthcoming clinical work. Furthermore, when training with 'real' patients, as opposed to simulated patients, the students felt that they truly had to balance the skills of providing biomedical information and empathy in the conversation with the patient.
Discussion: Patient involvement in communication skills training generates awareness of the emotional complexity that serve to patients' complaint about poor doctor-patient communication. Medical students must not only require skills in biomedicine or empathy to enhance patient-centered communication. They have to start learning the art of balancing both skills to strive for professionalism.

Conclusions: Patient involvement in communication skills training is valuable for medical students to develop their ability to balance the skills of providing biomedical information and responding to patients' emotions in patient-centered communication.

9F2 (1531)
Engaging Patients in Health Professions Education Admissions: A Scoping Review of Best Practices, Policies and Research

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Presenter:
Mark D. Hanson, Hospital for Sick Children, University of Toronto, Canada

Background: Patient engagement (PE) in Health Professions Education (HPE) is important at all educational levels. To investigate best practices for PE in HPE admissions, we conducted a scoping review describing admissions practices, policies, and research.
Method: Subject headings and key words were used to retrieve abstracts in Ovid MEDLINE (1946-present) relevant to patient, consumer and public admissions participation across health professions. Using an iterative screening strategy, reviewers conducted full text and bibliography review of abstracts potentially relevant to PE in HPE admissions. Included abstracts described studies of PE practices, relevant policies and research associated with HPE admissions. Excluded abstracts included studies of admissions practices involving standardized patients and non-English citations.
Results: Of 2969 abstracts identified, 11 articles were found suitable for inclusion. The majority of analyses were published between 2000-2016 and focused on UK and US examples. The adoption of and arguments for PE in these two jurisdictions are linked to key government and health profession policies. In the UK, federal policy has driven increased PE across health and social service education planning and delivery. In the US, the Association of American Medical Colleges (AAMC) Holistic Review Project has propelled efforts to develop admissions tools promoting diversity in medical schools. Compliance with US federal disability legislation has also formed the basis of an argument for PE in HPE admissions. Our review identified these policies with the potential to advance PE in HPE admissions, yet PE practices in HPE admissions have only been selectively implemented. Examples include UK social work programs and one US medical school. Few

models for effective integrative PE in HPE admissions exist and research examining performance-based outcomes is absent.

Discussion: Our scoping review reports government and health profession policies conducive to PE in HPE admissions across jurisdictions, yet limited examples of PE practice and research in HPE admissions exist.

Conclusions: PE in HPE admissions presents a mixed picture. The findings of this literature synthesis lay the groundwork for a research agenda that examines the facilitators and barriers to integrative PE across all HPE admissions, to ensure transformational implementation.

9F3 (1085)
'I will never ever go back': Patients' narratives of healthcare communication interactions

Authors

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Elizabeth Molloy, The University of Melbourne, Melbourne, Australia
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Presenter:
Charlotte Denniston, The University of Melbourne, Australia

Background: Patient engagement is valued, but still somewhat uncommon in the design of health professions education (HPE). Patient narratives are constructions of patients' lived realities and are one way of incorporating the patient's voice into HPE. Through focussing on positively and negatively evaluated stories of healthcare communication interactions, this research explored patients' narratives to inform communication skills teaching in the health professions.

Method: This research asked: 'what differences exist in patients' positively and negatively evaluated narratives of healthcare interactions?' This interpretivist research was underpinned by social constructionism. We employed a narrative inquiry approach to design an online questionnaire that was advertised to patients in the community. The questionnaire prompted participants to share their stories using the structure of narrative as proposed by Labov (1997): abstract, orientation, complicating actions, evaluation, most reportable event and resolution. Framework and narrative analysis techniques were conducted.

Results: This study collected 180 narratives from 124 patients about previous healthcare professional (HCP) communication interactions. Narratives were coded as having a 'positive' (n=80), 'negative' (n=97) or mixed (n=3) evaluation. Framework analysis revealed details about interpersonal factors and patient actions during and after consultations. While rich constructions of positive and negative emotions were presented within patient narratives, this emotion was often not shared with the HCP involved at the time of the interaction. For example, dissatisfaction was often followed by patients 'never going back' to that HCP and instead seeking care elsewhere.

Discussion: We explored the patient's voice, a voice underrepresented in HPE, to better understand experiences of communication in healthcare. Using narratives to gain insights into patients' experiences, emotions and current and future healthcare seeking behaviours can be a useful means by which HCPs can teach, and learn about, the patient's perspective in communication.

Conclusions: The educational implications of this work include the importance of HCPs seeking and acting on patient feedback to calibrate their own interpretations of the patient experience and of their own communication practices. The use of narrative questioning, informed by models such as Labov, may facilitate the gathering of meaningful information about patients' experiences of healthcare.

9F4 (1015)
The impact of patient involvement in the teaching and assessment of intimate examination skills: a randomised control trial

Authors

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Andrew Kelly, Plymouth University, Plymouth, UK
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Presenter:
Rebecca Baines, Peninsula Schools of Medicine and Dentistry, Plymouth University, Plymouth, UK

Background: Patient and public involvement (PPI) is a central policy agenda across most educational programmes. However, despite repeated emphasis of its centrality to the higher education experience, research examining the impact of PPI in the assessment of undergraduate healthcare professionals is limited, particularly in the assessment of intimate examination skills using robust study designs such as randomised controlled trials.

Method: A randomised control trial design was used to assess the impact of patient involvement in the teaching and summative assessment of intimate examination skills. Volunteer fourth-year medical students participated in an OSCE scenario where they were blindly assessed by gynaecological teaching associates (GTA's) from Oxford University. Assessment scores from those who had received mannequin training only (control group) and those who received training from lay-women at the University of Plymouth (experimental group) were compared. The OSCE was repeated three months later to assess the long-term impact of each training method. Participant interviews were also conducted to provide additional insight.

Results: Students taught by the existing mannequin and GTA's achieved different assessment scores reported qualitatively different experiences. Initial findings suggest that whilst some areas benefit from PPI, others are less

affected. Participant interviews identified added value as a result of PPI in assessment including the opportunity to engage with 'real' patients, enhanced authenticity, and improved awareness of non-clinical elements. Factors influencing these effects from a student, patient assessor, and academic staff perspectives are also discussed.

This research advances existing understanding by examining the impact of PPI in the assessment of intimate examination skills using a randomised controlled trial.

Discussion: Results hold important implications for developing innovative teaching and assessment methodologies across medical schools and related disciplines internationally. An accurate understanding of PPI in assessment can help to address its acknowledged barriers including validity, authenticity, and objectivity. Patient involvement in summative assessment is valuable and achievable.

Conclusions: Patient variability should not be used as a deterrent, but as an opportunity to enhance assessment authenticity helping to prepare students for the complexity and reality of clinical practice.

Take-home message: PPI should be considered at a minimum, complementary to existing assessment methods.

9H: Short Communications: Accreditation

Location: Kairo 1, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

9H1 (1876)
Building a Culture of Accreditation Awareness

Authors
Tanis Adey
Taryn Hearn
Heidi Coombs-Thorne

Presenter:
Tanis Adey, Memorial University, St. John's, Canada

Background: Accreditation is a process by which educational programs voluntarily undergo extensive peer evaluation of compliance with accepted standards of educational quality. Research suggests that the level of stakeholder engagement with the accreditation process has a direct impact on the success of a review. In 2016, we surveyed faculty, staff, and students about their knowledge of the accreditation process. The majority of respondents (78.6%) felt that they were not involved in accreditation despite the fact that 53% reported participating in specific aspects of the process. Approximately half of participants were not familiar with undergraduate medical education requirements. Based on this survey, we developed a communication strategy to build awareness of accreditation. This project explores the potential of this strategy to enhance the accreditation process.
Method: This project involved a series of presentations to 12 disciplines and undergraduate students. The presentations highlighted the Interim Review Process (IRP) as a means of encouraging a culture of continuous quality improvement. They also included a knowledge test and a feedback form for participants to complete. In addition, as part of our communication strategy, information on the IRP was posted on the Faculty of Medicine website.
Results: 201 faculty, staff, and students answered the knowledge-test (12.2%) and 214 completed feedback forms (13%). The majority (86%) of knowledge-test participants did not know that accreditation constitutes peer evaluation and 73% were not familiar with the IRP. 57.7% of participants who completed the feedback forms reported that the presentations increased their interest in participating in accreditation-related activities. Finally, 50% of participants felt that a culture of change is important to the accreditation process.
Discussion: In the knowledge-tests, participants demonstrated limited knowledge of accreditation requirements, the accreditation process, or the IRP. However, they felt that accreditation and the IRP are important to medical education. They also found the presentations engaging and informative and served to increase their interest in being involved in the accreditation process.

Conclusion: Based on the results of this project, we argue that a communication strategy can create a culture of accreditation awareness and positively impact the accreditation process.

9H2 (3648)
Presence of medical students in the visiting team of accreditation - we approved

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Patricia Tempski, Faculty of Medicine of University of Sao Paulo, Sao Paulo, Brazil

Presenter:
Milton Martins, Faculty of Medicine of University of Sao Paulo, Brazil

Background: Accreditation of medical schools has been performed in an increasing number of countries. A new system of accreditation of medical schools was created in 2015 in Brazil by the Brazilian Nacional Medical Council and the Brazilian Association of Medical Education, following the standards of the World Federation of Medical Education (WFME). A medical student was included in the visiting team of this new system of accreditation (System of Accreditation of Medical Schools – SAEME).
Method: We analyzed the results of the first 16 medical schools that were visited with a medical student included in the visiting team and compared the preliminary report of the self-report instrument performed by the medical students and the other members of the visiting team. Our self-report instrument has five domains: educational program, educational environment, faculty affairs, student affairs and medical school governance. We also compared the evaluation of the members of the visiting team performed by the medical school visited.
Results: There was a good agreement between the evaluation of medical students and the other members of the visiting team in three domains: academic staff/faculty, educational resources and educational governance. Students tended to be more rigorous in the evaluation of student affairs and less rigorous when evaluated educational program domains compared to faculty members of the visiting team. Deans of medical schools visited considered the participation of medical students in the visiting teams satisfactory or very satisfactory in, respectively 26.5% and 70.3% of the items, considering all items of the evaluation form of the visit.
Discussion: The evaluation of the visit reports showed high agreement of results comparing medical students and other members of the visit team. Deans of medical students approved the presence of medical students in the visiting team.

Conclusion: The inclusion of medical students in the visiting team results in an increase in the quality of the accreditation process of medical schools.

9H3 (2167)
Rethinking Accreditation: New National Standards for Canadian Residency Education in a CBME Era

Authors
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Presenter:
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Background: The current Canadian residency education accreditation system has evolved into a system with many manual procedures and process-oriented standards. Three Canadian accrediting colleges came together, forming CanRAC, to develop a new conjoint residency accreditation system that is aligned with the principles of competency-based medical education (CBME), and comprises 10 components.
Method: Interviews with Canadian postgraduate deans highlighted strengths and challenges of the current accreditation system. Current accreditation standards were felt to be process-heavy, unclear, and not reflective of best practice. CanRAC created a governance structure to develop new accreditation standards, with key stakeholders, by consensus, using a multi-year, iterative development process.
Results: : Following several years of development, consultation and testing, CanRAC has created a blueprint for a 21st century accreditation system; two components are new standards for residency programs and institutions, and a new framework by which these standards are evaluated. The standards include six new content domains (Institution Governance, Program Organization; Education Program; Learners, Teachers, and Administrative Personnel; Resources; and, Continuous Quality Improvement) and are aligned with CBME, and place greater emphasis on the learning environment, continuous quality improvement, and program outcomes. The Canadian residency accreditation system had not undergone a comprehensive review and reform in more than 20 years, and required work to be aligned with CBME and an increased focus on outcomes. The new Canadian accreditation standards set new expectations and drive ongoing quality improvement of residency education, and ultimately, enhanced patient care.
Conclusion: As health professions education moves towards CBME, accrediting bodies are increasingly looking

to improve and enhance their standards. The new CanRAC standards and process by which they were developed provide an example for other accrediting bodies looking to reform their accreditation standards for residency education.

9H4 (1833)
The Regulator and the Medical School – a collegiate approach to approval processes

Authors
Hannah Wisdom, Plymouth University Peninsula Schools of Medicine and Dentistry, Plymouth, UK
Emily Saldana, General Medical Council, London, UK

Presenter:
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Background: The General Medical Council (GMC) is responsible for setting the standards for training of medical students in the UK. These include the standards medical schools must meet in teaching and assessing students and the skills and behaviour students must demonstrate to complete the course. The GMC regularly monitors medical schools to ensure these standards are maintained, and decides if new medical schools should be allowed to issue medical degrees.
Plymouth University Peninsula Schools of Medicine and Dentistry is a new medical school based in the South West of England. Established in 2012, it accepted its first students in 2013. It has just successfully completed the intensive five-year process of rigorous annual 'new school' quality assurance inspections by the GMC, and final approval is due to be ratified in February 2018.
Summary
The poster will describe the process for:
• Assurance of Quality by the GMC, and how the school interprets requirements and recommendations;
• The school's approach to preparing for GMC visits, management of evidential documentation and links to university quality assurance processes;
• The school's demonstration of compliance with GMC Standards, and how the regulator assesses this;
• How the school and the GMC work together to develop a good working relationship, including responsiveness and flow of information.
An open, honest and candid approach by the school, which thoughtfully considers the work process from the point of view of the regulator, will aid the approval process and help develop good working relationships.

9H5 (815)
Costs of undergraduate medical education: how is the money spent in hospitals?

Authors
Philip Chan

Presenter:
Philip Chan, University of Sheffield, Sheffield Teaching Hospitals, Sheffield, UK

Background: English medical education is dually funded; largely through student fees to the University, and a separate grant to clinical providers, including hospitals, through a government agency, Health Education England. The HEE undergraduate tariff in 2014 was GBP 34623 per student per year.

Method: As part of the costing exercise for this tariff, HEE surveyed every hospital trust that provided undergraduate medical education in 2013-4, asking for costs actually incurred in specific areas. There was no specification or oversight of how individual hospitals collected information for their returns, but the returns had to be signed off by their finance departments. These returns were obtained through a Freedom of Information request.

Results: For final year medical students, 155 English hospital trusts returned costs. Median total costs per student per year was GBP28705 (range 3072-1623943); 48% of this cost was attributable to staff teaching, 7% for facilities, 1% for administration and 16% for overheads. Median direct plus placement teaching costs per student do not appear credible when analysed against consultant pay.

Conclusion: There were clear deficiencies in many returns; there were zero costs entered by some trusts in every category; and some hospitals miscounted their students. There were also no data for capital spending or charges. However, unless the majority of hospitals misrepresented their costs, there is around 17% profit for undergraduate medical education, even with overstatement of direct teaching costs. It is likely that the money received for undergraduate medical education is used for other purposes within English hospitals.

9H6 NOT PRESENTED

9I: Short Communications: Assessment: National Licencing Exam

Location: Rio, 2nd Floor, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

9I1 (2765)
Implementation of OSCE as national exam

Authors
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Tatiana Semenova
Zhanna Sizova

Presenter:
Zalim Balkizov, ASMOK, Moscow, Russia

Background: The National exam for physicians was introduced in Russia in 2011 with delayed implementation on 2016. Before its implementation access to the medical profession was based on diploma and formal certification after residency programs. New regulation implements 3 types of accreditation - primary after graduation from the medical school, primary specialized after residency programs, and reaccreditation every 5 years of practice. To develop and run national exam we started with development of professional standarts (for each of 96 specialties), the exam itself was divided into 3 steps - MCQ, OSCE and oral examination. Federal Center for Accreditation (FMZA) was founded as structure of the Sechenov University in 2015. FMZA was responsible for development of MCQ, OSCE stations and cases for the oral exam. In 2016 two specialties - Dentistry and Pharmacists was pioneer in the primary accreditation, in 2017 all graduates of 9 undergraduate medical specialties had to pass accreitation in order to get access to the primary practice and residency. In total we had about 30 000 graduate students.
First implementation of OSCE was very limited - only 5 stations was adopted nationwide for the accreditation step 2. However, independent assessment of clinical skills became strong motivation for both - students and faculty members to improve training in clinical skills centers. Authors will present first results of the OSCE implementation in Russia.

9I2 (1974)
The nationwide German licensing examinations as a benchmark for cross-institutional comparisons: How to make apples to apples comparisons possible?

Authors
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Presenter:
Hossein Shahla, IMPP, Mainz, Germany

Background: The second medical state exam (M2) represents the final written licensing exam for future physicians in Germany. M2 is carried out with up to 4000-6000 participants originating from 36 medical schools twice a year (April and October) by the German National Institute for state examinations in Medicine, Pharmacy and Psychotherapy (IMPP). Against this background there is a tremendous public and administrative interest in using the faculty-level outcomes of the nationwide licensing examinations as a benchmark for cross-institutional comparisons. Faculty-level outcome variations on IMPP licensing examinations are however multi-causal, confounded by faculty effects as well as student characteristics. There is a considerable disparity between German medical schools caused by unbalanced distribution of student characteristics among faculties. Thus adjustments for student characteristics are an indispensable requirement for fair cross-institutional comparisons.
Method: The goal of this study is to develop an adjustment procedure that allows faculties, experts, and federal government officials to make apples-to-apples comparisons among medical schools. Following the core philosophy of value added approach we adjust M2 exam outcomes at faculty level for student characteristics (covariate adjustment). Faculty-specific effects are disentangled from the population-specific effects (= effects of individual student characteristics) running statistical models with fixed faculty factors.
Results & Discussion: Students characteristics (gender, age, ethnicity, 'university entrance entitlement') are powerful determinants of individual exam outcomes (R^2 = 0.36). Estimated faculty level means controlling for student covariates are free from the effects of student characteristics. So covariate adjustments counterbalance the disparities of medical schools caused by unbalanced distributions of student characteristics among faculties and substantially change the naive ranking of faculties. Unadjusted faculty level means of German nationwide licensing examinations are ineligible ranking instruments. Particularly if they are used as standards for allocation of founds by federal governments, estimated faculty level means controlling for student covariates are, in contrast, more appropriate for ranking of German medical schools.

9I3 (3090)
Two Years' Experiences of a new Swedish National Proficiency Test for Doctors of Medicine

Authors
Magnus Hultin
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Anders Själander

Presenter:
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Background: A new Swedish national proficiency test was instituted in 2016 for medical doctors trained outside EU/EES applying for a license to practice in Sweden. The test comprises a theoretical and a practical part both offered 4 times per year. Three attempts are allowed for the theoretical part, and once passed, two attempts for the practical part. As a consequence of the Sweden's right-of-access principle, all tests have to be constructed de novo without calibration questions.
Method: Theoretical knowledge is assessed by means of MCQs with one single best answer and four distractors: (i) 140 MCQs cover the complete medical curriculum (4h); (ii) 5 × 5-7 MCQs related to five clinical cases (1h); and (iii) 10-20 MCQs to probe knowledge within EBM (1h).
Pass levels are decided by modified Angoff. Quality assurance is achieved by blueprinting, a question review board, analyses of item and test statistics, and a post-examination review allowing examinees within 48h to propose alternative interpretations of questions and answers.
The practical test is implemented as OSCE: one 14-station OSCE circle with 6 min stations and one 4-station circle with 14-min stations. Pass levels are decided by consensus among the examiners.
Results & Discussion: Five theoretical tests have been completed and 379 tests taken by 284 individuals of which 75 have passed (26%). Chronbach's alpha were >0.90. Average score was 50 12% and the pass level 60-62%.
Five practical tests have been completed by 60 individuals of which 53 passed the test (88%).
One year after the first theoretical test, the first medical doctors were licensed to practice in Sweden based on the results of the proficiency test.
Only 11-23% pass the theoretical test. The examinee's preparation for the proficiency test needs to be improved, perhaps by minimizing the Dunning-Kurger effect and improving language proficiency.
Conclusion: The new Swedish national proficiency test covers the medical curriculum and its theoretical part identifies candidates that are likely to be proficient in practical medicine.

9I4 (2934)
Written Exam Performance in the Second Part of the Medical Exam: the impact of elective and outcome in oral clinical examinations on results in the written part of the second national medical licensing exam

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Presenter:
Birgitta Kütting, IMPP, Mainz, Germany

Background: According to the amended approbation ordnance for physicians, from spring 2007 to autumn 2014, medical students in Germany had to complete both the written and the verbal-practical segment of national medical licensing exam within a view weeks. Since the timeframe between both exams was very short, the knowledge base of examinees is to be assumed identical in both exams.
The study was aimed to analyse the correspondence of written and verbal-practical exam performances in the second part of the national medical licensing exam.
Material and Method: 59,122 students have been included. The grades achieved in the verbal-practical exam were compared with the overall performance; to reduce confounding -as well as- with partial results of the written exam. The impact of the clinical-practical experience on the written exam performance was assessed in a subgroup of examinees with the six most frequent PJ-electives (n=45,029).
Results: The grade point average for the verbal-practical exam was significantly higher than the exam results of the written exam (mean: 1.6 vs. 2.9). 78.2% earned the highest grades 1 or 2 in the verbal-practical exam, whereas only 34% achieved these grades in the written exam. When comparing the written partial results with the results of the verbal-practical exam, this difference has decreased. Reviewing the written exam results of all candidates in the six most frequent PJ-electives, the candidates tended to achieve higher grades in their applicable elective subject than all others who did not have an opportunity to gain in-depth practical experience in this subject.
Discussion: The written uniform exams are proportionally more difficult for the examinees than the verbal-practical exams conducted by faculty. Clinical-practical experience in the elective subject produced better IMPP-results in this subject; therefore, the IMPP-exams seem to be a suitable surrogate for demonstrating a greater clinical knowledge base.
Conclusion: The results of the nationally uniform written exams are almost one grad lower than the university exams conducted almost simultaneously. The reason for this may be the characteristics of both exam forms, as well the different goals of the exam formats.

9I5 (2578)
The Licensing Examination for Doctors – Use of Multilingual Format in Hong Kong

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Presenter:
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Background: All medical graduates who wish to obtain full registration as medical practitioners in Hong Kong, with the exception of graduates of the two local medical schools (the University of Hong Kong and the Chinese University of Hong Kong), have to pass the Licensing Examination of the Medical Council of Hong Kong.
The Licensing Examination consists of three parts. Part I examines the professional knowledge by multiple-choice questions. The questions are available in both English and Chinese. Part II is a proficiency test in medical English, assessing comprehension and writing skills. Part III is the clinical examinations in Medicine, Surgery, Obstetrics & Gynaecology and Paediatrics. (1) The clinical examinations are primarily conducted in English. However, candidates are given the choice to answer in Cantonese (a Chinese dialect), Mandarin or English. If necessary, interpreters can provide translation for candidates when they interact with patients during the clinical examination.
Based on the criteria of eligibility, there may be potential candidates from various parts of the world. The medium of instruction in many medical schools worldwide is primarily English. However, there are some candidates from mainland China who come from medical schools with curriculum being taught in Chinese. A proficiency test of medical English is in place to ascertain that all candidates meet the required standard of English for medical practice. The availability of Chinese multiple-choice questions facilitates the candidates from mainland China.
Although both Chinese and English are the official languages of Hong Kong, 89.1% of the population in Hong Kong are Cantonese speakers. (2) By allowing the use of Cantonese, Mandarin or English for answering during the clinical examination, this facilitates candidates from mainland China and other parts of the world. This also fulfills the need of local Cantonese-speaking patients participating in the examination. The clinical examination setting can thus mimic the actual local working environment. Knowing both Cantonese and English is deemed advantageous as additional time is not allocated for translation during the examination.
Take-home message: Multilingual format in Licensing Examination for doctors allows testing of candidates within a local context.

1.
https://www.mchk.org.hk/english/exam/general_information.html
2. https://www.gov.hk/en/about/abouthk/facts.htm

9I6 (1351)
Sweat in Peace, Bleed not in War: Regular Cumulative Exams to Better Prepare Students for the Rigors of the National Medical Licensing Exam

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Presenter:
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Background: Competition for post-graduate medical education in most specialties (residency) in the U.S. is increasing. Candidate scores on the national licensing exam (boards) is a significant factor in selecting who may be interviewed. Because of the increasing significance of board performance, we have implemented end-of-semester cumulative exams to assess and better prepare our students for the boards.
Method: In order to be eligible for graduation and conferral of their medical degree, students are required to pass board examinations. In efforts to stimulate retention of acquired knowledge, we require our students to take and pass cumulative semester exams which assess material taught during the current and previous semesters. We performed regression analysis to assess alignment of our cumulative exams with the national boards.
Results: We found that students retain significant knowledge from previous semesters. Additionally, the correlation between exam performance and boards is highly significant. The second-year cumulative exams showed a high Pearson correlation coefficient with boards: R = 0.71 for the third semester and R = 0.80 for the final cumulative exam, respectively. The final cumulative exam had a slightly higher correlation than that of medical school GPA and the boards (R = 0.73). The correlation between the first-year final cumulative exams and boards was modest (R = 0.58).
Conclusion: The introduction of semester cumulative exams has ensured that students are better prepared for the national boards and has helped identify at-risk students. Since the introduction of cumulative exams, our first-time pass rate for the level 1 national board exam has risen from 91.6% to 97.3%.
Take-home message: Implementing cumulative assessments has empowered us to better prepare students for the rigors of the national licensing exam,

identify at-risk students for earlier intervention, and
increase our first-time pass rate.

9J: Short Communications: Work Based Assessment

Location: Shanghai 1, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

9J1 (456)
Putting learners in control of assessment: An innovative co-design approach for work place based assessments (WBA)

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Background: WBAs are key components of modern programmes of assessment focusing on direct observation and feedback for learners. In order to be fit for purpose, WBA feedback should ensure that students engage and find value in the assessment. With the advent of more 'just in time', technology enhanced assessment, are there opportunities to place learners truly at the heart of workplace assessment?
Method: We evaluated our existing app based WBA using a mixed methods approach with 92 medical students and 22 educators/clinicians. As a result of the evaluation we embarked on a re-design of the assessment and adopted a co-design approach involving 55 medical students and 33 educators/clinicians.
Results: The evaluation highlighted that the inherent purpose of the assessment was clear and that it was instrumental in building rapport and professional relationships, however the app design and structure was found to be confusing, limiting the capture of quality feedback. During co-design sessions, students developed their own 'success criteria' for WBA which was mapped directly onto the re-designed assessment.
The new app was presented to all students using a behaviour change model as a 'nudge', with initial evaluation showing that students are undertaking more WBAs, developing more detailed action plans and that both the feedback and action plans have vastly improved in terms of quality.
Discussion: Whilst WBAs are an essential part of medical education, this evaluation highlighted the importance of design in ensuring successful use in busy clinical environments. The adoption of a co-design approach allowed students to be owners of the assessment and develop criteria that would support their learning. We moved away from quantifying performance based, behavioral feedback and focused on rich, actionable narratives to enhance the quality of workplace learning.
Conclusion: The use of co-design has many benefits including a greater understanding of student need, ensuring that the assessment is fit for purpose and importantly it has resulted in the increased engagement and forward planning of previously poorly engaged learners.

9J2(948)
An evaluation analysis of 12 months of EPA assessments in Australian general practice trainees

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Presenter:
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Background: EPAs are a well-documented method of assessment used in undergraduate and postgraduate settings around the world. During 2016, 13 EPAs were developed for Australian general practice training.
Method: An evaluation of the EPAs that have been completed was undertaken. Supervisors completed an EPA assessment four times during 2017 for 131 junior trainees and 151 senior trainees. Trainees also completed an equal number of self-assessments using the same EPAs. There was an opportunity for comments after each EPA. The levels of entrustment for all EPAs were analysed and the comments for a random sample of junior and senior trainees coded.
Results: Analysis of the EPAs demonstrated supervisors utilised all levels of entrustment in marking their trainees, from needing frequent in-room review to being able to practice unsupervised. Similarly, each EPA had different distributions of entrustment indicating supervisors considered each EPA separately. Levels of entrustment for all 13 EPAs were higher for senior trainees compared to junior trainees and there was growth in level of entrustment seen over time for both senior and junior trainees. There was correlation between the level of entrustment marked by supervisors and the self-reflection analysis by the trainee.
Qualitative data analysis of the feedback narrative about each EPA by supervisors and trainees indicate the narrative covers a broad range of areas including competency, specific advice, technique, experience, specific gaps, confidence, requirement for supervision, behaviour, performance and progress. The narrative for junior trainees were more specific and of higher quality than the narrative for senior trainees.
Discussion: For the EPAs developed, supervisors were able to utilise all levels of entrustment. Growth in levels of entrustment was seen throughout the year in both junior and senior trainees. Comments written by trainees demonstrate self-reflection and supervisors provided feedback to assist with learning.
Conclusion: EPAs developed for Australian general practice training are a valuable assessment tool which are able to demonstrate growth in junior and senior trainees; and stimulate self-reflection and the provision of narrative rich feedback to the trainee from the supervisor over a broad range of areas.

9J3 (2550)
A systematic review and meta-analysis on the educational impact of Mini-CEX and DOPS and its association with implementation

Authors

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Background: Mini Clinical Evaluation Exercise (Mini-CEX) and Direct Observation of Procedural Skills (DOPS) are used as formative assessments worldwide. Since an up-to-date comprehensive synthesis of the educational impact of Mini-CEX and DOPS is lacking (Miller & Archer, 2010), we performed a systematic review. Moreover, as the educational impact might be influenced by characteristics of the setting in which Mini-CEX and DOPS take place or their implementation status (Durlak & DuPre, 2008), we additionally investigated these potential influences.

Method: We searched Scopus, Web of Science, and Ovid, including All Ovid Journals, Embase, ERIC, Ovid MEDLINE(R), and PsycINFO, for original research articles investigating the educational impact of Mini-CEX and DOPS on undergraduate and postgraduate trainees from all health professions, published in English or German from 1995 to 2016. Educational impact was operationalized and classified using Barr's adaptation of Kirkpatrick's four-level model (Barr, Freeth, Hammick, Koppel, & Reeves, 2000). Where applicable, outcomes were pooled in meta-analyses, separately for Mini-CEX and DOPS. To examine potential influences, we used Fisher's exact test for count data.

Results: We identified 26 articles demonstrating heterogeneous effects of Mini-CEX and DOPS on learners' reactions (Kirkpatrick Level 1) and positive effects of Mini-CEX and DOPS on trainees' performance (Kirkpatrick Level 2b; Mini-CEX: standardized mean difference (SMD)=0.26, p=0.014; DOPS: SMD=3.33, p<0.001). No studies were found on higher Kirkpatrick levels. Regarding potential influences, we found two implementation characteristics, "quality" and "participant responsiveness", to be associated with the educational impact.

Conclusions: Despite the limited evidence, the meta-analyses demonstrated positive effects of Mini-CEX and DOPS on trainee performance. Additionally, we revealed implementation characteristics to be associated with the educational impact. Hence, we assume that considering implementation characteristics could increase the educational impact of Mini-CEX and DOPS.

Take-home messages:
- Mini-CEX and DOPS demonstrate mixed effects on learners' reactions (Kirkpatrick Level 1).
- Mini-CEX and DOPS demonstrate positive effects on trainee performance (Kirkpatrick Level 2b).
- The educational impact of Mini-CEX and DOPS seems influenced by characteristics of implementation.

9J4 (2777)
Clinical Encounter Assessment: A daily competency-based workplace-based assessment tool for anesthesiology trainees

Authors

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Background: Workplace-based assessment is central to outcome-based medical education. In postgraduate anesthesiology training, where residents work with different supervisors each day, a daily evaluation tool is commonly employed. Our program created the clinical encounter assessment (CEA), a daily workplace-based assessment tool designed to reflect increasing resident independence and competence. The scale of the CEA is based on the extent to which a faculty trusts a resident to independently manage various case elements. We sought to identify whether the CEA tool captured increasing independence across increasing post-graduate training years, and to identify factors that would predict high evaluations for practice independence.

Method: We retrospectively examined CEA assessment data for anesthesiology trainees of all training levels obtained from July 1, 2017 to October 1, 2017. Univariate and multivariate analyses were used to identify factors and a model predicting overall independence. A P<0.05 was taken as significant.

Results: The median overall level of independence of trainees increased from "DIRECTION: Required some guidance and/or coaching for this case" in PGY1 to "AUTONOMOUS: Did not require coaching or guidance for this case" in PGY5. Regression analysis in the CEA tool demonstrated that trainee overall level of independence was correlated with post-graduate training year (R2=0.18, p<0.05). After adjusting for site, on call status and case complexity, trainee performance in the "Patient assessment" (P=0.01) and "Critical thinking, insight and judgement" (P=0.03) domains predicted trainee overall level of independence (R2=0.87). Anesthesia plan creation (P=0.07) trended towards predicting trainee overall level of independence but was not statistically significant.

Discussion: The CEA assessment tool captures increasing anesthesia trainee independence with progression through post-graduate training years. We identified that resident performance in two domains, "Patient assessment" and "Critical thinking, insight and judgement" correlate with a trainee's overall level of independence.

Conclusions: Evaluating trainees' performance in the domains of patient assessment, and critical thinking, insight and judgement may be taken as predictors of overall level of independence. Within the context of competency-based training, assessing anesthesia residents

on a regular basis using the CEA tool may facilitate early identification of underperforming and high performing residents.

9J5 (1553)
Design and implementation of a workplace-based assessment method in Anatomical Pathology: Mini Pathological Examination Exercise (Mini-PEX)

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Background: Patient safety and quality in healthcare requires certification of specialists' clinical competence. Competency-based education models for postgraduate medical education, such as CanMEDS, aid to attain this goal. Throughout these models, emphasis is done on observation and workplace-based assessment. Moreover, formative assessment and feedback allow trainees to achieve these roles. This project therefore aimed to develop a workplace-based assessment method based on CanMEDS framework that incorporated feedback for Anatomical Pathology residents during sign-out.

Method: A mixed methodology was used. Anatomical Pathology competencies that tribute to sign-out were preselected. Then, a modified Delphi technique was used to select those assessable by observation. Faculty development workshops were carried out. The method was designed and then piloted in residents. Satisfaction was measured and results were analyzed.

Results: Medical Expert, Communicator and Professional roles were represented through the selected competencies. Competencies were clustered and a six-dimension method was developed. Rating scale was designed from 1 to 7 achievement levels, with level 4 as the minimum passing score due to context reasons. Satisfaction was high and improvement areas were identified. Results and feedback were properly received. Content validity is established due to experts' agreement based method design.

Discussion: A workplace-based assessment method based on CanMEDS framework that includes feedback for Anatomical Pathology residents is innovative in literature. Moreover, performance assessment of Communicator and Professional roles in this area is scarce. Secondly, the method structures sign-out and highlights its cognitive and attitudinal needed competencies. The main limitation of this project is that experts' agreement is based on local anatomical pathologists.

A workplace-based assessment method that includes feedback for Anatomical Pathology residents was designed. The method is based on CanMEDS framework and assess Medical Expert, Communicator and Professional roles. Content validity is established due to experts' agreement based method design.

Conclusions: Workplace-based assessment by direct observation, associated with effective and timely feedback, is an important method in assessing doctors at postgraduate medical education. Locally designed methods are helpful to assess a variety of CanMEDS roles and highlight their importance in the workplace.

9K: Short Communications: Curriculum Mapping

Location: Shanghai 2, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

9K1 (844)
From theory to practice: Operationalizing curriculum mapping in competency-based medical education

Authors
Joan Binnendyk

Presenter:
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Background: While the transformation of residency training programs to competency-based medical education (CBME) progressively gains momentum throughout the world, an integral component of this shift – curriculum mapping – continues to be considered an esoteric process. Current literature on curriculum mapping provides theoretical underpinnings but little that can pragmatically assist a residency program in the evolution from traditional rotations and objectives to CBME. Within this gap there is an opportunity to consider curriculum mapping software as a stand-alone product that allows residency programs to make immediate progress in their move toward competency-based education.
Method: After researching available options, we began work with Curriculum Trak, a curriculum mapping software company traditionally focused on K-12 education. Choosing this small organization served two primary benefits: software customization and surprising affordability. Following a practical, step-wise approach, rotations and training experiences were mapped to milestones and competencies. This allowed us to graphically represent where trainees would experiences opportunities to achieve their educational outcomes.
Results: Curriculum Trak illustrated three key results: 1) training experiences that exist within each rotation; 2) milestones a resident is capable of achieving within each training experience; and 3) competencies required to achieve each milestone. The software revealed areas of alignment and misalignment between desired and existing educational outcomes, recognition of opportunities for enhanced or supplemental learning, and scheduling and service commitments to other programs.
Conclusions:: Curriculum mapping provides an opportunity to dive deeply into the intricacies of a curriculum to identify how training experiences support the development of competencies and achievement of milestones, while creating transparency for educational administrators, teachers, accreditors, and most importantly, learners. Curriculum Trak facilitated a straightforward method of collating curricular elements into a tangible roadmap that orients faculty to required training opportunities and residents to self-directed learning pathways.
Take-home message: An affordable software product coupled with a step-wise approach provides a practical curriculum mapping method that can be readily implemented in any training program.

9K2 (3534)
Standardization of curriculum mapping

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Background: Accreditation, standardization and development of medical curricula warrants mapping them to outcome frameworks. Common frameworks comprise roles of a physician (CanMEDS), entrustable professional activities (AAMC's 'core EPAs'), catalogues of learning objectives encompassing knowledge and skills or simple lists of diagnoses and symptoms. Some frameworks like the 'Principal Relevant Objectives and Framework for Integrative Learning and Education in Switzerland' (PROFILES) or the German national competency-based catalogue of learning objectives (NKLM) combine different above-mentioned aspects. Mapping curricula to outcome frameworks is often based on subjective assessments. It is therefore necessary to standardize this process in order to minimize subjectivity and increase comparability of results. We aim to assess how this can be achieved for different types of catalogues.
Method: We defined rules for mapping a medical curriculum to the NKLM, which includes a wide range of chapters defining physician's roles as well as skills, knowledge, reasons for encounter and diagnoses. A representative part of a whole medical undergraduate curriculum was mapped in a peer-mapping process according to the defined rules. Mapping was carried out using the Learning Opportunities, Objectives and Outcomes platform (LOOOP).
Results: The standardizability of different NKLM chapters varied greatly. Mapping framework chapters consisting of distinct symptoms and diagnoses showed a high inter-rater reliability, while chapters referring on the physician's roles were more difficult to standardize and resulted in varying mapping results. Defining the degree of competency that was achieved based on educational objective's taxonomy was similar between the peer-mappers regardless of the chapter.
Conclusions: Standardizing curriculum mapping using pre-defined rules is technically feasible, although usability varies for different types of frameworks. Defining rules is essential to achieve comparability, especially in cases were multiple persons conduct a mapping of different parts of the curriculum, thereby increasing inter-rater reliability. Further research is necessary to define valid and reliable mapping rules for all types of outcome frameworks.
Take-home message: Objectifying curriculum mapping is essential to ensure validity and comparability. Complex

curricula and frameworks require standardization, which may be difficult depending on their structure.

9K3 (2770)
Educating curriculum mapping – a medical didactic appraisal

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Presenter:
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Background: To achieve curriculum mapping at the medical faculty of Muenster we established a nationally certified workshop. During the workshop faculty members and stakeholders were educated to use an electronic platform to insert their actual learning goals and their education content. This web-based tool is called LOOOP (learning objectives, opportunities and outcomes platform) to implement the NKLM, the national competency-oriented learning goals catalogue.
Method: In a two-day workshop 54 assistant professors and professors of the medical faculty were educated to elaborate and reflect learning goals, the NKLM with its Can Meds roles and to comprehend constructive alignment. All clinical departments (n=44) involved in medical education participated in March and April 2017. Besides cognitive learning goals and skills for the faculty members, we focused on the achievement a common and emotional commitment. The commitment was the affective learning goal for the participants themselves. After the workshops their post-processing task was to insert 2-3 learning goals for each educational unit (45 minutes) and to match each to the NKLM.
Results: The post-processing task was scheduled in December 2017 and first results show that LOOOP contains 3.704 learning goals. The plausibility of matching the NKLM was successful in over 90% of the inserted learning goals. Consecutively, the concept of a two-day workshop was successful and productive. The emotional commitment and identification with the project of curriculum mapping gave motivation to successful outcome.
Conclusions: To educate curriculum mapping cognitive learning goals and skills can be completed by affecting attitudes. As a side result the evaluation of the workshop was satisfying and the participants gave an average mark of 1.7 (1=best until 6=gratuitous).
Take-home message: The implementation of cognitive and affective learning goals as well as skills are helpful tools in educating faculty members.

9K4 (2423)
Two worlds collide: finding ways in which constructive alignment and PBL can both work

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Presenter:
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Background: In 2015, the School of Medicine Fremantle released its curriculum map, Prudentia, to students encouraging them to explore the breadth and depth of its formal curriculum. Prudentia is built upon principles of constructive alignment where learning outcomes, resources and assessment are explicitly linked and work in harmony. PBL, the primary learning and teaching approach at the School in the pre-clinical years, challenges students to identify what they need to know and develop learning outcomes accordingly. On the face of it, constructive alignment contradicts PBL by providing learning outcomes to students to guide their learning. Laying out the curriculum in a way that does not compromise principles of PBL, in particular students' capacity to develop clinical reasoning skills, has proven to be challenging.
Method: Qualitative data was collected on student perceptions of Prudentia through open-ended questions on four course surveys conducted in 2017 (n=362). In addition, a specific questionnaire was distributed electronically to students in 2018 (n=410) to unpack how students use Prudentia in practice.
Results: Initial results indicate that students value the opportunity to scrutinise the curriculum, particularly leading up to assessment times and on clinical rotations. However, there were differing opinions on how Prudentia can support, rather than diminish, the PBL process. Some students favoured a learner-centred model where students choose the point at which they become aware of learning outcomes. Others encouraged the School to use technology to "slow release" learning outcomes after each PBL.
Discussion: Students appreciate the opportunity to scrutinise the curriculum through Prudentia and use the curriculum map in a variety of ways. Currently the School encourages students not to use Prudentia in preparation for PBL as this practice is seen as potentially detrimental to the development of clinical reasoning skills. This informal approach needs to be reviewed.
Conclusions: Staging the release of learning outcomes to students in accordance with a PBL schedule may ensure that underpinning philosophies of constructive alignment and PBL are equally valued. Further research is needed to investigate if/how the practice of explicitly stating learning outcomes impacts on students' clinical reasoning skills.

9K5 (2804)
Curriculum mapping to map competencies within an undergraduate dental curriculum

Authors
Ronel Maart

Presenter:
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Background: The Medical and Dental Professions Board of South Africa, in collaboration with training institutions and the South African Committee of Medical and Dental Deans adapted the CanMEDS core competency framework to inform medical and dental curricula in South Africa. This AfriMEDS framework guides the accreditation process of medical and dental schools in South Africa. Following an accreditation process at the University of the Western Cape (UWC), an analysis of the undergraduate dental curriculum as it relates to the AfriMEDS core competency was completed.

Method: Curriculum mapping was used as data collection tool. Core competencies and enabling competencies (roles) as described in the AfriMeds framework was mapped against the pre-clinical years (first, second & third) module outcomes. 20 modules were included in this pilot study, all basic sciences modules were excluded.
In the first year (n= 4 modules) the following core competencies (CC) were present in the module outcomes: communicator was present in 4 modules and collaborator in 1 module and health advocate (2 modules) as enabling competency (EC). For the second year (n=6 modules) CC: communicator (1 module) and EC; health advocate (3 modules), health care professional (4 modules). Third year (n=10 modules) - CC: scholar, manager and leader, communicator were all present in one module and EC: health care practitioner (9 modules), health advocate (1 module), collaborator (1 module) and communicator (1 module).

Results: The Health care practitioner as an enabling competency was present in 70% of the modules and communicator as a core competency in 30% of the modules in the pre-clinical years. Professionalism as a core competency was absent in the pre-clinical years. It appears that the emphasis of the undergraduate dental curriculum is placed on preparing students as practitioners.

Conclusions: Curriculum mapping is valuable to evaluate competencies taught in curriculum and highlight competencies to be included. Although Professional as core competency may be included in the clinical years (year 4 & 5), it would be recommended that it is included in the pre-clinical years as well.

9K6 (551)
Online knowledge maps with automated feedback in education and assessment

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Presenter:
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Background: Concept and knowledge maps have the potential to improve student learning and understanding by promoting meaningful learning and critical thinking. However, providing manual feedback on students' maps is not feasible for large classes. Accordingly, a user-friendly, valid and reliable, automated online tool for assessment and feedback of students' maps might have significant benefits for learning.

Method: Knowledge Maps is an online mapping tool, which provides automated feedback on students' attempts. 3 studies were performed: (A)Group 1 completed a mapping activity on Ischaemic Heart Disease (IHD) and was given a link to existing resources on Deep Venous Thrombosis (DVT), while Group 2 received a map on DVT and was given a link to existing resources for IHD. Groups were assessed using a quiz including questions on both topics, and completed a usability questionnaire. (B)Participants completed maps on cranial nerves, with a pre-test prior to the mapping activity and post-test following the activity. (C)The potential utility of Knowledge Maps for assessment was investigated by comparing scores generated by the software with manual grading of a modified-essay question on the same topic. A questionnaire was used to gather students' perceptions of the tool.

Results: (A)A higher perception of learning was reported after using Knowledge Maps, but no difference between groups in quiz scores. Most participants agreed that they found the activity helpful to their learning and would recommend it to others. (B)There was a significant improvement in pre-test to post-test quiz. (C)Regression analysis showed a significant correlation between map scores and MEQ scores, and questionnaire responses were overwhelmingly positive.

Discussion: These preliminary studies show that this software is readily accepted by both students and educators. Results from Study C suggest mapping provided a similar indication of students' understanding of a topic as a modified essay question, with the advantage of instant, consistent computer grading.

Conclusions: Knowledge Maps is a web-based system that can be used to create, edit & share maps, and automate feedback that could have benefits for learning, and be a useful addition to the assessment repertoire in higher education.

9L: Short Communications: Simulated Patients

Location: Shanghai 3, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

9L1 (2855)
The influence of simulated patients on learning success in communication based examinations

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Background: Communication Skills are essential for good clinical practice and should be an important part of medical training. The use of simulated patients (SP's) can be useful to teach students the correct handling with patients. The aim of this study is to evaluate the effect of using SP's on the long-term learning success.
Method: 146 undergraduates were randomized into three groups. After a standardised teaching unit about medical communication (taking patient's history), they were given the opportunity to practice their communication skills. Group 1 was aware of the fact, that they trained with SP's, Group 2 thought, that they spoke to real patients and group 3 spoke to real patients. At the end of the semester, each student had to take part in an 10-station OSCE with 3-4 communication based stations.
Results: There were no significant differences between the three groups in the OSCE, three month after the training.
Conclusions: The use of simulated patients is a good possibility in view of learning success to allow students to practice their communication skills realistically without the need to recruit real clinical patients.

9L2 (1631)
Training method affects preclinical medical students' communication skills scores in OSCE

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Presenter:
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Background: Effective communication skills improve patient satisfaction and outcomes and are integral to good medical practice, with the optimal method for communication skills training (CST) representing an important area of research. Student role play (RP) for CST is common, however volunteer simulated patient (SP) CST is cost neutral and provides unfamiliar and authentic interactions with intense emotional elements, as well as objective feedback. We set out to determine whether volunteer SP CST translated into improved student OSCE performance in communication skills, compared to RP.
Method: We performed a retrospective, quasi-experimental study of OSCE performance of two second year medical student cohorts. The 2014 cohort participated in RP-only CST (n = 235) and the 2016 cohort in SP-only CST (n= 257). Score data were collated on an iPad-based app and analysed using SPSS in conjunction with admission data. Estimated marginal means (EMM) compared the students' total scores for each of three assessment domains, i.e. generic communication, clinical communication (history taking) and physical examination/procedural skills, adjusted for age and grouped by cohort. T-tests were applied to assess the significance of differences between cohorts.
Results: For each of the three domains tested the difference between cohorts reached statistical significance (p < 0.01; 2-tailed t-test), the group taught using SP method being superior in each case. No significant difference was demonstrated between the two cohorts regarding medical school interview scores or Australian Tertiary Admission Rank (ATAR) scores. The magnitude of difference in Undergraduate Medicine and Health Sciences Admission Test (UMAT) scores was inconsequential.
Conclusions: Our study demonstrates that volunteer SPs are superior to RP for CST in preclinical undergraduate medical students when assessed by OSCE, as well as being cost-neutral. This refutes some of the literature which reports no difference between RP and SP or inferiority of SP to RP. The better performance of the SP cohort in the physical examination/procedural skills domain was unexpected, however we argue that most OSCE tasks require patient compliance and cooperation, with these behaviours being facilitated by good generic communication skills (including non-verbal communication skills).

9L3 (895)
Standardized/Simulated Patients (SPs) 'of the first hour' : A study exploring considerations and strategies for working with aging SPs

Authors
Claudia Schlegel
Cathy Smith

Presenter:
Claudia Schlegel and Cathy Smith

Background: Over the last 50 years, standardized/simulated patient (SP) methodology has become firmly established in heath professional education. Standards of Best Practice (SOBP) have been published by The Association of Standardized Patient Educators. Many SPs have been part of a program for several years and have contributed much through their involvement. However, as these SPs 'of the first hour' age, cognitive or physical shifts in their abilities can be observed that, in turn, affect the overall quality and effectiveness of their participation. SP educators are challenged to communicate concerns to these SPs and manage changes respectfully and effectively. The aims of this study were to ask these SPs to identify the challenges of working as they age and to offer strategies for SP educators to accommodate these changes.
Method: SPs (n=18; above 65 years old) from two countries (Switzerland and Canada) were individually interviewed using a semi structured topic guide. Questions were posed about challenges related to working as an SP related to aging and about how SP educators could accommodate these changes. The interviews were taped, and transcripts were made and analyzed.
Results: Preliminary analysis of data indicates that SPs 'of the first hour' recognize cognitive and physical changes. They prefer open communication. If their performance is not at the required standard, they want to be given specific feedback by the SP educator. The SPs also gave advice how their training and performance could be improved with simple things, such cue cards.
Conclusions: Older SPs are an important component of an SP program. This study provides valuable knowledge about the needs of older SPs from their perspective and can serve as a starting point for creating specific standards that can serve as an adjunct to current standards, thus supporting SP educators to work with this specific cohort.
Take-home message: Older SPs are valuable partners in health care education. SP educators have to anticipate challenges and consider strategies for allowing these SPs to continue to contribute in an effective and safe manner.

9L4 (1131)
The Use of Video Annotation in the Review of Simulated Patients' Feedback Giving

Authors
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Ulrich Woermann
Urs Gröhbiel

Presenter:
Vivienne Jia Zhong, University of Applied Sciences and Arts Northwestern Switzerland, Basel, Switzerland

Background: At the medical school of Bern in communication training with simulated patients (SP), students receive feedback only from the SPs. Therefore, much emphasis is put on the quality of SP's feedback giving.
So far, SPs receive feedback from their trainers by watching videos of their encounter with students. To examine if video annotation (VA) can overcome the existing trainer-centric approach and enable a more SP-centric approach involving self-reflection, we conducted a qualitative study on the use of VA in the review of feedback to students.
Method: Eight SPs were asked to use a VA tool to self-evaluate their videotaped feedback to students. A checklist was integrated into the VA tool. The SPs were free to use this checklist and/or write free text to appraise the quality of their feedback giving. After the video annotation, the SPs discussed their appraisal with their trainers in a debriefing.
Direct observations of SPs using the VA tool were conducted, followed by interviews on their user experience. The trainer was additionally interviewed to clarify results affecting the trainer.
Results: While five SPs used the checklist extensively, three SPs made less use of the checklist. The group with the extensive use of the checklist typically left their annotations at the end of the video, while the other group wrote free text comments anchored to a specific time in the video. SP reported that VA promoted self-reflection and that the checklist helped them to examine their feedback giving more specifically. Annotations, which were linked to a specific time of the video, were more helpful for the trainer when preparing the debriefing.
Conclusions: Both SPs and trainers saw much potential for improving the quality of the debriefing using VA. The results suggest a divergence in expectations of how the VA can support the feedback review process. To overcome this divergence, we propose the development of a two-dimensional framework consisting of reflection categories and structure of reflection.
Take-home message: VA involving a framework that guides the SP on what and how to reflect enables a SP-centric, self-reflective review of feedback giving.

9L5 (727)
Application of Standardized Patients on Interdisciplinary Palliative Care Education by Using Multimedia Teaching Materials

Authors
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Presenter:
Shao-Yu Hsu, Taipei City Hospital, Taipei, Taiwan

Background: Taipei City Hospital has provided home-based palliative care with interdisciplinary health care professionals since 2015. Standardized patients (SPs) have been applied to enhance professional-patient communications and palliative care quality. We set up role-play based immersive courses, applied to enhance professional-patient communications and palliative care quality. The study aims to explore the use of SPs on the interdisciplinary palliative care training.
Method: SPs were commonly used in Objective Structured Clinical Examination (OSCE), furthermore, they can be well-trained as an actor/actress, by receiving relevant education and training in order to meet the diversity training requirements. We held drama courses, not only trained SPs about acting skills, but also taught them how enhance their body language and emotional expression. To let SPs have humanity and empathy, we also held empathy training workshop. We made two multimedia teaching materials with different learning objectives, which were based on real stories and well-trained SPs were introduced to play a role as the patient or family members. Case-based discussion education was conduct with the video and questionnaire was collected from the trainees after watching the video.
Results: In the video "Hospice Home Care at the Near-Dying Phase" and "Withdrawal Life-Sustaining Agents" ,86.3% and 85% of the trainees respond that they felt sad because of the sad reaction by the patient or family members in the film, respectively. Moreover, in providing palliative care in the future, 96.1% and 94.5% of the trainees willing to assist the patient or family members about their sad mood, respectively.
Conclusions: This study shows that SPs have positive influences on trainees' emotional responses and let them show empathy to the patient or family members whom the SPs play the role, in addition, the trainees are willing to provide palliative care. By watching multimedia teaching materials, we consider that the trainees have self-reference and projected the emotional responses to the real patient or family members on their further care.
Take-home message: Application of standardized patients on interdisciplinary palliative care education by using multimedia teaching materials has a significant and positive impact.

9L6 (1000)
The Rush Hour' - When faculty steps into the shoes of standardized patient

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Presenter: Meghana Sudhir, Mohammed Bin Rashid University of Medicine and Health Sciences, Dubai, United Arab Emirates

Background: Standardized patients are widely used in health professions education. How much emphasis has been given for coaching and practicing the scenario? Have we put aside enough time for preparation of standardized patients? This presentation shares the experience from Mohammed Bin Rashid University, where the faculty did the role of standardized patients as part of a workshop.
Method: The workshop had 4 simulation experiences in which each group of faculty got exposed to 1 experience. The scenario titled 'Rush Hour' had 10 participants in which 5 played to role of standardized patients and the other 5 were the candidates. It was a mass causality scenario in which the standardized patients had to play various roles – some as patients, some as relatives, some as paramedics etc. There was a confederate as media personnel. All the SPs got 30 minutes of scenario preparation time where they got the scenario for the first time and practiced the roles & logistics in running the scenario.
Results: The scenario was completed in 10 minutes at the Emergency Department of the simulation centre. Some of the comments during debriefing from the faculty who did the role of standardized patients is mentioned below
"It is not easy, SPs need lots of practice"
"It is difficult to switch roles"
"I thought it is easy to play scenario; but all the movement, make up, acting, coordination it requires training".
It was unanimously agreed that time and effort needs to be put aside for working with standardized patients with various scenarios.
Discussion & Conclusion: All Standardized Patients play roles; but SPs have also been used successfully to give feedback and evaluate student performance. Clearly, given this potential level of involvement in medical training, it is critical to recruit, train and use SPs appropriately.
Take-home message: A well written scenario with well-defined objectives & role, dedicated time for coaching & practicing the role are important in the success of standardized patient program.

9M: Short Communications: Communication Skills 2

Location: Boston 1, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

9M1 (2800)
Attitudes towards learning clinical communication skills: Differences in study year, gender, medical curriculum among Norwegian medical students (the STUDMED project)

Authors

Lise Tevik Løvseth, St. Olavs University Hospital, Trondheim, Norway
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Presenter:

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Background: In medical practice, doctor-patients communication is decisive for obtaining reliable information as a basis for correct diagnostic assessment, treatment, and patient's compliance with the treatment plan.
To obtain this level of communication it is relevant to investigate whether medical schools develop motivation among students for learning such skills as part of their professionalism.
Method: Attitudes towards learning clinical communication skills was surveyed among all students in two Norwegian medical schools with different curriculums in 2003 and 2015. In this study, investigated whether differences in attitudes between the schools, would be replicated 12 years later with emphasize on possible differences in terms study year and gender.
Results: Response rate 63.9% (N= 1044/1634). Prelimenary analyses show differences in attitudes in terms of gender, semester and curriculum where students in one school reported higher levels of positive attitudes towards learning communication skills in both surveys.
The roles of teaching models within the medical curriculum have an impact in educating medical students communication skills and attitudes that foster positive doctor-patient communication at the end of medical school.
Discussion: How students meet with medical school and teaching programs in communication skills foster positive attitudes for optimal learning in students throughout the curriculum. This is important because these attitudes at the end of medical school will be a prerequisite they bring with them in their postgraduate training.
Conclusions: Exchanging best practice between medical schools to increase level of attitudes towards learning clinical communication skills at the end of medical school is important to considering a re-design of their model for training medical students.

9M2 (296)
Difficult Conversations - why we find them tricky and how to talk about what matters most

Authors

Heather Grusauskas
Patrick Kinsella

Presenter:

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Background: Delivering negative feedback can be very challenging. Many "difficult" conversations fail because they begin with us starting the conversation from our own perspective.
Method: We developed a workshop which explores what makes conversations difficult; why we often manage them poorly and what we can do to make them more effective. Conversations are explored using a framework developed by the Harvard Law School. The model utilizes the "Three Conversations Framework"; the "What Happened Conversation", the "Feeling Conversation" and the "Identity Conversation".
These immersive workshops give participants the opportunity to practice their skills in small groups utilizing two scripted scenarios and one unscripted scenario. The participants work in groups of three in which two role play whilst the third observes and then provides feedback. The roles rotate within the group of three. Additionally participants are requested to bring to the workshop a "difficult conversation" that they are about to have or one that they have had in the past. There is also the opportunity for individual participants to feedback on their experiences to the larger group - all within a safe learning environment.
Results: These workshops have been highly evaluated by the general practitioners that have attended them (scoring 70% + on the RACGP evaluation satisfaction scale). The success of these has been such that we have been asked to roll them out to supervisors in outer metro and inner metro practices together with those in rural practice. Additionally we have been asked to develop further ones for registrars.
Conclusions: Most of us are usually reluctant to open a difficult conversation because we fear the consequences. This model gives us a framework to work with in our daily life and the opportunity to practice our skills in a safe learning environment.
Take-home message: We tend to avoid difficult conversations so there is always a role for continued learning in this area.

9M3 (2273)
Competency-based medical education in communication skills: From undergraduate curriculum to specialty training programmes

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Presenter:
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Background: In the past ten years at the University of Zagreb School of Medicine (UZSM) we have been paying special attention to teaching communication skills in the new undergraduate curriculum and in all new postgraduate competency based specialty training programmes.
Method: A longitudinal 6 years course "Fundamentals of Medical Skills" with an emphasis on communication skills was developed with graduate development of students' competences in a longitudinal, integrated communication approach. In all specialty training programmes, a generic postgraduate curriculum was established and the teaching of communication highlighted. Attention was paid to the selection of teachers in both undergraduate and postgraduate communication training as well as the teachers' educational development.
Results: At the UZSM, more than 2,000 graduate students and more than 900 trainees participated in communication education based on a conceptual approach depending on the educational level. As the new generations of students were involved, the number of candidate teachers increased. By now 240 young teachers (older residents or young specialists) were selected and included in the development of their educational skills in teaching medical communication from basic to specific communication associated with clinical courses in higher grades of medical studies. While leading their groups of students from the first study year to the graduation they had the opportunity to develop the mentoring skills. Fifty experienced teachers were involved in the postgraduate generic curriculum developed for trainees in various specialty training programmes. Teaching communication at all levels of medical education influences the development of a communicational environment at UZSM and academic hospitals.
Conclusions: Teaching communication skills in the continuum of medical education influences the professional development of both students and teachers. The advancement of a communication climate and professionalism in the hospital environment is noted.

Take-home message: Enhancement of acquisition of communication skills should be integrated in all levels of medical education, which is essential for the professional development.

9M4 (933)
Learning Real Life Relationships: A pilot project aimed at growing medical students' ability to relate with each other and others effectively and respectfully

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Presenter:
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Background: Professional behaviour is an essential skill for medical practice, however, intimidating behaviour has been reported to occur between medical professionals and within medical school environments. Medical schools, including the Dunedin School of Medicine, tend to concentrate on teaching doctor-patient relationship skills rather than teacher-student, peer-peer relationship skills. To redress this imbalance in the professional development curriculum, a programme was implemented with an aim to provide students with learning opportunities to understand their complex work environment and communicate respectfully in any situation.
Method: In 2017, the professional development team began a two-year pilot project with an action research approach to implement and evaluate a novel teaching program 'Real Life Relationships: Learning to work together in complex work environments'. Fourth-year medical students were taught foundation challenging communication skills in whole class and small group sessions, while their teachers and mentors were provided with advanced training. These advanced skills were then taught opportunistically and less formally to students in clinical settings and in their regular mentor group meetings during the year. Evaluation data collected included student surveys, interviews, and written feedback.
Results: Preliminary findings show that the majority of students (79%) and mentors (100%) appreciated the need for learning opportunities however, the programme was not implemented consistently. Feedback from students indicated that some of them found this type of learning difficult and even confrontational. Implementation challenges included not having knowledge about students' preferred learning approaches to personal topics and finding sufficient time in the schedules of mentors and students.
Conclusions: Despite the implementation challenges, students are receiving novel opportunities to learn about how to communicate effectively in difficult circumstances in a variety of interpersonal clinical contexts. Findings from the first year of the project are being used to inform improvements for 2018. They also contribute to research

about personal development which is a fraught and confusing topic in medical education.

Take-home message: Providing students with learning opportunities to understand their complex work environment and communicate respectfully in any situation is appreciated by students but requires careful tailoring to address its sensitive nature and teaching time constraints

9M5 NOT PRESENTED

9M6 (1411)
Can coping-related weblog writing encourage medical students' communication skills in stressful situations?

Authors
Felix Schmitz
Daniel Stricker
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Presenter:
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Background: Health profession students exhibit greater clinical performance in stress-evoking situations when they have been previously provided with tools for coping with stress.

One novel and low-threshold approach to cope with stressful situations is the use of weblogs. Weblogs can be scaffolded as indicated by writing therapy, and may thus induce functional coping strategies in bloggers: both problem-focused coping as characterised by problem solving or trying to alter the source of stress, and emotion-focused coping as characterised by a reappraisal of the stressful situation. In addition, given the possibility to leave comments, weblogs can offer immediate and location-independent social support, which may exceed the value of more traditional writing-therapy approaches. The aim of this study was to determine the degree to which medical students succeed on communication tasks with simulated patients (SP) during a stress-evoking examination, based on prior coping-related weblog writing.

Method: N = 174 scholars from a fourth-year medical student cohort participated in this randomised field study. They were assigned to either of two intervention groups and tasked with: blogging about stressful situations during their internship by following coping-related writing assignments (group 1), or maintaining the coping-related weblog and additionally writing supportive comments to their peers' blogposts (group 2). A third group of participants was assigned to a non-blogging control condition. After the completion of their internship, participants demonstrated their communication skills during an 'Objective Structured Clinical Examination' (OSCE)––an examination type acknowledged to be highly stressful. The OSCE consisted of nine case-specific stations with SPs. At each station, a physician-expert assessed the students' communication skills using a standardised checklist.

Results: Students in the intervention groups achieved significantly higher communication-performance scores than students from the control group (p=0.02, Hedges'

g=0.45). Blog-based peer-feedback had no effect on communication skills performance.

Conclusions: Weblog writing can positively and meaningfully impact medical students' communication skills in stress-evoking situations. Additional blog-based peer-feedback does not seem to be critical in this respect. Stress is known to inhibit medical students' communication skills. Coping-related weblog writing can significantly counteract this negative effect.

9N: Short Communications: Interprofessional Education 2

Location: Boston 2, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

9N1 (3581)
Interprofessional day for first year students on Human Rights (HR) and the Right to Health (RtH)

Authors
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Presenter:
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Background: The Right to Health is a fundamental Human Right. According to the Swedish Higher Education Ordinance all students educated within health care sciences must fulfill learning outcomes concerning interprofessional learning as well as human rights.
Method: To organize interprofessional learning at our faculty, the Sahlgrenska Academy, Gothenburg University, Sweden, a specific committee has been established. The Committee of Interprofessional Learning (CIPL) consists of representatives from all 18 educational programmes at the faculty. One of the committee's assignments is to organize a joint educational day for all first year students, HR and RtH was chosen as a suitable theme for this day.
Students from the following undergraduate programmes are involved: Audiology, Biomedical Laboratory Science, Dental, Dental Hygiene, Dental Technology, Diagnostic Radiology Nursing, Dietetics, Medical Physics, Medicine, Nursing, Occupational Therapy, Pharmacy, Physiotherapy,Prescriptionist, Public Health Science, Speech and Language Pathology programmes. In addition physicians, nurses, biomedical scientists, and pharmacists educated outside EU/EES participate.
The day starts with lectures for all students on the theme HR and RtH.
In the afternoon students work together in interprofessional groups (20-25 students) completing:
1) "Step by step", a value exercise aiming at increased understanding of how people have different possibilities in life, how some are discriminated against and how prejudices influence how we interpret a description of a person when given very scarce information
2) case discussions including ethical dilemmas and basic understaning of RtH in smaller groups,
3) quiz and course-evaluation.
Two supervisors from different educational programs supervise each student group. All supervisors are offered a two-day training course on HR and RtH.
Discussion: Four days have been organized so far, a total of 2300 students have attended and seventy-eight teachers have been trained as supervisors. Students and teachers express the importance of interprofessional collaboration and of understanding HR and RtH.
Conclusions: To organize the day is a logistic challenge. Both students and teachers appreciate the importance of the subject and students value meeting future colleagues from other health professions.
Take-home message: HR is a suitable subject for first-year students in an interprofessional academic course.

9N2 (2135)
An Inter-Professional Education course on End of Life: Dilemmas and challenges

Authors
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Background: The Center for a Dignified End of Life (EOL) was established to advance and coordinate EOL research and teaching. An elective Inter-Professional Education (IPE) course on EOL was developed for health care students. The aims of the course included education and interactive processing of EOL patient and the family issues as well as preparing the students for their clinical roles as members of an interdisciplinary team.
Method: The course was designed and taught by an interdisciplinary team, encouraging candid discussions and mutual appreciation. Limited to 30 students, who were selected from 45 applicants, 14 medical students, 9 graduate social work students, and 7 graduate nursing students participated. The course took place 4 hours every other week for 7 weeks and included didactic, practice, and processing components. Each session opened with a lecture followed by interactive learning in heterogeneous small groups of 10 students each facilitated by a pair of instructors from different disciplines (ex. doctor / nurse). Course content included: basic concepts of EOL and palliative care; cultural, legal and spiritual aspects of EOL; patient and family perspectives of EOL; and IPE. Course requirements included interviews with key stakeholders associated with EOL legislation and care and writing a reflective journal.
Results & Conclusions:: At the outset, students reported a lack of knowledge and reluctance to approach issues of EOL, and a desire to be better acquainted with other inter-professional team members, as the primary reasons for applying for the course. A mid-semester evaluation found a high level of satisfaction with the course content and with IPE training. Students spoke of feeling empowered to

face EOL issues. Several challenges arose including the ability to maintain the unique identity of each of the three professions while developing a shared professional understanding of EOL. The course actively promoted professional teamwork and an interdisciplinary perspective to EOL care.

The course was innovative and successful in teaching IPE and EOL care issues.

Take-home message: Although an IPE course on EOL entails logistic challenges and content-related dilemmas, it is an imperative in today's health care milieu.

9N3 NOT PRESENTED

9N4 (1101)
Implementing an interprofessional objective structured clinical examination as an educational activity in newly graduated physicians and pharmacists

Authors

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Presenter:
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Background: Interprofessional collaboration is very important in medical care nowadays. However, new graduates usually lack the skills for teamwork due to limited experience. The problem could be improved through an Interprofessional education (IPE) for post-graduate year (PGY) medical residents and pharmacists.
Method: We have designed a formative interprofessional objective structured clinical examination (IP- OSCE) as an IPE activity in the medical and pharmacy post-graduate education programs. We developed 2 interprofessional scenarios, and each one with 2 senior examiners, a physician and a pharmacist. The participants received immediate oral feedback from the examiners. Quantitative and qualitative satisfaction was obtained after each exam.
Results: The IPE activity has been implemented for 2 years and we have performed 3 IP-OSCE for medical PGY resident and PGY pharmacists. A total of 20 medical residents and 20 pharmacists participated. All of the participants were satisfied (≥4 out of 5 points) with the exam. The percentage of very satisfied participants (5 out of 5 points) in the 3 exams was 17%, 25%, and 38%. The feedback from qualitative data showed they learned from other healthcare professionals, believed it can enhance their teamwork skills, and preferred it over traditional OSCE.
Discussion: The initial design was to separate the assignments for the medical residents and pharmacists in one of the OSCE scenario. We later changed it to unify

assignments for all participants in every scenario to facilitate the interprofessional collaboration, based on the feedback from the participants of the first IP-OSCE. The modification was supported by the improved satisfaction score in the later 2 IP-OSCE. The satisfaction results indicated that the IP-OSCE is an interesting and practical IPE activity. The participants can also benefit from the feedback from the examiners, who are experienced physicians and pharmacists.
Conclusions: Interprofessional education for PGY healthcare professionals is essential because teamwork is necessary in the daily practice. We are able to promote the collaborative skill for newly graduated medical residents and pharmacists through this IP-OSCE educational activity. OP- OSCE for physicians and pharmacists can improve teamwork skills and enhance clinical knowledge from different profession.

9N5 (1754)
Implement " Stroke Round" to improve health science students' Interprofessional education

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Presenter:
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Background: Interprofessional education (IPE) has been internationally recognized and is a vital part of medical education.To develop an IPE model for under and postgraduate students at Medical Education Center Phayao Hospital, we implemented the activity of interprofessional team " Stroke Round" in internal medicine.
Method: Stroke team composed of physicians (neurologist and first year medical interns), medical science students (fourth to sixth-year medical students and nursing students), pharmacist, nurses, occupational therapists, physical therapists and nutritionists.They participated in Stroke Round and small group discussion every Thursday at Stroke unit during January - December 2017. Team's perceptions were evaluated by self assessment questionnaires after Stroke round and stroke patient outcomes were collected by Phayao Hospital Stroke Database.
Results: A total of 54 stroke team members, 50% were health science students. From the self assessment questionnaires, Stroke Round inspired them understanding in interprofessional role, professional knowledge and clinical thinking 85.2%, 79.6%, 74.1%. From Phayao Hospital Stroke Database,we found mortality rate was decreased (7% to 6.63%), r-tPA administration rate and door-to-needle(DTN) time in 60 minutes rate were increased (6.3% to 14%), (36.3% to 81%) respectively.
Conclusions: Medical science students and medical providers support that " Stroke Round" is effective to development of students' IPE competencies; the appreciation and understanding of professional role in team, knowledge of professions, the development of

effective communication skills. Stroke round provided IPE. It improve quality care and patient outcomes.

Take-home message: Stroke round promote IPE to improve student preparedness for working in health care setting.

9N6 (2315)
The Lausanne Model of Interprofessional Education and Collaborative Practice

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Presenter:
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Background: Communication failures between healthcare providers can be identified in about two thirds of medical errors (Institute of Medicine, 2000). In addition, the quality of patient care has been shown to correlate with the quality of collaboration between healthcare providers (e.g. Manser, 2009; Mazocco et al., 2009). In such circumstances, it is not surprising that interventions to promote teamwork and collaboration are often included in patient safety programs. These interventions belong to InterProfessional Education (IPE), when they engage members of two or more professions (www.caipe.org). We aimed at developing a practical guide to help the design and implementation of IPE in the health professions.

Method: To develop our guide, we reviewed the current evidence from research, as well as the experts' recommendations and the existing models of IPE. We also drew conclusions from our own local experience of conducting IPE with students. Based on these sources, we decided to design a new model to serve as a comprehensive guide for anyone interested in setting up IPE to improve teamwork and collaboration. Our model consists in five core components: (1) the context (local, national and international) of education and clinical practice, (2) the learners, (3) the educators, (4) the training methods, and (5) the collaborative competences. The final aim of IPE appears as a superposition of the five core components: the delivery of efficient, safe and consistent patient-centred care. Our model has been published in a book called "Education interprofessionnelle et pratique collaborative: le modèle de Lausanne."

Discussion: Our guide aims to address an important issue for our clinical environments: the quality of collaboration between healthcare providers and the subsequent quality of patient care. The strength of our model consists in its foundations; it was built on research data, preexisting models of IPE and our own experience. As a new model, it still lacks the empirical evidence of its efficiency.

Conclusions: Our new model of interprofessional education and collaborative practice can serve as a useful guide to anyone interested in improving collaboration between healthcare providers.

9O: Short Communications: Management

Location: Boston 3, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

9O1 (1574)
Bridging fields of expertise: challenges in supporting Higher Degree Research students in health professions education

Authors
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Presenter:
Joanna Tai, Deakin University, Geelong, Australia

Background: Many clinicians are returning to university to undertake doctoral studies in health professional education (HPE). Though candidates may meet threshold requirements or equivalents for admission into a program of doctoral study, they may also have completed their qualifying degree at a time when research and academic writing skills were not a focus. Therefore, this group of candidates may possess an alternate skillset to the standard "doctoral candidate", and standard centralised university supports may be misaligned with clinicians' learning needs.
This study aimed to address the following questions: What supports do currently we offer higher degree by research (HDR) students in HPE research, are they aware of them, and what can we do better?
Method: A discussion on this topic was facilitated in July 2017, at the Australian and New Zealand Association for Health Professional Educators (ANZAHPE) conference, as a timetabled session. Ethics approval was gained. Participants formed small groups to discuss their perspectives, which were recorded on flip-charts around the room. Discussion amongst the larger group was also audio-recorded. Written and transcribed data were collated and thematically analysed.
Results: All but one of the fourteen participants had university affiliations, with a range of roles. Four were current doctoral students; clinical backgrounds included medicine (4), psychology and nursing (2 each). Most participants (10) had some awareness of institutional supports for doctoral students, however 7 were unsure if there were specific supports for doctoral students in HPE. Challenges for support fell into three main categories: 1) managing clinical and educational disciplinary differences, 2) navigating the system and 3) connecting as a part-time student.
Discussion & Conclusion: Perceived needs for supports were largely congruent with the broader literature on student support. However, Theme 1, managing clinical and educational disciplinary differences, may be more unique to this population. These findings suggest that despite being skilled clinicians, the transition to medical education research is a challenge that could be better supported by acknowledging the disciplinary differences between clinical practice and educational research. Our presentation will propose potential strategies for HDR student support based on these findings.

9O2 (45)
Shattering the Silos of Student and Faculty Affairs: An Office of Academic Learning Environment

Authors
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Background: Student affairs, faculty affairs and staff support have traditionally been represented by separate offices in medical schools. Each has had its own unique mission, function, and staff which can lead to the formation of separate, sometimes competing, silos which limit learning. The context of learning is as important as content and institutions of learning need to focus on learning environment and a cohesive approach is needed to ensure an optimal learning environment..
Method: We restructured our academic offices to address these issues. A senior associate dean heads the office of academic learning environment. This office encompasses a 1) Student Learning Environment focusing on student learning communities and houses 2) Diversity 3) Global and community health 4) Faculty Talent Recognition and Enhancement and 5) Educational Research focusing on creating community of scholars.
Results: The office has identified previously unrecognized gaps in service and communication and now serves as a unifying connection throughout the school. We have initiated several student centered programs that focus on the periods of transitions within medical school and a student enhancement program that parallels that of faculty development. Programs focusing on professionalism, student treatment, wellness and resilience spread across faculty, students and staff.
Discussion: The Clinical Learning Environment Review (CLER) is initiated by graduate medical education in recognition of the importance of clinical learning environment. Recently there have calls to go beyond what is dictated by CLER. An 'ideal' academic environment is defined as one that prepares students for their future professional life and contributes towards their overall well-being. A number of diverse factors significantly influence the way students perceive and experience their education and how faculty and staff facilitate that learning. A unified office that addresses all the issues that impact the learning environment of a medical school will allow institutions to improve the whole learning environment
Conclusions: To our knowledge no US medical school has an office of academic learning environment. An Office of ALE demonstrates the ability and commitment of a medical school to enhance the environment as well as addresses accreditation standards in a systematic manner

9O3 (2817)
Making Macau Medical Education

Authors
Christopher Cottrell

Presenter:
Christopher Cottrell, University of Saint Joseph, Macau

Background: With no government sanctioned medical school, how can doctors and aspiring doctors in the Macao Special Administrative Region plan to cope with medical education to treat a population of 650,000 and with 32 million annual tourists descending on it with Chinese medical tourism demands?
This paper examines how different Faculty of Health Sciences in Macao are handling the demands of doctor training--and in particular how the Macau University of Science and Technology is on the cusp of having the city's first medical school.
This paper employs interviews with doctors and academics from Macao, Hong Kong, the People's Republic of China, Australia, the USA, and the UK for insights in how "Asia's gambling capital" can maximize its assets to improve medical education--and perhaps make its first medical school.

9O4 (390)
Developing a university-wide Centre for Academic Teaching: what to bring and what to gain for medical education

Authors
Manon Kluijtmans
Marieke van der Schaaf

Presenter:
Manon Kluijtmans, University Medical Center Utrecht, Netherlands

Background: Quality of academic teaching is crucial for students' learning. Last decades universities, worldwide, opened centers for teaching and learning to optimally support academic teachers' professional development and collaboration. Though these centers function as networks between faculties, little is known about the different positions and needs of staff from different faculties. This paper presents a one-year project that aimed to sketch the contours of a new Center for Academic Teaching at Utrecht University, Netherlands. By means of a case study we focus specifically on the relation of faculty and interfaculty offer to support development of medical education and its staff: what can be brought and gained from interfaculty collaboration.
Method: Interviews were held with stakeholders and representatives from all faculties of Utrecht University (n=52), in addition two open stakeholder meetings with academic teachers were held (n=18 and n=30 participants respectively). Three strategic areas were defined for interfaculty collaboration: teacher development, educational innovation, and scholarship of teaching and learning (SOTL).

Results: Comparison of different faculty practices shows that medical education is in many ways ahead of other faculties: especially in its culture of scholarly approach to education. Despite this up-front position, also medical education can gain from interfaculty collaboration: A) through stimulating evidence based education and theoretical enrichment of SOTL, in particular but not exclusively from social sciences. B) through high-end teacher development programme's to broaden views and create interprofessional opportunities. C) through innovation resources and support . And D) through a university wide platform function which can facilitate expertise exchange, foster a teaching community, enhance a teaching culture in research-intensive universities, and provide a teaching 'voice' in university policy discussions.
Conclusions: Medical education serves as a role model to other faculties through its long standing tradition of faculty development and scholarly approach to education. Despite this up-front position interfaculty collaboration can complement faculty activities by providing theoretical enrichment, new learning opportunities, funds, facilities and strategical support for medical education.
Take-home message: Medical education is best served by a combination of faculty-level activities and university-wide collaboration to enhance teaching and learning

9O5 (2115)
What counts as evidence? Insights from a qualitative study of Clinical Competence Committees

Authors
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Background: In CBME, Clinical Competence Committees (CCC) must sift and synthesize multiple pieces of assessment data to make decisions about trainee progress. We know little about how they achieve this. We aimed to describe how CCCs characterize, interpret and use information about trainee performance to inform their decisions about progression.
Method: Our sample consisted of 7 CCC meetings in 3 postgraduate programs, selected purposively to represent a range of program size and familiarity with the CCC concept. Data were collected through nonparticipant observation of each meeting by two researchers, and individual semi-structured interviews with at least one CCC member following each meeting. Observational field notes and interview transcripts were analyzed iteratively for recurring patterns using a constant comparative method.
Results & Discussion: We observed CCCs engaging with a variety of information about trainee performance, including observational data, exam scores, comments from mentors and advisors, logbook data, personal experience and informal feedback. Much of the observed CCC discussion centered on what we came to call 'the

social construction of evidence', a process of discerning, discarding, and assigning value to pieces of performance information. Characterizing a particular piece of evidence as credible, non-credible, debatable or missing allowed CCCs to delineate a course of action for making, postponing or deferring decisions. Even in this relatively small data set, variability within and across CCCs was evident: e.g., one CCC treated personal experience of a trainee as credible evidence while another CCC treated it as non-credible; or the same CCC treated informal feedback about unprofessional behavior as non-credible evidence to support one progression decision but credible for another.

Conclusions: Faced with the multiple information sources associated with CBME, CCCs must work through a process of deciding what will count as evidence, what will not, and why. This study begins to illuminate the variety of processes CCCs use to interpret the data they're presented with and determine its credibility to support particular assessment decisions.

Take-home message: Given that CCCs are charged with the high-stakes task of judging trainees' entrustability, we require refined insight into how they transform information into evidence into decisions.

9O6 (2775)
Resident evaluation and promotion: major improvement in our tracking tools

Authors

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Presenter: Mélanie Laventure, Université de Sherbrooke, Canada

Background: The importance of a rigorous resident evaluation and promotion process is necessary to guarantee of patient safety. It's also our responsibility to intervene as soon as possible when a resident is experiencing difficulty. With a real commitment of the evaluation and promotion committee, the optimization of processes and the implementation of efficient tracking tools to monitor decisions and follow the progression of a resident are keys to the success of an accurate management of residency curriculum.

Method: Mapping the resident evaluation and promotion process. Optimization of the decision-making processes and follow-up of the decisions of the evaluation and promotion committee. Implementation of innovative tools such as:

Complete tracking Excel spreadsheet (from the first observable difficulty to the on going remediation process (at what moment an action has to be made)

LimeSurvey decision questionnaire (filled during the meeting to summarise the decision and the information that will be transferred to the program and resident)

Electronic remediation contract form (pre-set information, etc)

Developing best practices in terms of resident evaluation and promotion.

Results: The optimization of the decision-making processes and follow-up allowed us to significantly reduce the time between the decision making in resident evaluation and promotion and the implementation of remedial measures. Greater automation of the tools has also made it possible to largely improve the quality and frequency of the various follow-ups inherent to the mentoring process.

Discussion: A continuing improvement process must be at the heart of effective management of a postdoctoral evaluation and promotion committee that faces the many changing facets of resident in difficulty.

Conclusions: The development of tools allowing quick identification of a resident in difficulty, mechanisms supporting the chosen measures to guide the resident in achieving expected skills and, ultimately, effective management of the process can significantly alleviate the work of each actor and, above all, provide better supervision to residents.

Take-home message: Improvement of the decision-making process and follow-up of an evaluation and postdoctoral promotion committee offers positive spin-offs for all the actors involved.

9P: Short Communications: Flipped Classroom and The Lecture

Location: Darwin, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

9P1 (136)

Flipped Classrooms - Pilot study on the impact of digital technologies in the knowledge acquisition in medical students

Authors

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Presenter:
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Background: Academic teaching has been present in our society for centuries, however, its methodology hasn´t significantly changed. With the continuous technological development there´s been an increased interest in changing the teaching panorama by including new digital tools to stimulate learning. The goal of this study was to analyze the impact of the web-based tool Sli.do, which allows real time interactive questionnaires, in knowledge acquisition in medical students.
Method: A repeated measures design using the same validated questionnaire in either Sli.do and classic paper-based system was implemented before and after two separate classes of 4th year medical students. In both cases, the subject and teacher were the same. The subject was glaucoma because the baseline knowledge was basic among all students, thus more suitable to detect improvement. Our endpoints were 1) detect differences in student participation according to method, 2) determine whether knowledge improvement was particularly related to any of the methods.
Results: Results showed that the group who responded in paper had lower scores before and after class (47% and 71%, respectively) comparing with the group who responded through Sli.do (51% and 81%). Although basal scores were better with Sli.do (thus less likely to show improvement), students using this system also showed the larger improvement (26% vs. 30%).
Discussion: The baseline difference of knowledge between the two groups wasn´t very different, being slightly bigger with Sli.do, which can be due to facultative utilization of digital technologies selecting the most motivated students. However, being motivated doesn´t directly correspond with being more connoisseur of the subject. Both methods showed improvement in knowledge acquisition which demonstrates that classes, independent

of method, were effective in learning. Although both were effective, the group who responded through Sli.do showed a slightly higher improvement and final results, making it a valid method to dynamize the class.
Conclusion: The improvement in knowledge acquisition using the new web-based tool Sli.do, although small compared to a classical approach, is significant to motivate teachers in remodeling their methods in classes to increase student focus, attention and motivation, leading to a better performance in learning.

9P2 (1608)

The flipped classroom is effective for medical students to learn medical interview and cognitive function test of elderly people

Authors

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Background: It is important to teach medical interview and cognitive function test of the elderly patients in this aging society. In flipped classroom, students watch video materials before the class as homework and spend more time in discussion or practical training in the classroom. We made a new flipped classroom program of medical interview and cognitive function test of the elderly patients, and compared the effectiveness of the program with the traditional program.
Method: After informed consent, 14 third year medical or dental students were randomly divided into 2 groups: flipped classroom (FC) group and traditional (T) group. In FC group, students watched interactive video simulation program by internet before the class and practiced medical interview in the classroom. In T group, students read the syllabus before the class and lecture was given in the classroom. All students took pre- and post-test about the knowledge of medical interview and cognitive function test, and they performed medical interview and cognitive function test of elderly standardized patients (SPs) after the class. The performance was video-recorded and evaluated using checklists. They also answered the questionnaire. T-test was used for statistics. This study was approved by ethical committee of the university and supported by the grant from JSPS.
Results: As a result of questionnaire survey in FC group, the evaluation of the video material was high, although approximately 30% of the students regarded it as a little burden. The scores of the pre-/post-test about the knowledge were 8.4+-1.0/9.2 +-0.8 in FC group, whereas 7.1+-1.6/8.7 +-1.5 in T group (p=0.14/0.23). The scores of the

medical interview were 29.0+-2.4 in FC group and 27.4+-2.2 in T group (p=0.24).

Conclusion: Although approximately 30% of the students in FC group thought the new video material a little burden, the evaluation of the contents was high. The score of the pre-/ post-test and medical interview in FC group was little higher but it was not significant. Further improvement would be necessary in future.

Take-home message: The new flipped classroom program was effective for students to learn medical interview and cognitive function test.

9P3 (2927)
Students' motivation, learning strategy and learning outcome in the flipped learning context

Authors

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Presenter:

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Background: Flipped learning is now widely applied in medical education. Knowing how students' motivation and self-efficacy toward this new learning model influence their learning strategies and learning outcome would be beneficial for future curriculum design.

Method: We developed and validated a motivation and a strategy questionnaire in flipped learning context. 229 pharmacy students experienced a whole semester course (pharmaceutical botany) with flipped learning model and participated this study. The students' response to the questionnaires and their test score as well as final course performance (tests, assignments, course activities) were collected to explore the relationship between motivation, strategy and outcome.

Results: The exploratory factor analysis and reliability analysis showed that the two questionnaires were valid with three factors (intrinsic motivation, extrinsic motivation, self-efficacy) in motivation questionnaire and three factors (goal management, self-assessment, metacognition) in strategy questionnaire as they were designed to be. Further analyses revealed that students with higher motivations, including self-efficacy, intrinsic motivation and extrinsic motivation, all significantly had higher perception on all three kinds of learning strategies. Nevertheless, we found that there was only week correlation between learning strategies (self-assessment and metacognition) and final course performance, but no any correlation or effect between learning strategies and test score.

Discussion: Motivation and learning strategy were key to learning behaviors in a new learning context. Extrinsic motivation and self-efficacy also played important roles on students' learning strategies in flipped learning context beside intrinsic motivation. This result implied that teachers may apply approaches such as orientation to facilitate students' self-efficacy or extrinsic motivation for developing better learning strategies. However, the phenomenon of learning-test dissociation revealed in this study need further investigation. One reason might be

that the writing test do not measure what students learned in the flipped learning appropriately.

Conclusion: When applying flipped learning in the curriculum design, approaches that are effective to facilitate students' self-efficacy and extrinsically motivate students may play as important role as students' intrinsic motivation toward the learning. We should design assessment more carefully and investigate the phenomenon of learning-test dissociation in flipped learning.

9P4 (1529)
Introduction of case-based flipped classroom model in undergraduate orthopedic surgery: expectations, evaluation and assessment of course objectives

Authors

Stephanie Herbstreit
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Presenter:

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Background: Using a case-based learning strategy to assigned online teaching material, a new flipped-classroom model (FlipOrtho) was introduced into the undergraduate orthopedic education in summer 2017. Learning activity prior to the class was supported by online quizzes. Student-centered exercises enhanced the learning experience. Each session included "pair & share" activities, open questions and interactive student discussions. These provided immediate feedback to and from the instructor. Microlectures offered new material and reinforced student learning.

Method: The voluntary flipped classroom curriculum was implemented and evaluated regarding student expectations, course objectives and acquired knowledge. These were compared to the traditional course.

A seven-point Likert scale was used to compare students assigned to the new course (n=127) with a traditionally taught cohort (n=93). Satisfaction with the course and perceived gain of knowledge were evaluated. The results of the final MCQ(Multiple-Choice-Questionnaire) between the two cohorts were compared.

Using five-point Likert scales, students of the new course completed a 15-item survey prior to and after the course concerning expectations and evaluation of objectives of an inverted classroom model.

Results: Students' satisfaction was comparable between the two cohorts as was perceived gain of knowledge. Students completing the novel course showed good satisfaction (Median = 6; scale 1-7), found the course useful, achieved the learning objectives and voted for a future expansion. The objectives of an inverted classroom were evidently achieved and the students assigned to the new course achieved slightly better results in the final MCQ-Test (mean score 16,64 vs 14,78 out of 20).

Conclusion: The novel course was comparable to traditional teaching in student satisfaction, and success albeit requiring lesser time in classroom and offering greater student flexibility. Future studies are needed to assess more objective effects on knowledge and skills.

Take-home message: A voluntary case-based flipped-classroom model in undergraduate orthopedic surgery can satisfy expectations of inexperienced students regarding teaching and learning concept as well as perceived and evidently achieved gain of knowledge.

9P5 (886)
Maintaining a Standard in Medical Students by Improving the Level of Understanding

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Presenter:
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Background: Learning is better applied when the context and the learning environment resemble the retrieval environment (1). Basic sciences, as a theoretical background for clinical science, should be taught to engage reflective thinking and active learning (2). This study aims to identify non-traditional learning methods while comparing with contemporary forms and assessing their impact on conceptual understanding, reasoning and intellectual performance.
Method: A longitudinal cohort study and cross-sectional questionnaires survey was conducted at AUSOM to compare the academic performance of the preclinical students in regard to traditional lectures and blended teaching methods.
Results: 96 basic science students and 15 basic science faculties participated in the study. Blended medical education was shown to be more effective than traditional lectures in comparison to the overall final grades (p< 0.05). 61.2% students were satisfied with the current teaching methods and students rated the learning standard as 7.3 on a scale of 1-10, with mean satisfaction level being 5.8. 97.9 % students agreed upon the need for improvement of learning standards in medical education, with 90.6% of the students responded that adapting standard blended method (lecture + e-learning) is beneficial to improve learning environment in pre-clinical years. 78% teaching faculty found their teaching methods effective based on personal and student evaluation. 54 % of teaching faculties thought of improving their teaching methods by small group discussions, simulation and concept mapping with critical thinking.
Conclusion:: The need to analyse teaching forms are important in bridging the gap between basic and clinical science to create a more conducive learning environment in medical schools. Traditional lecture-based learning is effective but a synergistic approach to learning results with integration with other teaching modules. Students and teaching faculty recognised the combination of lectures with e-learning as more beneficial than traditional lectures alone.

Take-home messages: Blended learning as compared to traditional lecture-based teaching is predicted to enhance student performance and learning.
There is a constant need to improve learning standards with synergistic approach by incorporating diverse forms of learning in basic medical science.

9Q: Short Communications: The Teacher as Mentor

Location: Lima, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

9Q1 (2548)
Meaning making in student portfolios: the role of the learning coach

Authors
Johanna Jordaan
Anna Vnuk
Iris Lindemann
Maxine Moore

Presenter:
Julie Ash

Background: Health professions education recognises the importance of ensuring graduates are agents of their own learning in preparing them for academic success (Pintrich, 2000) and a lifetime of learning within their professional work (Levett-Jones, 2005). However, if left on their own to make meaning of their learning, students may have limited ability to optimally utilise their self-regulated learning capabilities (Dornan, 2005a). Boud (2013) suggests that students do not always know how to present "evidence" of their learning, improvement or remediation in response to feedback received.
Method: Programmatic Assessment for Learning is such a program that recognises the importance of students developing process skills, including self-regulated learning and professionalism. Flinders University Medical Course made this shift in educational pedagogy to encourage students to take ownership and "make meaning" of their learning, following constructivist perspectives (Shepard, 2000; Heeneman et al, 2015), in order to develop sustainable learning strategies for their future practice. Students use a Portfolio of Evidence to map their learning against specific course learning outcomes. Students are allocated a Learning Coach (LC) whose role it is to "coach" the students towards making meaning of their learning, however, the efficacy of the LCs in this role has not been investigated. In fact, very little work has been done to develop and evaluate coaching interventions in Health Professions Education (Lovell, 2017). Therefore, we sought permission from students to review their portfolios to develop an understanding of how LCs contribute to students' meaning-making of their learning and feedback, from a social constructivist perspective (Shepard, 2000; Heeneman et al, 2015).
Results: Review and analysis of students' portfolios clearly demonstrate the pivotal role played by LCs, particularly from a social constructivist perspective (Shepard, 2000). The role of the LC is critical to coach students towards meaning-making of feedback and developing lifelong self-regulation.
Conclusion: The use of LCs is a burgeoning concept in the health professions milieu and our evidence highlights their efficacy as "coaches" in meaning-making and the development of self-regulated learners.

9Q2 (1456)
Applying Objective Structured Mentoring Encounters with Multisource Feedback (OSME-360) for Training Mentors

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Presenter:
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Background: Mentors play crucial roles in helping mentees overcome difficulties during medical learning. It is critical to develop mentors. We designed and evaluated a mentor training programme based on the structure of objective structured teaching encounter and multisource feedback.
Method: A mixed-methods study was employed. The training programme, objective structured mentoring encounters with multisource feedback (OSME-360), included a lecture, 6-station OSME, video-feedback and multisource-feedback process. We applied statistical methods to analyse the quantitative data from pre-/post-test multiple choice questions (MCQ), and realist evaluation to analyse the context-mechanism-outcome (C-M-O) of the impact of OSME-360 from the transcripts of focus group interviews.
Results: Thirty-six mentor trainees (16 female, 20 male), comprising 23 physicians, 5 nurses, 4 pharmacists, 2 medical technologists, and 2 respiratory therapists, joined OSME-360. The post-test MCQ scores showed significantly better understanding of mentoring, confidence in mentoring, and correctness of managing mentoring scenarios (paired-t test, $p<0.05$). The mentor trainees received the highest score (89.3 ± 8.9) in the station 'handling mentor-mentee meeting', and lowest (78.9 ± 12.2) in the station 'managing mentee's emotional problems'. The preliminary C-M-O findings were: (1) highly skilled standardized students(C_1), changing the attitudes and concentrations/taking learning seriously(M_1), positive training outcome(O_1); (2) repeated practice/safe training atmosphere($C_{2/3}$), openness to learning(M_2), being relaxed/reduction in fear($O_{2/3}$); (3) skilled facilitators/feedback providers(C_4), good and constructive feedback, acceptance of feedback(O_4); (4) video feedback(C_5), reflection(M_4), recognition of improvement and change(O_5).
Discussion: The quantitative analysis of pre-/post-test MCQ scores and qualitative analysis of the interview demonstrated that OSME-360 had positive effects in mentor training to some extent. The skilled actors/actress and facilitators in OSME scenarios induced psychological

effects and affected the training outcome. The safe atmosphere in OSME let the mentor trainees to reduce fear and improved self-confidence. The video feedback drove reflection then promoted recognition. The reason for differences in mentor trainees' performances by each station requires further examination.

Conclusion: The mentor training programme, including highly simulated situation, skillful feedback providers and videoing, results in improving the confidence and ability of mentoring due to changing learning attitudes, acceptance of feedback and reflection.

9Q3 (3217)
Mentors for medical students in Canada and Norway need training and pedagogical support

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Presenter:
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Background: Group-based mentoring is increasingly used in undergraduate medical education to stimulate professional identity formation and provide a safe space for student reflection. Little is known about the factors that influence the motivation and behavior of mentors, though some research indicates that mentors typically understand their role in one of three ways: as someone who can answer questions and give advice, as someone who shares what it means to be a doctor, or as someone who listens and stimulates reflection. Mentors in the first of these categories tended to actively control group dynamics, and reported less benefits from mentoring.

Method: CanNorMent is an investigation of physician-mentors' experiences and perspectives at three medical schools. Group-based mentoring has taken place since 2005 at McGill University, Canada, since 2012 at UIT The Arctic University of Norway, and since 2014 at University of Bergen, Norway. McGill invests more than the Norwegian institutions in faculty development and training of mentors.

Results: We present results from an initial survey among all mentors at the three medical schools, with a response rate of approximately 60 % at each school (N=272). At all 3 sites, respondents who enjoyed being a mentor reported a stronger tendency to listen and stimulate reflection and relationships within the group. The overall level of satisfaction was higher in Canadian than Norwegian mentors, 70 % of McGill mentors reported that mentoring made them better at what they did professionally and more proud of being a physician, as contrasted with 45 % at the Norwegian schools. McGill mentors rated the quality of training and teaching materials higher than did the Norwegians. Demographically, McGill mentors were more often

clinicians, Bergen mentors were younger, and UIT mentors older and more male-dominated.

Conclusion: Our findings suggest that mentor satisfaction, which is decisive for pedagogical quality and sustainability of mentor programs, hinges on the perceived quality of the training, instructions and support that mentors receive. Details of the programs for mentor education at the three medical schools will be discussed.

Take-home message: Mentors for medical students need substantial training and pedagogical support.

9Q4 (2159)
New Insights into the Clinical Mentoring Process

Authors
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Presenter:
Janina Iwaszko, University of Worcester, UK

Background: Clinical placements offer the student the opportunity to apply the skills and knowledge acquired in lectures in a real practice setting. The role of the clinical mentor or supervisor is central for the student to achieve their learning objectives. There is a wealth of literature and guidance for clinical mentors concerning how to improve many aspects of clinical mentoring, such as planning learning encounters, identifying student learning needs and offering constructive and effective feedback. There has been less research into the internal cognitive processes undertaken by mentors whilst carrying out this role.

Method: A simulated research project recorded and analysed simulated bedside clinical mentoring sessions for ten different healthcare professionals. The healthcare professionals then had an opportunity to describe the cognitive processes that they carried out during their mentoring session.

Results: In teaching students how to develop a patient management plan, the clinical mentors, across all professions, identified that they took in patient information re-organised it, prioritised it and constructed a management plan. However, they also realised that most of this process occurred in their heads and was not visible to the student. This meant that to the new student this process was hidden and the students did not know what questions to ask.

Discussion: These results demonstrated that most types of healthcare professionals are not fully aware of the relatively complex process that they undertake when mentoring students in a clinical setting. By vocalising their tacit cognitive processes that are hidden from the student, they offer the student an insight into the processes that make up and patient/healthcare professional encounter. This enables the student to identify more clearly relevant questions to ask in order to move forward their clinical learning more effectively. Mentors are also able to identify areas where they can also improve their skills.

Conclusion: By vocalising and recognising their own cognitive processes, mentors can accelerate the student's acquisition of clinical skills and make the best use of the teaching opportunities that arise in the necessarily time limited and opportunistic clinical learning environment.

9Q5 (2838)
The Role of Mentoring to Improve the Number of Graduate of OSCE UKMPPD Examination at Faculty of Medicine Universitas Muhammadiyah Yogyakarta Indonesia

Authors
Ahmad Ikliluddin, Faculty of Medicine UMY, Yogyakarta, Indonesia
Supriyatiningsih, Faculty of Medicine UMY, Yogyakarta, Indonesia
Winny Setyonugroho, Faculty of Medicine UMY, Yogyakarta, Indonesia
Nur Shani Meida, Faculty of Medicine UMY, Yogyakarta, Indonesia

Presenter:
Ahmad Ikliluddin, Faculty of Medicine UMY, Yogyakarta, Indonesia

Background: Uji Kompetensi Mahasiswa Program Profesi Dokter (UKMPPD) is an exit exam for medical students in Indonesia. There are two type of exam in UKMPPD, Computer Based Test (CBT) and Objective Structure Clinical Examination (OSCE). To increase the number of graduate, we conducted intensive mentoring programs for students for several weeks prior to the OSCE exams since 2015. This study aim is to assess the effectiveness of mentoring programs.
Method: In this study, we analyzed the passing score of the OSCE exam. Data from academic year 2013 – 2017 were collected. The data were classified into 2 groups, one the group that did not get the mentoring and two the group who got the mentoring before the test. Participants were also divided into 2 groups, first takers participants (first-exam group participants) and re-takers (participants who had undergone the exam and had not been graduated). Statistical analysis was performed on each of these groups to compare the passing rate of the OSCE before and after the implementation of the mentoring programs.
Results: During academic year 2013-2017 there were eight exam periods of first-taker, and six exam periods of re-taker. In each group of first-taker and re-taker, there were students who join and did not join mentoring program. In the first taker group, there was an increase in the average of graduation results in mentoring group (97.26%) compared to the non-mentoring group (88.79%) with statistically significant difference (p = 0,021). In the re-taker group, there was also an increase in the average of graduation results in the mentoring group (59.17%) than the non-mentoring group (41.04%) with no statistically significant difference (p = 0.274).
Conclusion: The intensive mentoring program at the Faculty of Medicine, Universitas Muhammadiyah Yogyakarta for several weeks before OSCE UKMPPD exam proved to improve the number of graduate of OSCE UKMPPD exam. With intensive mentoring, examinees will be encouraged to re-train the medical skills they have mastered before, in appropriate and correct ways. In addition, examinees will be more prepared with the atmosphere during the exam with a predetermined time allocation.

9Q6 (1805)
Facilitating the transition into a UK Medical School: a longitudinal study into the major challenges experienced, actions taken and gaps in support provision

Authors
Kathryn Young, School of Medicine, Liverpool, UK

Presenter:
Kathryn Young, School of Medicine, University of Liverpool, UK

Background: The transition into life and learning at University is well recognised as a major life event with additional uncertainties when studying medicine. The University of Liverpool has a commitment to providing trained mentors for all 1st Year students, to help navigate this transition.
The aim of this study was twofold: to increase the effectiveness of our mentor training and to identify shortcomings in existing support services.
Method: Around 95 students (representing approximately one third of each year group) attended the mentor training workshops. Data were collected at the end of each workshop, over a three year period, from 1st Year students, self-selecting to mentor. A self-report methodology was used to collect participants' personal experiences using post-it notes, colour-coded for each category of response. This allowed data to be analysed across individuals, within cohorts and over time. Thematic analysis was applied to the data to identify, explore and track issues emerging over time.
Results: In addition to the well-recognised tasks of becoming an independent adult, participants reported perceived ambiguity in what to learn and in what depth and the requirement to develop new learning strategies as independent learners as major challenges. Taking responsibility by asking others, particularly mentors and friends, and testing out different approaches to learning were the main actions taken. Gaps in support put forward were, for the most part, due to lack of awareness of and how to access services.
Discussion & Conclusion: These result provide feedback to inform the development of mentor training. Change in the learning culture is necessary to facilitate living with and embracing ambiguity, managing uncertainty and fostering inquisitive, life-long learners, sensitive to and able to work within the limits of their knowledge. That gaps in support reveal being uniformed, rather than absence of services, a review of how the availability of and access to services is communicated is required ensuring that those services are increasingly congruent with students' expressed needs.
Take-home message: Working more closely with trained mentors to address the expressed needs of students strengthens the support offered, thus enhancing wellbeing and promoting resilience.

9R: Round Table: Student Engagement

Location: Hong Kong, 2nd Floor, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

9R1 (1535)
"Junior Teachers in Physical and Rehabilitation Medicine": your students can't sleep in class… if they are the teachers!

Authors
Alexandre Mader, Faculty of Medicine Lyon-Est, Lyon, France
Quentin Paulik, Faculty of Medicine Lyon-Est, Lyon, France
Sophie Spillone, Faculty of Medicine Lyon-Est, Lyon, France
Sophie Jacquin-Courtois, Faculty of Medicine Lyon-Est, Lyon, France
Jérôme Etienne, Faculty of Medicine Lyon-Est, Lyon, France
Gilles Rode, Faculty of Medicine Lyon-Est, Lyon, France

Presenter:
Alexandre Mader, Faculty of Medicine Lyon-Est, Lyon, France

Background: In 2013, the Lyon-Est Faculty of Medicine introduced student engagement, inspired by ASPIRE's criteria. In five years, our practice went further: students not only participate but are themselves instigators of innovations.
Method: For two years, the teaching of Physical and Rehabilitation Medicine (PRM) to fifth year students has been completely reformed: all amphitheatre lectures have been replaced by interactive lessons in small groups, using innovative teaching material, and above all animated by volunteering fifth year students. Indeed, during their PRM internship, 16 students (called "Junior Teachers") built three learning slideshows from medical cases seen in the ward with teachers' help and proofreading. Then, students in pairs taught PRM to about 40 students of the same class, with one teacher in the classroom, if necessary to complete or rectify.
Results: This vast project has had a major impact on student learning and teachers' methods. Thanks to satisfaction surveys (100 responses), we noticed that 86% of the students had had the impression of being more active than in standard lectures. Furthermore, 70% found the Junior Teacher concept more relevant than traditional one-way teaching.
In addition, to go further, it seems that students have had better results on PRM exams since this project was set up! The blend between flipped-classroom concept, techno-pedagogy and introduction of Junior Teachers has created a whole new working atmosphere where students confessed to having a much greater freedom of expression. Combining students' way of explaining and teachers' expertise drove us from a "top-down" teaching to a more horizontal and collaborative medical practice learning.
Conclusion: Knowing that this pedagogical concept brings above all long-term knowledge for clinical practice, the aim of this project is not always well perceived by students because of an exam system based on academic skills.

You have noticed students sleeping during your lectures? Let them be the teacher and take a nap while waiting!
Take-home message: More seriously, the junior teaching concept is an opportunity for teachers to benefit from the students' proximity with their peers, so we believe it should be more widely used in medical schools.

9R2 NOT PRESENTED

9R3 (2638)
Combined peer and self-assessment improves medical students' performance in Human Biology course

Authors
Anna Torres, Medical University of Lublin, Lublin, Poland
Kamil Torres, Medical University of Lublin, Lublin, Poland

Presenter:
Anna Torres, Medical University of Lublin, Poland

Background: There are mixed opinions regarding the value of peer assessment (PA) and self-assessment (SA), and studies evaluating its impact in medical education on performance are lacking. The aim of the study was to investigate the influence of PA/SA on medical students' performance in the undergraduate, basic science course.
Method: The formative peer/self-assessment intervention of behaviour, work habits, knowledge and interpersonal skills was implemented in two consecutive classes of Human Biology course. Intervention used web-based questionnaires, lasted for two semesters and comprised eight PA/SA events. PA reports were confidential, faculty processed, and submitted to students a week following PA/SA events.
Results: Performance of students increased during PA/SA intervention as measured by comparison of HB points collected during 1st and 2nd semester (72%pts. vs 77%pts., p<0.001). The comparison of the study group to historical students, who completed the course during two previous academic years also revealed significant improvement in final examination scores.
Few studies reported on objective improvement in performance connected to the implementation of PA/SA. Our research reports an increase of students' academic performance as assessed by objective measures. In addition, it was found that lower scoring students improved more, what suggests that they benefited more from the intervention.
Despite mixed opinions in the literature on the value of PA or SA influence on performance, the presented study supports the hypothesis that a longitudinal intervention combining PA and SA has a positive effect on undergraduate students' performance, with lower scoring students benefiting more from it.
Conclusion: Further studies in the field of formative PA and SA are needed to confirm findings presented in our research. However, it seems that formative PA/SA can have favourable impact of performance, if it is longitudinal, well accepted by students and faculty and aligned with course learning objectives and teaching strategy.

9R4 (2943)
Learning medical ethics through ethics drama and film production by medical students

Authors
Daniel Fu-Chang Tsai
Min-fen Wang
Chih-wei Yeh

Presenter:
Daniel Fu-Chang Tsai, Graduate Institute of Medical Education and Bioethics, National Taiwan University College of Medicine, Taiwan, Taipei City, Taiwan

Background: This study explores the educational value of ethics drama and film production (EDFP) by undergraduate medical students as an innovative case-based method for teaching and learning medical ethics.
Method: Rest's Four Component Model determining moral behavior and perspectives on teamwork competencies provided the conceptual framework. Qualitative content analysis of 258 reflective essays by sixth-year medical students (2008-2010) pertaining to their learning experience with EDFP regarding medical ethics was guided by two research questions: 1) How did the students experience EDFP for medical ethics learning? 2) What did they learn from the EDFP for medical ethics?
Results: Three major themes were identified that describe the students experienced EDFP as 1) a free and safe learning environment for intensive group discussion, 2) a simulated situation providing a rich narrative context for in-depth reflection, and 3) a refreshing and accessible way of creating a digital group work product for medical ethics learning. Four major themes were identified in the students' self-reported learning outcomes: 1) the moral domain, 2) cognitive effects, 3) affective effects, and 4) experience of true teamwork. Selected quotes illustrate these themes with thick description.
Conclusion: We found that EDFP led to a rich variety of learning outcomes. Using a longitudinal approach in medical ethics education through all medical school years seems critical to facilitate students' readiness for EDFP. The fact that at least some students are very aware of how and what they learn from EDFP suggests that medical educators might usefully draw out and build upon those insights.

9S: Workshop: Assessing Assessment. ASPIRE assessment award winners discuss best practice approaches (264)

Location: Wettstein, 2nd Floor, Swissotel
Date: Tuesday 28th August
Time: 1600-1730 hrs

Presenters

Debra Klamen SIUSOM, Springfield, USA
Anna Cianciolo, SIUSOM, Springfield, USA
Heeyoung Han, SIUSOM, Springfield, USA

Background: Southern Illinois University School of Medicine is one of 4 schools to be awarded that ASPIRE award for assessment. A group from SIUSOM, experts in the field of assessment, will present key ingredients for an excellent assessment program. Participants and facilitators will engage in an active discussion of barriers to excellence in assessment (using participants' real-life struggles) as well as innovations from their schools in effective, practical assessment. Attendees from medical schools looking to improve their assessment processes will benefit from this workshop, as well as those who might consider application for an ASPIRE award for excellence in this area.
Structure - 5 minutes intro of speakers and audience members
Establishment of goals and objectives for the workshop - 5 minutes
Discussion (participants and facilitators) - What makes for excellence in assessment? - (facilitators will wind in the key ingredients for excellence into the discussion) - 30 minutes (May break down into smaller groups for this, depending on size of audience and specific areas of interest among participants.)
What are some barriers to excellence in assessment? Discussion with participants and facilitators - 30 minutes
What are some practical innovations in assessment that participants are using? - 15 minutes
Final thoughts and take home messages - 5-10 minutes
Intended outcomes:
1) Appreciate the key ingredients of assessment excellence
2) Identify challenges and best practices to/from discussants' home schools
3) Be able to state one take-home message about excellence in assessment.
Level: Best for those with some prior knowledge of assessment techniques/methodologies, (intermediate/advanced) but all are welcome to attend.

9T: Workshop: Theoretical and Practical Considerations for Serious Games Development & Implementation in Medical Education Part II (423)

Location: Helvetia 3, 1st Floor, Swissotel
Date: Tuesday 28th August
Time: 1600-1730 hrs

Presenters

Todd P Chang, Children's Hospital Los Angeles, USA
Martin V Pusic, New York University, New York, USA
Chaoyan Dong, SengKang Health, Singapore
Gerald Stapleton, University of Illinois at Chicago, USA
Elizabeth Kachur, Medical Education Development, New York, USA

Background: Games – whether in a digital format or board format – are frequently used as adjuncts to medical education. Theoretical frameworks of how games provide learning transfer and successful game elements have been described, though far less so within medical education and adult learners. The workshop provides both a theoretical framework of game design as it pertains to medical education, as well as a practical discussion on how to develop and implement games into a medical education curriculum.
Who should attend: Undergraduate Medical Educators, Postgraduate Medical Educators, Instructional Designers, Simulation Enthusiasts. Participants with game ideas or prior game development are encouraged to share their experiences
Structure of workshop: 10 min Lecture: Introduction and overview of Games in Medical Education. Following introductions, we present the variety of games and examples in the literature.
20 min Discussion: Theoretical Frameworks on Game Elements in Education. We present Garris' game elements and Bedwell's taxonomy of game elements and provide examples of each element
20 min Small Group Problem Solving: Design a Game to teach a difficult concept. In small groups of 3 – 4, each group is required to design a game to teach 1 of 4 difficult concepts in medicine. They will choose the most appropriate game elements and style of play, and the modality.
15 min Q & A: Authors' experiences in Implementation & Research using Games. Authors will provide a quick Q&A session on their own experiences in moving games from development to implementation, as well as the scholarly research behind game implementation.
20 min Small Group Problem Solving: Plan the Implementation of the Game. Small groups return to write an implementation plan, including intended audience, and which curricula to integrate the game, as well as an assessment plan.
5 min Discussion: Summary and Take-Home Points
Intended Outcomes:
1. Learners will list types of games and game elements used in medical education, with examples

2. Learners will design a game tailored to a concept, objective, and target audience
3. Learners will develop an implementation & evaluation plan for their game
Level: Intermediate

9U: Workshop: What DON'T we find? Exploring absences in medical education research (58)

Location: Helvetia 4, 1ˢᵗ Floor, Swissotel
Date: Tuesday 28ᵗʰ August
Time: 1600-1730 hrs

Presenters
Cynthia R Whitehead
Elise Paradis
Zac Feilchenfeld
Ayelet Kuper

Background: Much of medical education research focuses on studying things that are obviously present (e.g., aspects of curriculum or assessment) in order to understand if or how they work. While this is certainly valuable research, there are many other medical education phenomena that warrant further study. One such phenomenon is that of absence, including absence of evidence for an educational tool or intervention, absence of research to support the use of tools, or absence of content that is important in medical education. In this workshop we ask: How do we identify and study absences in our field? Are they important? What can they teach us about our field? Do other people want to know they exist? In addressing these questions we draw on our experiences as researchers who have found all of these forms of absence. Participants will discuss implications for medical education scholarship and research, including different forms of resistance to studying, presenting, and publishing work that points out absences. We also consider how to engage collegially with the productive disruption that may arise in our community if findings of absence challenge widely-held beliefs.
Who should attend: This workshop is designed for all AMEE participants who are interested in thinking about potential absences in the field of health professions education. While it may be of particular relevance to health professions education researchers, the workshop will also be of interest to educators who draw upon research findings and best practices, clinical teachers who use educational tools, and learners who are the recipients of educational practices.
Structure of workshop:
- A brief, accessible introduction to the concept of "absence research" and how it has the potential to enrich our field
- Brief examples of findings of absence from our programs of research
- Small group work on implications of absence findings
- Large group consideration of implications of findings of absence in medical education research and

scholarship and discussion of strategies to attend more explicitly to absences in our field
Intended outcomes: Examining the importance of absences in medical education
Considering the implications of absence in medical education

9V: Workshop: Longitudinal datasets in medical education: delivering evidence-based policy through tracking the educational continuum (32)

Location: Helvetia 5, 1ˢᵗ Floor, Swissotel
Date: Tuesday 28ᵗʰ August
Time: 1600-1730 hrs

Presenters:
Katie Petty-Saphon, Medical Schools Council, London, UK
Daniel Smith, General Medical Council, London, UK
Margaret Hay, Monash University, Melbourne, Australia
Tim Wilkinson, Otago University, Dunedin, New Zealand
Jennifer Cleland, Aberdeen University, Aberdeen, UK
Jon Dowell, Dundee University, Dundee, UK

Summary of theme and why it is important: Longitudinal datasets tracking doctors from application to medical school and through into their eventual careers provide unique opportunities for examining the relationships between selection, assessment and performance and how these relate to socio-demographics, specialty choice and workplace geography. Examples from the UK (UK Medical Education Database) and New Zealand (Medical Student Outcome Database (MSOD) and from the Undergraduate Medicine and Health Sciences Admission Test (UMAT) in Australia will illuminate the complexity of the different initiatives and the absolute requirement for high quality data management by appropriately trained staff not only for research but also for Quality Assurance and Quality Improvement. Attendees will be asked to share their own experiences of database construction and to describe barriers to setting them up. The workshop will explore funding arrangements and how management issues have been overcome. Results from early research studies will demonstrate the profound significance of 'big data' and the immediate impact on policy from this new and reliable evidence base. It is anticipated that the workshop will stimulate ideas about the many questions our collective databases could address.

9W: Course: RESME Course

Location: Helvetia 7, 1ˢᵗ Floor, Swissotel
Date: Tuesday 28ᵗʰ August
Time: 1600-1730 hrs

A closed session for registered participants of the RESME Course

9X: Course: ESMEA Course

Location: Osaka, 3rd Floor, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

A closed session for registered participants of the ESMEA Course

9Y: Workshop: Supporting a community of young educators through the AMEE Fellowship (1103)

Location: Samarkand, 3rd Floor, CCB
Date: Tuesday 28th August
Time: 1400-1530 hrs

Presenters
Leila Niemi-Murola, University of Helsinki, Finland
Subha Ramani, Brigham and Women's Hospital, Boston, USA
Rashmi Kusurkar, VUmc School of Medical Sciences, Amsterdam, Netherlands
Trevor Gibbs, AMEE, UK
Olanrewaju Sorinola, University of Warwick, Warwick, UK
Carmen Fuentealba, Long Island University, Long Island, USA
Jonathan Rial, Health Education England (Wessex), UK

Background: Lack of support in educational scholarship is a problem frequently encountered by novice health professions educators. Finding a mentor seems to be an obvious solution, but finding the right mentor is often challenging as senior educators themselves are frequently juggling multiple professional commitments. The traditional dyadic mentoring is only one type of mentoring: there are other types such as peer mentoring, group mentoring, distance mentoring etc. that educators can access. There are also other forms of support structures for young educators, such as local and national communities of practice. These formal or informal networks evolve through a process of sharing information and experiences with the group so that members learn from each other. In this workshop, the Associate Fellows of the AMEE share some of their examples of supportive networks for novice teachers and some ideas that could be created through the Fellowship scheme.
Who should attend: All educators interested in creating and sharing their experiences of supportive structures for novice educators.
Structure of workshop: This workshop will feature interactive discussions and group exercises, supplemented by mini-didactic reviews. After a short introduction, participants will engage in a small group exercise identifying the most common challenges in creating supportive networks, and describe key steps in creating communities of educators. The Associate Fellows will present some models of actual mentoring programs and different types of communities of practice followed by a group discussion. The workshop will conclude with a discussion about types and criteria for scholarships.
Intended outcomes: After attending this workshop, participants will:

- Gain awareness of challenges in enhancing educational scholarship and promoting career advancement among novice educators
- Understand the benefits of mentoring networks and reflect on strategies to combine a variety of mentoring approaches in their own mentoring programs
- Apply principles of communities of practice in building a supportive network for educators at their institutions

Level: Introductory

9Z: Workshop: Systematic capturing of professionalism lapses: the possible, the practical, and the preventable (389)

Location: Guangzhou, 2nd Floor, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

Presenters
Viktoria Joynes, University of Liverpool, UK
Susannah Brockbank, University of Liverpool, UK

Background: Following the seminal work of Papadakis in the early 21st Century, there have been increasing calls for all detected lapses in professionalism to be recorded. The 'Measuring Professionalism' system, introduced at the Medical School at the University of Liverpool in 2016, has been met with praise both by the General Medical Council in the United Kingdom and by fellow medical educators from around the world, for the straight forward approach to recording low-level concerns regarding professional behaviour. This workshop will outline our practical experience of transitioning to this new system, and describe the ongoing process of refining this system in order to capture concerning behaviour in a way that is fair and equitable to our students.
Who should attend: This workshop is aimed at medical educators across the career spectrum with experience of managing unprofessional behaviour, particularly in undergraduate medical students, though lessons learnt could also be extrapolated to those working in the postgraduate sphere.
Structure of workshop: In this workshop, we will briefly describe the University of Liverpool's 'Measuring Professionalism' system and explain how this easily implementable system has improved our detection of concerns related to perceived unprofessional behaviour in our students. We will then use interactive case examples to give participants an opportunity to develop their understanding of how this system could be practically operationalised in their context. These cases highlight some of the shortcomings we have identified as this system has been introduced, and participants will be invited to discuss the ongoing process of addressing these challenges. Finally, we will look to introduce a debate on whether any alert system will ever truly prevent those cases of unprofessional behaviour which are of most concern.

Learning outcomes: Participants will gain a detailed understanding of a system used to identify low-level professionalism concerns in medical students. By applying this detection framework to a worked example, they will gain insight into the utility of such a system in their own context.
Level: Intermediate

9AA: Workshop: Hot Topics in Medical Education: Cool Papers from 2018 (1096)

Location: Nairobi, 2nd Floor, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

Presenters
Gail Sullivan, Journal of Graduate Medical Education, Farmington, CT, USA
David Sklar, Academic Medicine, Albuquerque, NM, USA
Geoff Norman, Advances in Health Science Education, Hamilton, Ontario, Canada
Lynn Monrouxe, Medical Education, Taoyuan City, Taiwan
Richard Hays, Medical Teacher and MedEdPublish, Cook University and the University of Tasmania, Australia
Ingrid Philibert, Journal of Graduate Medical Education, Chicago, IL, USA

Background: Medical educators need to stay current in education research, which is challenging given other responsibilities and the proliferation of clinical and education journals. Educators also want to disseminate their scholarly work, in both discovery and teaching, to appropriate scholarly forums. Each journal or forum has a specific scope, mission, and categories for submissions. Figuring a strategy for success is sometimes a slow, painful journey for those engaged in educational scholarship. This workshop will allow educators to peek inside editors' decisions regarding relevant papers and will use "crowdsourcing" to prioritize future medical education questions.
During this workshop, editors from several medical education journals (Academic Medicine, Advances in Health Sciences Education, Journal of Graduate Medical Education, Medical Education, Medical Teacher) will briefly present one "cool" article from 2017, detail why the paper is superior, and explain why the paper is a good fit for this journal. Based on personal interests, participants at entry to the session will sit at tables labeled for specific topics in medical education, such as assessment, curriculum innovations, quality improvement and high value care, and faculty development. After the editors' presentations, participants at each table will identify and prioritize the most important, specific questions for this topic area. Editor facilitators at each table will record these questions. Each table will then present their questions to the assembly, with time for discussion. Editors will be able to comment on whether these questions, if studied, are suitable for future submission to their journals or venue.
Objectives:

1. Understand the elements of strong papers and which papers may best fit a particular medical education journal
2. Identify important, new medical education research from the past year
3. Identify and prioritize the most important medical education questions of the day
After the editors' presentation, participants at facilitated tables will discuss and prioritize critical questions for medical education research in 2018 and beyond. Tables will presents a summary; only new ideas will be presented; questions will be recorded.
Editors will react to suggestions and discuss the for their journal and audience.

9BB: Workshop: Emotions Under the Microscope: Capturing Emotions in Health Professions Education (543)

Location: Mexico, 2nd Floor, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

Presenters
Vicki LeBlanc, University of Ottawa, Canada
Meghan McConnell, University of Ottawa, Canada
Esther Helmich, University of Groningen, Netherlands

Background: There is growing recognition of the role of emotions on learning and performance in health professions education. Educators and researchers are increasingly interested in how emotions influence learning and performance, how learners approach emotional events, as well as how to best prepare learners for - and support them during - emotional clinical situations. However, approaches to the study of emotions vary, and any particular approach will be best suited to certain circumstances rather than others. Educators and researchers new to the domain of emotions could easily be overwhelmed by the various approaches to capturing emotions. The focus of this workshop is to present a brief overview of what is known regarding emotions, learning, and performance, particularly in health professions education. This overview will form the foundation for an interactive session in which participants explore their research and educational interests regarding emotions. Various methods of capturing emotions – namely subjective, behavioural, physiological and socio-cultural - will be discussed.
Who should attend: This workshop is targeted to researchers and educators interested in capturing emotions in their education or research activities.
Structure of workshop: The workshop will begin with a brief review of literature, followed by guided generation of an educational idea or question related to emotions in health professions education. This will be followed by an interactive session, in which participants will be guided in exploring different approaches to capturing emotions and choosing the best approach for their question of interest. Through a combination of presentations and guided small group exercises, participants will develop a

research/educational question on the topic and identify approaches to best elicit and capture emotions.

Intended outcomes: By the end of this workshop, participants should:

1) have generated an educational idea/innovation/question related to emotions in health professions education

2) be able describe various approaches to capture emotions in health professions education

3) be able to describe which approach to capturing emotions is best suited to their question/goal

Level: Recommended for intermediate or advanced level.

9CC: ePosters: Transitions - new roles, workplace learning & professionalism

Location: Kairo 2, Ground Floor, CCB
Date: Tuesday 28th August
Time: 1530-1600hrs

9CC1 (954)
The demographics and roles of Chief Medical Residents in Japan: Pilot study

Authors
Shunsuke Kosugi, Aso Iizuka Hospital General Internal Medicine, Fukuoka, Japan
Tadayuki Hashimoto, Hashimoto Municipal Hospital, Wakayama, Japan

Presenter: Shunsuke Kosugi, Aso Iizuka Hospital, Fukuoka, Japan

Background: Recently several junior residency and internal medicine senior residency programs made their own Chief Medical Resident Systems by themselves. Because they were originals, there were no standards and no networks in Japan. There are no previous surveys focused on the demographics and roles of Chief Medical Residents in Japan.
So, we sampled and gathered a pilot survey to understand the demographics and roles of the Chief Medical Resident system in Japan.
Method: To clarify the demographics of Chief Medical Residents in Japan, we created a questionnaire consisting of 7 questions sent to 40 survey responders. Survey responders were selected via "VHJ" network, which is the NPO (Nonprofit Organization) consisting of 45 hospitals in Japan. 5 hospitals of VHJ were not teaching hospitals, so we included 40 hospitals as participants.
Results: Response rate was 72.5%(29/40). This was not a comprehensive nationwide survey.
10 responders(34.5%) had Chief Medical Resident systems and 1(3.4%) of them had it in the past, but 18(62.1%) have no Chief Medical Resident systems.
Among 11 responders who have had Chief Medical Resident systems, the representing party of "Chief Medical Resident" was different, with 18.2%(2/11) being the representative of senior residents, 27.3%(3/11) being the representative of all residents and 54.5%(6/11) being the representative of junior residents.
Discussion & Conclusion: Among 18 responders who had no Chief Medical Resident systems, only 1 responder was planning to introduce that system. The most popular reason why they didn't plan to introduce it was that the number of residents is small.
We revealed the demographics of Chief Medical Residents in Japan. The Chief Medical Resident system was not so popular in Japan, so we hope Chief Medical Resident systems will spread to all of Japan. We also lack a standardized accreditation system which can organize, teach and oversee Chief Medical Residents in Japan, so we hope a system will be established. This survey was a pilot

one, so we plan to make a comprehensive nationwide survey.
Take-home message: The Chief Medical Resident system is not popular in Japan. We hope it will spread to all of Japan.

9CC2 (1050)
Evaluation of a novel leadership role for Junior Doctors within the Avon & Wiltshire NHS Partnership Trust (AWP)

Authors
Lise Paklet
Eva Bowditch
Kate Seddon
Stephen Arnott

Presenter: Lise Paklet, Avon and Wiltshire Mental Health Partnership NHS Trust, Bristol, UK

Background: Since the incorporation of the Medical Leadership Competency Framework into postgraduate training curricula, all doctors are expected to take on management and leadership responsibilities at an early stage in their career. Stepping up into these roles can be daunting for junior doctors, as employers often provide little formal training or support to facilitate the transition. AWP created the new post of Locality Trainee Lead (LTL) for core trainees interested in developing these skills. LTLs work closely with senior management to improve trainee representation and play a vital role in helping to raise trainees' concerns and in promoting junior doctor engagement across the Trust. This is a formal role within the Trust, with clear responsibilities for the trainee and support and supervision from senior clinicians and managers.
The post generated much interest from junior doctors and all eight positions were filled after a rigorous selection process.
Method: LTLs were asked to answer a detailed qualitative questionnaire at the beginning of the placement, at six months and at twelve months, to evaluate how the role contributed to their personal and professional development and benefited the organisation as a whole. We also share our experience of establishing the role, supporting trainees and developing the role over the year.
Results & Discussion: Participants report increased confidence in and acceptance of their role as medical leaders. The opportunity to work closely with managers makes them feel more valued and trusting that junior doctors can effectively and positively influence the decisions made within their organisation.
They enjoyed the opportunity to meet new colleagues and network beyond their usual working environment , which has a direct positive impact on job satisfaction and effectiveness of their clinical care. They generally felt more committed and positive about working with others with the view to improving the overall performance of the organisation.
Senior clinicians and managers commented on the value of having direct contact and input from trainees within a well-defined working relationship.

Conclusion: The LTL model brought about tangible changes, including greater engagement of junior doctors in the life and decision-making process of the Trust.

9CC3 NOT PRESENTED

9CC4 (1357)
Attitude towards classroom discipline of medical students

Authors
Pathama Leewanich
Veeravan Lekskulchai

Presenter: Pathama Leewanich, Faculty of Medicine, Srinakharinwirot University, Bangkok, Thailand

Background: Advances in technology as well as high freedom recently have large impacts on students' behaviors while classroom disciplines are applied to tightly regulate their manners. Thus, most classroom disciplines may be unpleasant for students and cause them to act against the rules. The aim of this study was to examine the students' attitude towards some main disciplines.
Method: The study was conducted with 3rd-year medical students by using a questionnaire.
Results: From distributed 179 questionnaires, 166 were responded back. All of respondents agreed with the rule of coming to the classroom in time and no talking out loud during listening to a lecture. Most (93%) agreed with the rule of uniform dressing and 71% agreed with the rule of no food in classroom. They informed that by following these rules they could show their respect to other people, to their institute, and to themselves.
Discussion: Though most of the disciplines were against their thoughts and behaviors in the modern and freedom world, the 3rd year medical students in our institute agreed that these rules were not bad or obsolete. In their opinions, these disciplines, if following, could indeed make them a decent person in the society and a professional doctor in the future.
Conclusion: The results from this survey indicate that our students were optimistic towards the classroom disciplines even though they might sometimes not follow these rules.
Take-home message: Some regulations should be revised once the global situation changes.

9CC5 NOT PRESENTED

9CC6 (270)
To what extent has situated learning improved in the PGY1 doctors in KKH after the educational interventions?

Authors
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Presenter: Oh Moh Chay, KK Women's and Children's Hospital, Singapore

Background: Situated learning form the cornerstone of clinical learning for the postgraduate year one (PGY1) doctors. Their learning is driven through the experiential management of authentic patient conditions, supported by their active participation in the community of practice. It is known that the transition of a medical student to a PGY1 doctor is stressful, which can result in poor clinical learning, demotivation and medical errors. We had instituted a preparatory program, which consists of: orientation and integration, clinical supervision, case-based teaching, and mentoring. This study explored the effect of the program on the transitioning and situated learning of PGY1 doctors.
Method: The study was conducted at the KK Women's and Children's Hospital, Singapore. We adopted the constructivist approach and conducted a qualitative research, using the semi-structured interview format. An inductive and iterative process of information collection, analysis and thematic classification was used. Twelve PGY1s and eleven faculty participated in the focus-group interviews. Data collection continued until data saturation was reached. The audio-taped interviews were transcribed, analyzed, and the themes were identified.
Results: The PGY1s experienced increased stress, uncertainties and anxieties in the transition. Several interrelated factors that impacted on transitioning and situated learning negatively. These factors included high patient load and turnover, time pressures, unfamiliarity to the local clinical environment inexperience in sub-specialized work and less motivated learners and teachers.
Discussion: With a good preparatory program and supportive community of practice, situated learning was maintained. In addition, the motivated learners adopted their own coping strategies, which included self-directed learning, peer consultations, and learning from other professions. Useful strategies from our experience included (1) job shadowing, (2) identification of inexperienced doctors, (3) team-based rostering, (4) case-based presentation and discussions and (5) strong mentor-mentee support system. Instituting an open system for feedback, ensuring timely instruction and reducing the

hierarchal mentor-mentee relationship can further enhanced the learning experience of the PGY1s.

Conclusion: We analyzed the success of the preparatory program in aiding the transition of PGY1 doctors and enhancing their learning. In addition to a comprehensive preparatory program, three other factors, including constructive feedback, timely instruction and trusting mentor-mentee relationship are essential.

9CC7 (3054)
Taking to the skies -Transition to becoming an FY1 doctor. An innovative study day for post-finals assistantship (PFA) medical students exploring the transition toward becoming a qualified doctor

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Terasa Broom

Presenter: Fiona Coia, Directorate of Medical Education, The Mid Yorkshire Hospitals NHS Trust, Wakefield, UK

Background: Over the last three years, the MESH team (Medical Education Simulation Hub) based at the Mid Yorkshire Hospitals NHS Trust has run an annual study day for PFA students at the Yorkshire Gliding Club. In addition to celebrating the completion of Final exams, the students explore their preparedness for the transition into their new role as FY1 junior doctors (Illing et al 2008; Wright 2017). The MESH team deliver a number of interactive teaching essions as well as session on Basic Teaching Skills which encourages the medical students to consider teaching as being integral to their future continuing professional development (CPD).

Method: Fifth Year medical students spend three weeks "shadowing" FY1 (Foundation Year One) doctors in an assistantship role. This helps them to understand what their job will involve and working alongside an FY1 allows them to learn essential skills such as time management, prioritisation and team work. The MESH team is keen that junior doctors incorporate teaching into their roles. We run a Breakfast Club which students are encouraged to attend and in which junior doctors and other Allied Health professionals deliver the teaching. Feedback is given by a senior colleague and certification is provided for CPD.

Results: Medical students are not routinely taught how to teach but after qualification are quickly made aware that this is one of their responsibilities (Cheeseman 2009). We found that many students attending the study day, in addition to feeling more prepared for their new role, felt inspired to teach. These trainees now make a significant contribution to the Faculty for our Undergraduate teaching programmes.

Discussion & Conclusions: Preparedness for transitioning from student to FY1 needs to include not only practical skills and knowledge in clinical roles but should also provide an introduction to basic teaching skills and the opportunity to develop these skills.

Take-home message: Preparedness for FY1 should include preparation for clinical and educational roles.

9CC8 (2326)
Behavioral competency for hospital pharmacists - a novel approach to non-technical skill acquisition in mixed-methods training course

Authors
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Hui Chen Su

Presenter: Shu Fen Huang, Chi Mei Medical Center, Tainan, Taiwan

Background: Junior pharmacists often felt anxiety and depression when start to face patients directly, although they had passed numerous written and oral exams. The reason is the amount of training focus more on knowledge and technical skills, from pharmacy school curricula to postgraduate training. The aim of this study was to evaluate the efficacy of a mixed-methods training course on non-technical skills (NTS).

Method: The course consisted of an introductory lecture, role play scenarios, group discussions and debriefings. It held once every three months in 2017, different scenario arranged for training NTS of hospital pharmacists, such as social skills, affective attributes, and error awareness. We used the cloud-based interactive response system to collect opinions from participants and facilitators.

Results: The average number of participants per time is 39. Quantitative analysis of pre- and post-course questionnaires showed a significant improvement of self-reported confidence in managing the scenarios difficult to deal with (mean improvement 53.2%; p<0.01). 96% of participants "strongly agreed" or "agreed" that they had learned the NTS available following this training course. 99% of participants willing to apply what they learned in the future. The average satisfaction score is 98%. According to questionnaire answers, the course resulted in a high degree of participant satisfaction and increased confidence in managing the trouble events. Additionally, the priority of the training course needed by survey from junior pharmacists is different from 2016. "Ability to communicate with the patient "and "Response to unusual events" appeared in the top 5 list of 2016, but disappeared in the next year.

Discussion & Conclusion: NTS is cognitive and interpersonal skills, complement an individual's professional and technical knowledge, facilitation of effective delivery of a high-quality patient care. Acquisition and retention of NTS is necessary but a challenge in postgraduate pharmacy education. We showed the positive result with the novel course focused on behavioral competence training.

Take-home message: Different types of simulation-based education should be developed and adopted as a teaching tool on NTS for hospital pharmacists. Cloud-based interactive response system could help to do more with less time.

9CC9 (874)

The Exploration of the Patient's Agenda by Medical Students in the Emergency Department (TEAM-ED)

Authors
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Malcolm Mahadevan, National University Hospital, Singapore
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Presenter: Jiun Yi Derek Heng, National University Hospital, Singapore

Background: Embedding medical students into healthcare teams enhances patient care and facilitates development of key competencies in students through active listening, empathy, and patient advocacy. Patient encounters by physicians in the Emergency Departments may be hurried and inadequate resulting in patients lacking a clear understanding of their diagnosis and management. We sought to address these two inadequacies by embedding students into healthcare teams to further explore the patients' concerns, understanding of their own condition and management received. The student would then proceed to address these issues with the guidance of an attending doctor.
Method: We hypothesize that this intervention would enhance embedding of students, and allow patients to understand their condition and management better through a more comprehensive conversation. If successful, we envision patients would more likely elect to have a student in their healthcare team to facilitate this process.
Standardized training was provided to all our students on their roles prior to embedding them in healthcare teams. We then randomly surveyed patients on their interaction with the students and whether they perceived any benefit from the interaction.
Results: One hundred and one patients were surveyed. Of the 51 patients who interacted with students, 44 (86%) indicated that they would like to have a student in their healthcare team; whereas 28 (56%) of the 50 patients who did not interact with students preferred to have students in their healthcare team. Furthermore, 80% of the patients who interacted with students agreed that the students explained their condition and management to them clearly, explored their concerns and worries, and contributed to their overall care.
Conclusion: Interaction with embedded students benefited patients and increased the number of patients who would like a student in their healthcare team by 30%. In this pilot project, we demonstrated that it is possible for students to be embedded effectively and fulfill an important role in the management of patients in a busy, fast-paced environment.

9CC10 (269)

Challenges in Obstetric Anaesthesia procedural training, and their impact on learning and instruction

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Presenter: Raymond Goy, KK Women's and Children's Hospital, SingHealth, Singapore

Background: Spinal administration of anaesthetic drugs carries significant risks. Hence close instruction of the residents in training is necessary to avoid complications. Faculty instruction can be opportunistic during these procedures, leading to the concerns of incomplete situated learning. We conducted this qualitative study to explore the challenges experienced by the faculty and residents. We sought to understand the impact of these challenges on the quality of procedural training.
Method: The study was conducted at the KK Women's and Children's Hospital, Singapore from 1 December 2016 to 15 March 2017. We adopted the constructivist approach to explore the experience of the stakeholders, in the challenges of learning and instructing during obstetric regional block procedures. We conducted a qualitative research, using the semi-structured interview format. An inductive and iterative process of information collection, analysis and thematic classification was used to derive our understanding of the challenges. Five faculty participated in the individual interviews, and fourteen residents participated in the focus group and group interviews. Data collection continued until data saturation was reached. The audio-taped interviews were transcribed, analyzed, and the themes were identified.
Results: Both residents and faculty identified the gaps in learning and instruction. Their expectations of what constituted good supervision and instruction were dissimilar. Four inter-related types of challenges were identified. (1) Clinical pressures restricted the opportunities for close instruction and learning. (2) Difficulties in gauging the residents' prior clinical experience hindered the appropriate tailoring of instruction. (3) The Korthagen's ALACT learning cycle (which constitutes Action, Looking back, Awareness, Creating alternatives, Trial) was interrupted due to the reduced opportunities for coaching and feedback. (4) Reflective practice was not employed as an effective learning strategy. Coping strategies, which included operative case scheduling and negotiated orders with other stakeholders were largely ineffective. The challenges impacted on the learning, and confidence of the residents.
Conclusion: We had identified the challenges, which had impacted on the quality of learning and instruction in our context. We recommend a multi-pronged framework (including dedicated training lists, faculty-resident pairing, end-of-day feedback and the use of an obstetric anaesthesia experiential reflective diary) to improve learning and instruction.

9CC11 (1880)
Residents' perceptions on the impact of order sets on their learning

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Background: Order sets are used in the emergency department, as well as other clinical areas, to ensure provision of evidence-based standardized management for a given condition (e.g. Asthma). Order sets have a positive impact on patient care. However, their influence on residents' learning has not been well explored.
Method: In this qualitative study, we conducted semi-structured interviews of 16 residents (8 paediatrics and 8 emergency medicine) during their paediatric emergency medicine rotation. The interviews explored their attitudes and experiences towards order sets, as well as the perceived influence on their learning. We used a grounded theory approach to analyze the data for recurrent themes and ideas. Relationships between themes were then identified and a concept map was created to further explore our generated theory.
Results: The impact of order sets on residents' learning is influenced by their attitudes and experiences using them in the clinical environment. Residents' perceive both positive and negative influences from the use of order sets on their learning. Regarding positive influences, residents perceive that order sets reduce cognitive burden and provide a framework for teaching. Negative influences include a decrease in critical thinking and knowledge acquisition, in addition to a lack of feedback on residents' use of order sets.
Discussion & Conclusions: Medical educators should adapt their educational approach to encourage the positive influences of order sets on learning, while developing strategies to minimize the negative influences on the resident learning experience. These negative influences have implications not only for learning but also patient safety. Educators should consider how feedback can be incorporated into the use of order sets.
Take-home messages: The increasing use of order sets reflects an emerging trend of increased standardization in healthcare. Medical educators should adapt their educational strategies to encourage the positive influences associated with order sets while mitigating the negative influences on resident learning.

9CC12 (364)
Service obligations, clinical exposure and clinical department influence Post Graduate Year 1s (PGY1) perspective of training quality

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Background: PGY1s rotate through 4 x 3 monthly postings to the departments of Internal Medicine (compulsory), General Surgery and/or Orthopaedics (1 compulsory surgical posting), O&G or Paediatrics. We experience fluctuation in number of PGY1s allocated to various departments throughout the year. We aimed to elucidate factors that influence PGY1s' perspective of training quality to further improve our training program.
Method: A standardized rotation evaluation questionnaire with 12 questions was routinely administered to all PGY1s via an online platform (New Innovations) at the end of each rotation from the period of May 2016 to April 2017. Domains assessed included clinical exposure, service obligations, faculty supervision, educational activities, and procedural experience. Rotation evaluation results across departments were compared. Data was analysed using IBM SPSS Statistics software.
Results: 93 PGY1 trainees were surveyed. Mean number of trainees per rotation was 15.5 (range 1 to 23). Multivariate analysis via logistic regression revealed factors that independently predicted posting satisfaction – 1. Adequacy of clinical case mix ($p = <0.01$), 2. Perception of service obligations ($p = 0.02$), and 3. Clinical department. Qualitative feedback supportive of the above include low manpower provision, compulsory PGY2 educational activities resulting in manpower constraints, conflict of scheduled teaching with clinical duties, excessive clerical work, high patient turnover, rotation to wards with a limited spectrum of cases, and being placed on night duty too early into the rotation.
Postings with the poorest evaluation also received poor feedback in terms of PGY1s' ability to participate in formal teaching sessions (50.5% rating 3 or less on a 5-point Likert scale), service obligations (48.5%), implementation of transition of care for patients (32.7%), and appropriate level of faculty supervision (26.7%). Excessive service obligations may have implications on trainee education and patient care.
Conclusion: Tackling excessive service obligations will involve targeting a combination of manpower planning, clinical and administrative support. Future work may involve assessing the relative weight of the various factors in determining perception of service obligations to aid resource allocation.
Take-home message: Perception of excessive service obligations is contributed by multiple inter-related factors and not just patient turnover alone.

9CC13 (3214)

How students want to see and use their workplace learning data – initial results from a co-design study

Authors

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Presenter: Tamsin Treasure-Jones, Leeds Institute of Medical Education, University of Leeds, UK

Background: The Leeds Institute of Medical Education is committed to developing innovative and effective technology enhanced learning tools to support our students. Within the myPAL (my Personalised Adaptive Learning) project we are exploring how learning analytics can provide students with different views (visualisations) onto their learning data, which will help them to review, plan and manage their ongoing learning better. We are adopting a co-design approach involving students and tutors.

Method: 5 co-design workshops were run with students and 4 with tutors. In total 26 students, 7 clinical tutors and 6 academic tutors took part representing all 5 years of the medical degree. These workshops were designed to (1) gather feedback on how they currently viewed and approached their workplace learning activities and data (2) facilitate them in drawing and discussing different visualisations of this data. The data gathered included the discussions in the workshops (audio-recorded & transcribed) and all the visualisations created.

Results: 50 visualisations were created and these were coded in terms of the visualisation type and purpose. The pathways students proposed in their visualisations generally followed a recognised pattern of overview, drill down and details on demand. The most commonly coded purpose of the visualisations related to self-regulated learning processes – views that supported students in reflecting on how they were progressing and then planning what to do next.

Discussion & Conclusions: Our research indicates that students want learning data visualisations that go beyond simple reporting of grades. They wanted visualisations they can use to review their learning progress with a focus on managing/planning their future learning. We are now developing a subset of their visualisations into paper prototypes. The next phase of the co-design work will focus on exploring and testing how students would actually use these visualisations in workplace learning contexts.

Take-home messages: Students want to have visualisations of their learning data that show progression and support their own management of their learning. Co-design (giving students the tools and support to design learning data visualisations) can help us to understand and better support their learning needs when developing Technology Enhanced Learning systems.

9DD: Posters: Career

Location: Hall 4.1, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

9DD1 (2846)
The career preferences and level of certainty in those preferences of Portuguese medical students at start of undergraduate medical studies

Authors

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Presenter:
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Background: Worldwide, the distribution of medical specialty choices in recent graduates is often misaligned with medical workforce shortages. Understanding the dynamics of student career preferences during undergraduate medical training is important for better workforce planning. This work is part of an ongoing project to develop a comprehensive overview of the evolution of career and work preferences of Portuguese undergraduate medical students developed by the Portuguese Research Network on Medical Education (RIEM).
Method: In this study we report the Year 1 medical students career preferences and respective certainty (in a scale 0-100%) in those preferences, collected at the beginning of the academic year, in 4 of the 8 medical schools in Portugal. RIEM Researchers from the 8 medical schools developed a survey with the main purpose of understanding the dynamics of student career preferences during undergraduate medical training
Results: There were 414 respondents from 4 Medical Schools (aprox. 25% of the 1800 students from the 8 medical schools).The most preferred specialties were Pediatrics (15%) and General Surgery/Cardiology (8%) and the least were Clinical Pathology (0.6%) and Pediatrics Cardiology (0.3%). The organization of preferences by type of specialty, revealed that the highest preference fell into surgical (45.9%), followed by medical (15.9%), primary care (6.5%) and technical (5.1%). The mean level of certainty in preference is 70.88% (sd=21.3%). Students with a preference for a less frequent specialty had higher levels of certainty, such as Clinical Pathology (90%) and Pediatrics Cardiology (99%). The career preferences were overall similar across the four medical schools, except for primary

care. Preference for primary care (18.8%) was comparatively high in students attending the graduate entry school.
Year 1 students had a generalized preference for the surgical specialties. Graduate entry students reported the highest preference for primary care specialties. Data from the remaining 4 Medical Schools will offer a national perspective from Portugal.
Conclusion: The Portuguese national study can be a starting point for longitudinal, research which will contribute to understand how medical schools are contributing to the disparity of workforce demands and student preferences.

9DD2 (461)
Positive correlations between the subspecialties during clinical clerkship and those as a career: results of questionnaires from graduates of Tohoku University over the past 35 years

Authors

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Presenter:
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Background: Rotation during clinical clerkship (CC) has been reported to be one of the most influencing factors in choosing future subspecialties. However, most studies have been based on questionnaires regarding impression, and there are few studies investigating the relationships between the rotations during CC and career subspecialties.
Method: During the CC at Tohoku University, students had to rotate through half of the subspecialties of internal medicine (3 weeks each) and surgery (4, 4, 2 weeks) before 1997, all of the subspecialties (2 weeks each) between 1998 and 2007, and half (3 weeks each) after 2008. We sent questionnaires to 2672 graduates of Tohoku University School of Medicine who graduated between 1979 and 2013 with available addresses (67.6% of 3955 graduates).
Results: There were 1052 responders (response rate 39.4%). Responses to when they decided their career subspecialties were (n=1026): before CC (11%), during CC (21%), after CC but before graduation (30%), and after graduation (30%). Responses to whether rotations during CC influenced their career subspecialties were (n=1020): highly influenced (31%), influenced (28%), did not influence (16%), and did not influence at all (14%). Among the 297 graduates whose subspecialties for both CC and career were identified, 208 (70%) chose subspecialties that they rotated in (group A), and 89 (30%) chose subspecialties that they did not (group B). In group A, 50.0% decided their career subspecialties before graduation, and in group B, it

was 32.6% (P=0.0045). Furthermore, 64.4% were influenced by CC when deciding their career subspecialties in group A, whereas 42.7% were influenced in group B (P<0.0001). The correlations between the subspecialties during CC and those as a career were significant for neurosurgery (P<0.0001), lung surgery (P=0.0006), neurology (P=0.0053), and hematology/nephrology/endocrinology (P=0.0326), but no correlations were observed for cardiology/respiratory medicine, gastroenterology medicine, or gastroenterology surgery.

Conclusion: Career choice may be influenced by the subspecialties during CC, particularly in minor departments.

When developing the CC curriculum, the influence of rotations on future subspecialty choice should be considered.

9DD3 (570)
Increasing the number of pre-registration nurse placements in primary care to develop the community-based workforce

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Presenter:
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Background: High numbers of nursing staff in primary care are set for retirement in the next five to ten years. The loss of these clinicians with substantial experience, presents workforce challenges for the long-term sustainability of primary care. There is a need for investment in student nurses' education to promote experience and to generate interest in careers in primary care nursing.

Method: Strategies include promoting the image of primary care at careers events and roadshows to increase the understanding of the role of general practice nursing and available career opportunities. I have been working in a specific area to increase the number of pre-registration nurse placements to attract newly-qualified nurses in to general practice, supported by preceptorship programmes.

Results: Early analysis of the data suggests that students want placements in primary care and when they have had placements have then considered general practice as a first career destination. Further data collection is under way and will gather in-depth qualitative data from student nurses and host training practices about the placement process, supervision and learning.

Discussion: Building relationships with and supporting healthcare professionals within a specific geography to lead and support the development of education for the non-medical workforce is vital in increasing the number of pre-registration nurse placements in primary care and to boost workforce numbers. Before the current generation

of GPN's start retiring, the flow of nurses in to primary care needs to increase so that expert knowledge and skills can be passed on, and the workforce sustained.

Conclusion: There is a need to transfer more care from hospital to primary and community settings and this can only be done if there are staff to deliver this care and both these settings need to be positive learning environments to nurture learning.

https://www.hee.nhs.uk/sites/default/files/documents/3018%20HEE%20GPN%20plan%20WEB.pdf

9DD4 (2918)
Medical Students' Attitudes towards Choosing Psychiatry as a Future Career

Authors
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Presenter:
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Background: Studies report an annual decline in new trainees in psychiatry in many parts of the world. This deficiency is projected to create gaps between mental health service needs and providers. Our aim is to study factors influencing attitudes of medical students towards psychiatry as a career.

Method: An anonymous questionnaire was administered to medical students from years 1 to 5 in the College of Medicine, Alfaisal University, Riyadh, KSA. Factors assessed in the survey included some previously influential studied ones in addition to others which we hypothesize to be of significance in our study population.

Results: Positive views towards Psychiatry as a career increase linearly by year. 33% selected psychiatry as their top 3 career choices with the most significant factor being an intimate patient-doctor relationship (P<0.05). There is unanimous agreement among those who do not prefer psychiatry of the lack of instant gratification of treatment.

Discussion: This study gives insight towards both positive and negative influencing factors for psychiatry. Most of the negative factors, admittedly by the respondents as cultural based, have given Psychiatry a poor reputation in the region. Our findings give an optimistic view towards the future of psychiatry in the region, given the large number of students (33%) who consider it in their top 3 choices for a career. However, a significantly large number of students continue to have a negative view towards psychiatry.

Conclusion: The factors identified in our study to have a negative impact on students' attitude towards psychiatry should be tackled by medical schools and higher authorities, as this has shown to be of benefit in studies in other parts of the world.

9DD5 (3071)
Students' Preferences for Primary Care Careers Evolve Over Time: The Situation in Two Medical Schools in Switzerland and Portugal

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Presenter:
Eva Pfarrwaller, Primary Care Unit, Faculty of Medicine, University of Geneva, Switzerland

Background: Many countries encounter an insufficient number of medical graduates choosing a primary care career. To help understand the various factors involved in students' career choice, a conceptual framework of primary care career choice was recently proposed (Pfarrwaller et al, Acad Med 2017). The objective of this study was to describe the course of students' preference for primary care over time, which is one element of this complex system.

Method: We used data from cohort studies at the Faculty of Medicine in Geneva, Switzerland and the School of Medicine of the University of Minho, Portugal, collecting career preferences throughout medical school. We grouped students' career choice at different time points according to their interest in primary care and studied how these preferences evolved. We discussed differences and similarities between the two universities and generated hypotheses about influences, using the conceptual framework as a reference.

Results: Evolution of students' primary care career preference was different in the two medical schools. In Braga, the proportion of students citing primary care among their three preferred specialties increased from under 2% at matriculation to 14% at graduation. In Geneva, the proportion of students preferring primary care was more stable, from 13% at matriculation to 19% at graduation.

Discussion: The proportion of graduates preferring primary care is insufficient in both places, but the development of students' career preferences varies depending on the context. In Geneva, the impact of a recently strengthened primary care curriculum seems not visible yet on students' career choices. In Braga, primary care teaching focused on the clinical curriculum possibly influences students' preferences. Based on the conceptual framework, we identified factors in the broader context that may influence primary care career choices differently in the two medical schools, and generated hypotheses for future research.

Conclusion: The course of students' primary care career preferences over time differs according to the context. These findings can be used as a basis for further discussions to adapt the primary care curriculum. The conceptual framework can also provide the basis for the analysis of broader influences in different contexts.

9DD6 (395)
Conceptualizing clerkship experiences toward future specialty aspiration: A Framework

Authors
Sheila SL Huang

Presenter:
Sheila Shu-Ling Huang, Kaohsiung Medical University, Kaohsiung, Taiwan

Background: Clinical workplaces provides exclusive opportunities to situated learning, which ultimately shapes the identity of the medical profession. Medical students are not only socialized to their professional roles, but may also be inspired to their future specialties. Career aspirations, as point-in-time expressions of occupational goals, involve personal backgrounds, self-efficacy, expectations, and contextualized learning factors (Rojewski, 2005). The purpose of this study was to determine whether there are identifiable factors encourage individuals entering future specialties of one's choice.

Method: This IRB-approved inquiry randomly recruited 41 clerks in two major teaching hospital systems in southern Taiwan for one-on-one interviews (n=17), followed by focus-group interviews (n=24). All interviews were recorded and transcribed for qualitative data analysis via Atlas.Ti 7.5. At the time of interviews, I also made on-site visits in clinical settings to glean information about dynamics of bedside teaching and learning.

Results & Discussion: Developed from the qualitative analysis, the framework of clerkship toward career aspirations indicates that the contextualized environment in clinical workplaces exert critical influences on students' learning. Clinical education is conceived as a dynamic system consisting of areas of specialties and organizational resources. Learning resources include specialized learning tasks, physicians as clinical teachers, artifacts, and structures for learning progression. All those situated experiences enhance professional exploration in conceptualizing medicine as a committed career, and a source of satisfaction. Areas of specialties are led by physicians, and exert norms and culture on leaners. The learning paradigm shifting from textbooks to bedside learning inculcates norms, beliefs and values in students socially and professionally. This shift ultimately shapes students lived experiences, impacting how they "think, act, and feel like a physician" (Cruess, Cruess, Boudreau, Snell, & Steinert, 2015), and future specialties.

Finally, the framework represents individual, organizational and systemic levels of impacts on students' career aspirations during clerkship.

Conclusion: Being engaged and "functional" is the key to success in clinical learning; and yet, attending physicians, interactions with patients, work-life balances are defining factors for future specialty selections. Clerkship presents a defining moment for retention and motivation for advanced medical pursuits, and ultimately enhances personal identity formation for future careers.

9DD7 (2132)
Ban the Bash: hosting a World Cafe with Sheffield PsychSoc to challenge stigmatisation of different medical specialties

Authors

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Background: The stresses on the NHS workforce are vast, and recruitment proves an ongoing problem. Psychiatry and General Practice are two specialties which have struggled with chronic recruitment difficulties, but these specialties are the most common recipients of negative and disparaging comments (bad-mouthing or bashing), which have been shown to affect student and trainee career choices.

Method: We ran a World Cafe style small group discussion event attended by 22 medical students and junior doctors, all with varying career interests. We looked at their experiences of bashing and considered how we can challenge it. We explored 6 questions relating to bashing and are producing a short video about the evening. The World Cafe format provided a good opportunity for discussion and sharing experiences. Paper tablecloths allowed attendees to add to others' written notes and use them as prompts for discussion. Responses highlighted a range of negative comments that students have been exposed to, and the difficulty in challenging comments.

Results: Power dynamics between student and senior was a common theme; various attendees stated that it was difficult to find the confidence and correct tone to challenge their seniors when 'bashing' occurred on the wards. Overall, attendees reported an increased awareness of bashing at the end of the event and felt more comfortable in acknowledging and challenging it. Stereotypes of different medical specialties can be a source of amusement and camaraderie for colleagues and students, but comments can blur the lines between banter and bashing. The World Cafe provided the ideal format to enable medical students to share their experiences of bashing, and explore the best ways to challenge it. Changing tables and groups enabled varied discussion between attendees with different experiences and opinions.

Conclusion: Students and trainees are exposed to a number of negative and disparaging comments about different specialties, which have been shown to affect their career choices. Students find it difficult to challenge these comments, which can be related to a perceived power-dynamic between them and senior doctors. World Cafe events can help promote discussion and sharing of varied experience.

9DD8 (1517)
Motivational factors influencing medical students' intentions to practice in underserved areas: results of a multi-site cross-sectional study

Authors

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Background: In Switzerland, like in many others countries, an insufficient proportion of students choose to practice in underserved areas (UA). Definitive career decision is associated with career intention in medical school but little is known about factors influencing these intentions. We investigated both medical students' intentions to practice in UA and what specific motivational factors predicted these intentions.

Method: From 2010-2015, 1749 graduating Swiss medical students from four of the five Swiss medical schools self-reported their intentions to practice in UA (yes, undecided, no) and motives (24 items) that explained their career choice. Motives were aggregated using a principal component analysis (PCA) with Varimax rotation (KMO 0.79, $p<.001$, 49% of variance explained). Motivational factors included intellectual challenge, work variety, work conditions, and enthusiasm for the specialty. Chi-square and MANOVA were used to compare site, gender and UA intentions ; logistic regression to predict the effects of gender and motivational factors on intentions to practice in UA.

Results: The average proportion of students' intending to practice in UA was 14%, with the lowest rates found in two urban medical schools (10%). 42% of students were undecided. Work conditions and work variety positively predicted intentions to practice in UA ($\beta=.34$, $\beta=.30$, respectively; $p< .001$). Conversely, intellectual challenge negatively predicted intentions to practice in UA ($\beta=-.89$; $p< .001$). Enthusiasm for the specialty and gender did not significantly predict intention to practice in UA. At the end of their undergraduate studies, few students intended to practice in UA but a large percentage were still undecided. Interventions that affect work conditions and work variety may be potential avenues to encourage practice in UA.

Conclusion: Results at four medical schools confirm that the proportion of students interested by practice in UA is largely insufficient to meet the needs of the Swiss population. Interventions that target undecided students could potentially influence this gap. There are differences in students' motivational factors driving their career choice and notably their intentions to practice in UA. Investigating these factors for specific student groups could help identify strategies to encourage practice in UA.

9DD9 (778)
To what extent can medical students predict what they'll specialize in?

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Presenter:
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Background: The world's northernmost medical school, UiT the Arctic University of Norway, was founded in 1973 to ensure recruitment of doctors to the region and provide stability to the local and rural health sector of Northern Norway. A recent study found that more than half of both the general practitioners in northern Norway, and the doctors working at the University Hospital of Northern Norway, were educated at UiT. Knowledge of factors that influence young physicians' choice of specialty and geographical location is scarce, for the Scandinavian and Northern Norwegian context in particular. This follow-up study aimed to identify relevant determining factors, and explore to what extent final year medical students can predict their future medical career choice.
Method: Baseline survey administered early at the sixth/final year of medical school, to six successive graduating classes of 2012-2017. The students were asked to rank their top three future specializations and indicate a percentwise likelihood for them to a) become a general practitioner and b) to settle/work in a rural district. Students from the classes of 2012 and 2013 were followed up with semi-structured qualitative interviews in January 2018. Interviews were analysed using systematic text condensation.
Results: 107 out of 113 (95%) students responded to the questionnaire. Follow-up qualitative interviews were accomplished in 31 of 38 (82%) of the students graduating in 2012-13. Approximately 70% of the interviewed physicians were pursuing a career they predicted at their final year of medical school. Factors frequently associated with concordance between baseline survey and current specialty were "early interest to the field" and "good experiences during clinical clerkships", while the main factor associated with discordance was "work-load of specialty desired by student at baseline".
Conclusion: In our study, a majority medical students had chosen a specialty that they listed as one of three desired specialties when asked ten months before graduation. A variety of factors formed the basis of their choice of specialty.
Take-home message: Identification of national and regional factors determining choice of specialty is a necessary first step to enhance recruitment to certain specialties and geographical areas.

9DD10 (1722)
Undergraduate anaesthetics exposure and anaesthesia as a career - perspectives of medical students and specialists

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Presenter:
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Background: Anaesthesia is the largest single hospital specialty in the UK, yet medical students receive significantly less exposure in comparison with other specialties during their undergraduate training. At University of Glasgow (UoG) this constitutes only one day of undergraduate training. We aim to evaluate medical student and specialist perspectives on undergraduate anaesthetics exposure, and anaesthesia as a career.
Method: Third and fourth year medical students rotating through surgery completed a questionnaire relating to their experience of anaesthesia as an undergraduate and their opinions of anaesthesia as a career. This questionnaire is currently being disseminated to all medical undergraduates at UoG. A modified questionnaire has also been disseminated to anaesthetists of varying levels, focussing on their experience of medical student teaching and their own undergraduate exposure to anaesthesia.
Results: 75% of students believed they should have more experience of anaesthesia during their training and 56% had considered anaesthetics as a potential career choice. 56% believed that anaesthesia is 'more complex' than other specialties, 25% 'about the same' and 0% believed it to be 'less complex'. Only 19% of students mentioned a role for anaesthetists in critical care environments, and only 6% mentioned a role in emergency response teams or retrieval medicine. Anaesthetist questionnaire results are awaited.
Discussion: Anaesthesia continues to be poorly understood amongst medical students, and perhaps overlooked when it comes to potential career options. The Royal College of Anaesthetists recently produced a framework highlighting the need for further anaesthetic and critical care input to medial student teaching, based on the interpretation that 63 out of the 106 outcomes of the GMC's Outcomes for Graduates relate to the work of anaesthetists, intensivists and perioperative physicians. Although anaesthetist results are outstanding, there is clearly a student desire for greater undergraduate anaesthetic exposure. We do not anticipate anaesthetist opinions will be averse to this.
Conclusion: There is apparent student desire for increased undergraduate anaesthetics exposure. Any such novel anaesthetic education should be based on guideline teaching programmes produced by The Royal College of Anaesthetists.

9DD11 (1604)

The point of departure: career goals of final year medical students in Sudan

Authors

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Presenter:
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Background: The composition of a nation's future medical workforce and framework can be linked to the career choices of the medical students. This study aims to explore the career plans of final-year medical students in Sudan.

Method: In December 2017, a survey was distributed to all final year medical students in two major universities in Khartoum, Sudan; the University of Khartoum (U of K) representing the governmental sector and the University of Medical Sciences and Technology (UMST) which belongs to the private sector. This study explores the medical exodus Sudan experiences as a result of final-year students intending to pursue their postgraduate (PG) training abroad.

Results: The survey was completed by 350 (64%) out of a total of 543 eligible students. The majority (225, 64%) entered medical school following attainment of the Sudanese National High-School Certificate. Only 74 (21%) made full decisions with regards to the specialty they would like to pursue in the future. While a considerable proportion of final year medical students will spend their internship in Sudan (214, 63%), a significant majority would like to undertake their further PG training outside the country (246, 70%). The commonest destination is the UK (118/246) followed by USA (59/246) and Republic of Ireland (23/246). Although only 118 (34%) received some form of career guidance, the majority (252, 72%) felt that they would benefit from formal career orientation programs. Half of the students (189, 54%) rated their awareness about the PG training pathways in Sudan as poor or very poor. The reasons for seeking to train abroad were related to better training opportunities in the preferred specialty, living conditions, healthcare policies and work environment. Students from UMST and those whose entry qualification to medical school was other than the Sudanese national certificate were significantly more likely to consider PG training overseas.

Conclusion: A significantly high proportion of the students would like to leave the country to train abroad. There is also lack of formal career guidance and orientation in medical schools coupled with poor awareness amongst the students on the local PG training opportunities.

9DD12 (1035)

Foundation Doctors' career afternoon to promote the range of different specialities and what is required to apply for them

Authors

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Background: The percentage of applicants for core and higher speciality training is at a whole time low in the UK. This is most obvious in those who have finished foundation training, the first 2 years of clinical training for UK graduates. There are numerous reasons for this including the current political climate and doctor 'burn out'. However, a number of foundation doctors remain unclear about what they would like to specialise in and how to get information about the speciality. Thus, at Princess Alexandra Hospital, we developed a careers afternoon to try to provide this service.

Method: A doodle pole was carried out for all foundation doctors within the trust asking about which specialities they were interested in. From that information, trainees from anaesthetics, core medical training, core surgical training, paediatrics, obstetrics and gynaecology, general practice, public health, accident and emergency, intensive care, oral maxillofacial surgery, orthopaedics surgery and histopathology were invited to talk about their speciality. The aim was for near-peer presenters so that they could better understand the foundation doctors needs. A speaker was also requested to talk about taking a year out between speciality training. There were 5 rooms being used with simultaneous presentations occurring at the same time. Each session was 30 minutes long and the schedule was created so that all foundation doctors were able to attend the sessions of their choice.

Results: In total we received 40 feedback forms. 100% of doctors found the afternoon useful. 95% of doctors felt that all their questions had been answered and 100% of doctors would recommend the afternoon to a peer. Doctors were asked to rate the afternoon on a scale from 1 to 5, with 5 being excellent. The mean average rating was 4.88.

Conclusion: Applications for core training remains a daunting task for many foundation doctors and career afternoons can provide a great way of providing them with information of why to apply and what they need to apply.

Take-home message: Career afternoons can be a useful way of providing information to the more junior doctors about different specialities.

9DD13 (1582)
Home or Away? A survey of career intentions among Foundation Year 1 (FY1) doctors in the UK

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Presenter:
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Background: Public Health England highlights a growing demand for NHS doctors due to an ageing population, increasing multi-morbidity, and a drive for safer staffing following the Mid-Staffordshire Crisis. Previous studies have shown increasing rota gaps in UK hospitals with an average vacancy rate of 9.6% across all medical specialities. Therefore the career intentions of incoming doctors will have significant implications for future workforce planning.
Method: We aimed to explore career motivations and intentions among newly qualified doctors in the UK. An online survey was sent to all Foundation Year 1 (FY1) doctors during their first week of work (2017), with a response rate of 22% (n=1,699). The questionnaire included free-text comments and likert scale responses, which were then analysed using SPSS.
Results: The most commonly reported motivations for working in medicine were a varied and fulfilling career (93% of respondents), security of employment (85.8%) and earning potential (64.3%). A large proportion of FY1s declared their intention to leave medicine (13.5%), to work overseas for the majority of their career (23.7%) or for a shorter period of 1-2 years (72.1%). We also found significant differences in motivations and career intentions by age, gender and ethnicity of respondents.
Discussion: Despite citing multiple motivators to work as doctors, a surprisingly large proportion of respondents expressed their intentions to either work abroad or leave medicine altogether. Free-text comments revealed some trainees felt medicine was 'mis-sold' or had changed since they starting training, citing worse pay, working conditions and the new junior doctor contract.
• A career in medicine appeals to new FY1s for a multitude of reasons
• A large proportion of FY1s intend to work abroad temporarily or permanently
• Free-text comments reflect low morale among some FY1s, who perceive a mismatch between working conditions when they applied to study medicine and the realities of working as an NHS doctor in 2017
Conclusion: Our results have significant implications for workforce planners, who must account for the large proportion of newly qualified doctors who intend to leave medicine or work abroad either temporarily or permanently.

9DD14 (1739)
An Exploration of the Learning Environment and Career Intentions. A Mixed Methods Study of Paediatric Interns in South Africa (SA)

Authors
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Presenter:
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Background: Poor doctor to patient ratios in SA are exacerbated by a migration of medical practitioners to urban areas, private practice and specialised care over primary health care .Gaps in knowledge of intern career intentions in resource challenged contexts have translated to the failure by both higher education and national health authorities to include the internship period in strategies to ensure that inequities in health care are addressed.
Method: This explorative study used a mixed methodology approach to explore the factors that influence perceptions of the learning environment (LE) during internship and their influence on career intentions. Using a sequential explanatory mixed methods a locally validated version of the Postgraduate Hospital Educational Environment Measure (PHEEM) and focus group discussions were conducted amongst interns in Paediatrics in a high disease burdened province of KwaZulu-Natal in 2015.
Results: Perceptions of the LE were found to be influenced by both external (disease burden and resource constraints) and individual related contextual factors (supervisor -intern relationships, mentorship, feedback and intern demography). Both these factors acted as alienating influences that curtailed access and restricted participation within communities of practice in internship. A narrow view of the role and scope of interns was reflected in significant differences between interns and their supervisor's perceptions of the LE and gaps in assessment practices of SA interns when compared with international best practices. Poor perceptions of the LE drove interns away from SA's public health system and from caring for children .Career intentions were found to be in conflict with the national imperatives for primary health care within the public sector.
Conclusion: Contextual factors in a resource limited LE impacted on identity and career self-efficacy formation of SA interns who failed to see a future role for themselves in primary health care and child health within the public health system. Changes in policy and practice, and curricula reform to improve access to create an expansive participatory framework for SA interns have the potential to ensure a sustainable public health system and redress the inequity seen in distorted doctor patient ratios in areas of need in SA .

9DD15 (3471)
The Impact of Medical Careers Fairs on the Career Aspirations of Medical Students

Authors
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Background: Health Education England Specialty recruitment data shows that training programmes for specialities such as General Practice and Psychiatry have had low fill rates in past years. This data shows fill rates as low as 65.42% for Psychiatry training in 2017 and approximately 500 GP places were unfilled in England. The Foundation Programme Career Destination Report 2016 UK Summary showed that in the last 5 years there has been a 20% decline in Foundation Year 2 doctors progressing directly into speciality training from 2011 to 2016. This shows a significant medical workforce shortage within the NHS. The exact reasons for this shortage are complex, however raising awareness of specialties through careers fairs may be a way of encouraging applications to shortage specialities.

Summary of work: The aim of this study is to determine if medial careers fairs have any impact on the career choices of medial students. The study also aims to quantify this impact and broadly determine what factors influence career choices of medical students.
This was done through assessment of online pre- (n=40) and post-fair questionnaires (n=27) asking students their preferred specialities before and after the fair. Further questions aimed to ascertain the reasons behind this change and to quantify the effect of this change.

Summary of Results: Pre-and post-fair data shows that the top three reasons for choosing a speciality are patient contact, interest and length of training. Interest in the chosen field was an option suggested by participants and was very popular, with a quarter of participants in-putting it in the pre-fair questionnaire. Analysis of the data shows that 62% of respondents agreed that the fair helped to decide on their future career.

Discussion & Conclusion: This study demonstrates the underlying reasons for choosing one speciality over another and these reasons tend to be clinically based, such as patient contact, and do not appear to change post-fair. The fair appears to have had a positive impact on medical students and has helped them to decide upon their future careers.

Take-home message: Careers fairs are an effective method of introducing medical students to various specialities.

9EE: Posters: Diversity

Location: Hall 4.1, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

9EE1 (897)
Are there common aspects in the perceptions of diversity and educational inclusion in medical students?

Authors

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Presenter:
Olga Matus-Betancourt, University of Concepcion, Chile

Background: Educational-inclusion considers education for all people. Throughout history, a change in socio-cultural characteristics and social-identification has been observed, causing some people to feel socially excluded by feeling they belong to a minority. In Health Sciences there is little evidence to study this phenomenon, considering new policies of educational inclusion, which is relevant in health-professionals training, because their graduates must be able to accept diversity in direct contact with people. SponsoredByFONDECYT1170525.
Method: Qualitative study, based on Strauss&Corbin Grounded Theory (2002). Participants: 10 key informants with knowledge and experiences in diversity, selected by sampling typical case, prior informed consent process. Narrative interviews were performed. Analysis plan was performed using the constant comparison method until reaching open coding level using Atlas-ti7.5.2.
Results: Dimensions of diversity: sex-gender, ethnicity, migrants, disability, religion and social vulnerability. In this regard, three categories of analysis emerge that respond to the aspects that integrate them: (a) Construction of a social identity associated with belonging to a minority; (b) Experience of perceiving and feeling social exclusion; (c) Deficiencies and inadequacies in the axes of policies and reforms in the area of health and education.
Discussion: Recent studies have focused on considering disability as the main dimension of Inclusion. However, acceptance of diversity should consider other dimensions such as those included in this study. The defined inclusion-model brought together theoretical backgrounds from various disciplines. This can be seen in the identification of 6 different dimensions, which would make it possible to re-signify the inclusion construct known so far. The results are an important contribution to medical education, since they allow us to take into consideration the variables that would define diversity, which could be considered in the training process of health-care students.
Conclusion: In a health-care area it's vitally important that experiences of people in a situation of social exclusion are taken into account when they belong to a minority. This is more urgent in educational contexts, specifically in health-programs, where training with a focus on diversity acceptance and educational inclusion is not explicitly included.
Take-home message: It is important to consider diversity in health-students learning process.

9EE2 (2478)
A qualitative study on embedding gender awareness into General Education Courses for medical students

Authors

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Presenter:
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Background: Taiwan medical education has put attention on developing gender awareness and competence in medical curriculum; however, how to effectively implement such integration in a crowded curriculum requires further design of pedagogic strategies. This study explored if gender issue can be effectively integrated into general education courses, through deliberate development of the course framework, teaching methods and materials.
Method: Gender issues were integrated into English Reading and Medical English courses. The course materials include literary works, and PBL scenarios, involving topics like health and self-image; gender perspectives and unwanted pregnancies, working status and family etc. Medical English has specifically embedded issues into task-based learning such as folk-medicine, birth plan, and medical communication. The participants are respectively 30 first- and 150 second-year medical students taking the courses. The research employs qualitative method and collected 1. Essays, 2. PBL discussion, 3. Focus group interview, and 4. Participant researcher observation. Data were transcribed and triangulated to examine its effectiveness by using a gender competence index.
Results: 5 themes emerged from the textual and data analysis: 1. Awareness of equity issue resulted from rising female social status and expanding career choices; 2. Reflecting upon the pressure of social expectation on women's image and its impact on health; 3. Male students showing understanding of physical and psychological impact of abortion on and other cultural impacts on women's health; 4. Recognizing own bias when confronting issues concerning gender differences, such as folk medicine and LGBT patient communication; however, 5. Students tend to not challenge different perspectives and did not progress to critical thinking level.
Discussion: The findings showed that integrating gender issues through different teaching strategies into different courses in early stage of medical training provides opportunities for medical students to enhance gender literacy through discussion and reflecting. However, ways to encourage students to move to the critical reflection stage deserves further design and continuation to the clinical stage.

Conclusion: Gender issues are inevitable in medical students' future professional and personal life. Integration of such issues from the early stage and longitudinally throughout the curriculum is needed.

9EE3 (127)
Current trends, future scenarios and implications for women's participation in post graduate medical education in Iran

Authors
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Background: Women doctors are in the ascendant, and they will soon comprise the majority of the medical workforce as general practitioners, medical specialists, and sub-specialists. Therefore; to gain a better understanding of current and potential future challenges for women participation in Medical Education in Iran, we conducted a comprehensive national study.
Method: The expert panels' group discussions and policy survey were implemented by 7 experts. The barriers facing women in medical education and profession were detected, and then conceptually clarified. Analyzing the consequences of these challenges will lead to the exploration of implications of women participations in academic medicine and medical surgery training. At the end some key recommendations with contextual/cultural considerations presented for health and medical education policymakers.
Results: Our analysis revealed the major challenges and Implications for Iranian women participation in Medical Education. Family or personal responsibilities, need for flexible work times, lack of high-ranking female role models or mentors resulted in the limitations of the number of women in especially tenured faculty especially in surgery departments. In this context, women doctors face barriers to academic career progression and are under-represented compared to their male counterparts, at senior levels. Recognition of the high quality skills of women medical students and residents would lead to a reappraisal of the culture of a male dominated hierarchy in universities.
Discussion: This rapid growth of women doctors has implications for the medical education as a whole. Planning to meet the community care demands in a context like Iran and similar areas with high demand for same-sex doctors among women requires long-term planning and solutions. Providing equal opportunities in surgical care, education, research, and leadership would make surgery more attractive to female medical students. As the number of women in leadership positions begins to increase, an obliteration of sex disparity in the surgical fields will surely result in women contributing more to a field.
Conclusion: The result of this study would allow educational policymakers to address specific health care needs of the community and to empower women participation in medical education and academic positions.

9EE4 (714)
Women medical residents´ perception of Quality of Life during training in Internal Medicine: a qualitative and quantitative analysis

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Background: The higher participation of women in medicine may impact in structural profession´s evolution due to gender differences perceived since graduation and residency training. Gender differences on quality of life are associated with higher states of anxiety and depression among female physicians.
Method: We aimed to assess the impact of training in internal medicine on perception of quality of life in women residents´ point of view, using qualitative and quantitative analysis. Additionally, resilience, empathy and daytime sleepiness were also scored. We performed a cross-sectional study with first-year internal medicine residents to evaluate self-reported quality of life specific for medical residents (VERAS-Q), empathy (Jefferson Scale of Empathy), resilience (Brief Resilience Scale from Wagnild and Young) and daytime sleepiness (Epworth Scale). We explored the differences between genders in all these aspects with focus group method.
Results: One hundred and nine residents accomplished the survey: 31 (28.4%) female and 78 (71.6%) male. Female residents exhibited significantly lower scores for quality of life in the domains of time management (30.3, female vs 41.1, male $p <0.001$), psychological (48.1, female vs 56.7, male $p <0.01$) and physical health (42.8, female vs 53.6, male $p <0.05$), when compared to male residents. They also scored higher in daytime sleepiness (13.0, female vs 9.0, male $p <0.001$), with pathological scores for daytime sleepiness. No significant differences were found between genders on resilience and empathy scores. The focus group assessment disclosed difficulty in concentration and knowledge acquisition, insecurity, feeling of loss, more critical perception, self-collection and difficulty in creating affective bonds to support the training period as the main factors involved in the worse perception of quality of life.
Conclusion: In conclusion female residents had lower scores of quality of life and higher scores on daytime sleepiness. Investing in mentoring to help them to better manage their time and encouraging activities that favors development of relationships are measures that can improve quality of life of female residents during this critical period of medical training.

9EE5 (2887)
Human rights issues and undergraduate health courses curricula

Authors
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Background: Human rights are considered rights of all people regardless of color, race, sex, religion or nationality. Although the United Nations recommends that health professionals receive training in human rights, and despite Brazilian Federal law recommends human rights content inclusion in curricula of all levels of education, little is known about how much this has been done in the various undergraduate health courses in Brazil.
Method: This study aimed to identify the presence of themes related to human rights in 02 undergraduate courses at RPMS-USP: Speech Therapy/Audiology and Occupational Therapy. It was conducted through the analyses of public documents from 179 courses/disciplines searching for words that refer to the subject/theme and for direct references to human right content.
Results: Words that refers to human rights issues are present in 9 of the 81 courses/disciplines that make up the curriculum of Speech Therapy/Audiology undergraduate course (10%). No direct reference to the topic was found. Such words are present in 33 of the 98 disciplines (33%) of Occupational Therapy undergraduate course. Direct references were found in 04 disciplines, related to the legislation and the human rights of some vulnerable groups (children, disabled and elderly people).
Issues related to human rights are only incidentally present in some disciplines, with a general approach, when dealing with ethics, public health, reproductive rights, humanistic training, and community health. The lack of direct references to the human rights of women, transsexual, intersexual and other groups whose health care demands specific training is a concern both for the gap in the curriculum, and for the noncompliance with legal guidelines.
Conclusion: The construction of knowledge, skills and attitudes in health professionals training must be understood, beyond the classical sense of acquiring technical-scientific knowledge, also taking into account ethical and political issues. Higher Education Institutions must work to make their students become well-informed, critical and analytical citizens capable of analyzing the problems of society assuming social responsibility. Thus, the approach to human rights issues must be clearly specified in public documents (curriculum).

9EE6 (3059)
Enhancing the cross-cultural adaptation in medical education: preliminary validity evidence of the Brazilian-Portuguese version of two instruments to assess communication skills

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Background: The importance of communication skills (CS) has been widely recognized in medical education. Valid instruments for assessing CS could enhance student assessment and provide valuable information for institutional stakeholders, with practical implications for faculty development, curricular design, and quality assurance.
Method: This study aimed to obtain validity evidence for cross-culturally adapted instruments designed to assess CS in Brazil, and to discuss the strategies used in its cross-cultural adaptation. The Communication Assessment Tool (CAT) and the Analytic Global Rating Scale (AGRE) were adapted in a systematic, standardized, multi-step process based on international recommendations for cross-cultural adaptation. Ten experts in medical education and communication skills (EMC) evaluated the adapted instruments for content validity using the content validity index (CVI). The criterion for establishing an acceptable level of cultural and linguistic equivalence was the agreement of 70% of participating EMCs. EMCs supported the corrections and adjustments in items from both instruments. The scales were pretested in 28 medical postgraduates in Ob-Gyn in a two-station OSCE and adjusted accordingly. Reliability was estimated with Cronbach's alpha coefficients.
Results: During content analysis, all items in both instruments were relevant and pertinent to assess CS (CVI CAT: 0.99; CVI AGRE: 0.96). All CAT items were rated as linguistically and culturally equivalent by 70% of experts, and only one AGRE item was rated lower (60% of equivalence), and it was subsequently reformulated. Cronbach's alpha showed high internal consistency (CAT: 0.93; AGRE: 0.89).
Conclusion: The cross-cultural adaptation of both CAT and AGRE resulted in the production of two assessment tools with high levels of linguistic and cultural equivalence, content validity, and reliability. Application of the adapted instruments in a representative sample will allow obtaining additional validity evidence.

Take-home message: The Brazilian-Portuese adaptations of CAT and AGRE are promising tools to assess CS in Brazilian medical education.

9EE7 (972)
Every pregnant mother is a cultural story: The effect of narrative teaching method on Culturally Sensitive Care of midwifery students

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Presenter:
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Background: One of the essential aspects of prenatal care provision is cultural sensitivity. It is the most comprehensive concept in recognizing the knowledge related to ethnicities and religions. While Iran is a multi-ethnic society, prenatal care based on cultural sensitivity care leads to mothers' increased well being and satisfaction. This study aims to compare the effect of integration of two teaching approaches: role modeling and narration methods; with emphasis group reflection on midwifery students' culturally sensitive prenatal care in Qom University of Medical Sciences.

Method: This quasi-experimental before and after two-group study was performed during a nine-day clinical education. All midwifery students (N=36) were assigned randomly to the experiment or control groups. For the experiment group, cultural competency issues were taught by role-modeling and narrative methods. While the control group experienced only the role-modeling technique (with 6 mothers' history for narrative story that students role-played in group and end group reflection). Students' performances in cultural sensitive care in both groups were assessed before and after the instruction using a researcher-made observation checklist (score range: 0-20). Pretest assessment was performed in first three days with three observations, posttest assessment in last three days with three observation, and the intervention in the middle three days .Data were analyzed using independent t and paired t-tests.

Results: Mean scores of students' performance in control group was improved significantly in post-test (9.85±1.39) compared to the pretest (12.32±1.21) results (p<0/05). Also in the experiment group, post test scores (16.85±2.39) were significantly different from the pretest (10.16±1.24) findings (p<0/05). Independent t- test implied that the difference of post test scores in two groups was significant (P=0.01).

Conclusion: Although both methods proved effective in improving students' performance in cultural sensitive care, a blend of two methods (narration and role-modeling) was more effective than a mere role-modeling. It is recommended that role-modeling and narrative methods be used in teaching cultural issues to midwifery students. Considering every narration may contain valuable cultural teaching points. While narration is an efficient and accessible method in teaching, educators can use it for teaching cultural competence.

9EE8 (21)
Enhancing cultural competence in healthcare professions: A case study of a multicultural college in Israel

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Background: Practical knowledge is needed in order to educate healthcare professionals with cultural competence, especially in a social context in which there is ethnic and religious diversity.

Method: The purpose of this research is to examine how the multicultural reality in Israel is reflected in the curriculum and in the field training of departments of healthcare professions in a multicultural college. Both the academic goals and the training programs were analyzed in the light of the different nationalities, ethnic groups and religions within the: students, academic staff, and in the training field. The study included an analysis of interviews with several senior staff members (administrative and academic), and an analysis of contents of the curricula of two academic departments (nursing and physiotherapy) and the syllabuses of different courses. In addition, several observations were conducted in classes, workshops and social events on campus.

Results: It was found that management support in multiculturalism and dialogue processes promoted diversity in healthcare teaching programs. The departments that were investigated addressed the diversity by adjusting education models to the needs of students and the community in which they integrate, and by doing so, enhanced the cultural competence of the students.

Conclusion: The research highlights the importance of engaging in difficult dialogues that are inherent in teaching about diversity. Moreover, teachers and field supervisors who represent the cultural diversity serve as role models for ways of working effectively in cross-cultural situations. Cultural diversity should be addressed as challenge and be represented in the public sphere and among students and teachers in order to become a professional advantage.

9EE9 (2665)
A survey of cases in emergency rooms to create educational scenarios for cultural competency training

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Background: As globalization increases, more patients from foreign countries are treated in hospital emergency rooms (ERs). Healthcare workers in ERs must immediately make decisions to treat such patients while caring for their cultural concerns.
Method: A questionnaire was sent to the ERs of university and residency training hospitals in Japan to identify the problems arising from cultural differences in foreign patients and how the problems are dealt with.
Results & Discussion: The language barrier was dealt with by healthcare workers who spoke the language, and by the help of translation applications on iPads (one of them developed by the government), books, or interpreters on telephone. For patients who spoke languages through which healthcare workers could not communicate, help was sought from embassies, municipal governments and local foreign-language schools. Some patients refused to be treated in a foreign country and wished to return to their home countries and be seen there by physicians: in one case a physician was called from the patient's home country, and in another case the family tried to bring the patient home, causing the patient to fall into a critical condition. Another problem was differences in healthcare systems between countries. Some patients believed that healthcare fees in Japan could be negotiated.
Healthcare workers in ERs were always concerned whether treatments had been sufficiently explained to patients. The survey showed that they were facing these problems without previous training and suggested the need to prepare them to better care for foreign patients in difficult situations. Educational scenarios based on their experiences will be useful materials for training.
Conclusion: Because treatment and decision-making are urgent in ERs, healthcare workers must be trained to understand the importance and challenges of cultural differences of foreign patients and prepare for ways to best treat these patients. Sharing their experiences with students will enable future healthcare workers to develop cultural competency.

9EE10 (1744)
The development of intercultural competence in international university environment

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Background: As intercultural competence will constitute an essential part of knowledge of the present and future generations, it is important to gain empiric experience of its evolution and development.
The goal of our research is to conduct long-term study of the socio-cultural adaptation of foreign medical students at the University of Pécs Medical School, as well as of the development of their intercultural competences.
Method: Since the research of the development of intercultural competence requires complex research methods, therefore we have applied several methods simultaneously for our long-term research. Firstly, we have used closed-ended questions in our self-developed questionnaires distributed altogether six times in the given cohort, also, the medical students of Pécs were canvassed by focus group interviews regarding their integration and the development of their intercultural sensitivity.
It has been established from the findings of the research (N=13084) that started in 2009, that the foreign students arriving to Hungary plan a limited residence in the country, and their primary motivating factor is to begin their medical university studies.
Results: According to the results students of our foreign language programmes gave following feedback regarding their subjective well-being on a 5-step-scale: after their arrival: 3,75; after four semesters: 3,44; in their last study year: 4,08.
Conclusion: Based on the long-term research lasting now, we can establish that the elements of the motivation system and the period of the foreign residence significantly influence the circumstances of the evolution and development of intercultural competences. Nevertheless, the intercultural experience gained during a determined period of residence could also contribute to the further development of intercultural sensitivity.
In our global world the intercultural competences will become one of the most determining building blocks in future's medical knowledge. Therefore it is crucial to adapt the empirical experiences in the practical fields for example in forms of intercultural competence developing courses and trainings in the graduate, post-graduate, medical and specialist programmes.

9EE11 (2626)

Is there a space for students to develop cross-cultural care competence in a crowded pre-clinical curriculum? A pilot problem-based learning course

Authors

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Background: Educating culturally competent future doctors in caring for patients with diverse backgrounds has been set as one of goals of Taiwanese medical professionalism education. Ways to teach cultural competence in a crowded medical education curriculum have been challenging. A previous study showed that students self-perceived cross-cultural care (CCC) preparedness was low in preclinical stage.
Method: The study investigated the effectiveness of embedding CCC issues into the Problem Based Learning (PBL) in the pre-clinical Block curriculum by exploring students' perspectives. We included diversity issues identified previously as the cultural groups least prepared by the medical students into PBL scenarios of Pediatrics, Infectious Disease and Renal Blocks involving new immigrants, LGBT patients and complementary and alternative-medicine respectively for medical students of undergraduate and post-baccalaureate programs at a Taiwanese medical school. The participants are 150 and 50 medical students respectively. A post-PBL feedback survey including two semi-structured questions were conducted and data were analyzed with SPSS and content analysis.
Results: Quantitative analysis revealed students mostly agreed that such CCC integrated PBL gave them better understanding of diversity (63.9%) and preparedness for clinical learning (79.6%). Qualitative analysis further revealed students identified patients' needs of CCC including dominant decision-making pattern, own bias, language, health belief of different generation, social resources, and gender issues. However, due to the overcrowded curriculum and time limitation, students suggested that such scenarios could be made into vignettes and through role-play to facilitate learning.
Discussion: The pilot PBL embedded with CCC learning issues showed that students raised awareness of the impact of diversity on health care. This creates a space for students to discover 'differences' and health disparities, and further explore related knowledge required to provide better CCC in future clinical encountering. Such design allowed students to see communication not only limited to skills training but understanding of socio-cultural aspect would help achieve better patient care.
Conclusion: Strategically bringing CCC training into PBL scenarios in pre-clinical stage provides a milieu for students to understand the impact of diversity and the importance of CCC development, which would better prepare students for clinical learning.

9EE12 (2546)

What medical students' perceptions of Early Clinical Exposure experiences tell us about the cross-culture care and diversity issues in medical education - a mixed method study

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Background: Diversity and cross-cultural care competence (CCC) have received increasing attention in Taiwanese medical education, and clinical exposure is generally perceived to provide opportunities to enhance CCC. This study investigates how medical students observed and reflected upon the CCC issues emerged in an early clinical exposure course "On Doctoring" in the second-year of undergraduate medical curriculum.
Method: The study was conducted at a Taiwanese medical school with 150 students who took a course that provided exposure learning through clinical observation. The students completed 8-10 hours clinical observation in different clinical settings. Pre- and post-activity questionnaires focusing on perception of educational climate were conducted. 103 valid responses were collected and analyzed with SPSS. Three focus group interviews (16 students) were also conducted and data were transcribed and analyzed with the Grounded Theory.
Results: Quantitative data revealed that respondents agreed that CCC for diverse groups should be included in the curriculum with a post-activity increase (12 items average: 4.91v.s. 5.08/6). However, lack of role modeling and guidance seen as a problem also increased(41.8% v.s. 43.7%). The qualitative data showed that 1. Clinicians' attitudes towards patients of different socio-economic classes, gender, age and using alternative medicine were different and might have bias; 2. Students' awareness of CCC for diverse groups could be varied depending if tutors had provided guidance; 3. Students recognized the importance of doctor-patient communication but only limited to skills and language.
Discussion: Early clinical exposure serves a start for forming professional identity as well as developing CCC. Students recognized the importance of doctor-patient relationship but lacked further guidance of essential

concepts. Explicit inclusion of diversity issues before early exposure course is needed to prepare student and optimize the learning outcome. As students saw clinical teachers as role models, clinicians' lack of awareness of own bias could have negative impact on learners. Therefore, faculty development for clinical teachers deserves more attention.

Take-home message: The early clinical experiential learning can provide a milieu where students develop the cross-cultural awareness; however, clinical teachers, seen as role models, require more mentoring training to provide the optimal guidance.

9EE13 (2396)
An institutional ethnography into how clinicians learn transgender health advocacy and systems-based practice

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Background: Learning how to advocate alongside marginalized patients experiencing health inequities is an emerging topic within healthcare provider education (HPE). Hubinette (2017) describes health advocacy as a practice that includes improving access to care and addressing health inequities through policy change. The rationale for examining health advocacy learning within the emerging specialty area of transgender healthcare access is two-fold: First, trans people have been described as an underserved population and could thus benefit from clinicians' advocacy for transition care; and second, balancing trans patients' access to transition interventions with providers' requirements to follow standardized protocols is fraught. For these reasons, studying how providers learn to work around protocols and advocate for trans patients is an excellent exemplar through which to understand health advocacy.

Transition care protocols were developed with the intentions of instructing clinicians to assess trans patients and advocate for hormones and surgeries, when indicated. Yet these texts have been identified as a cause of mistrust and conflicted clinical relationships between patients and providers. Using institutional ethnography methodology, we analyzed these clinical texts and interviewed 22 key informants. Informants included trans patients, physicians, clinician-educators, and psychologists. Clinician-education workshops were additionally observed.

Our research illustrates how clinicians learn health advocacy informally through patient interactions, critical reflection, and resisting standardized transition assessment protocols perceived to limit trans patients' access to hormones and surgeries. Informants described strategies learned to work around assessment protocols and collaboration with other providers to advocate for improved access to care.

In the absence of exposure to trans healthcare issues in most HPE programs, clinician-learners must develop the skills and confidence to work with trans people experientially. Yet reconciling clinicians' health advocacy learning needs with trans patients' timely access to necessary treatments is challenging.

Learning techniques such as critical reflection, patient interaction, and provider collaboration are practices that engender competency and compassion in working with marginalized patients and should therefore be included in health advocacy curricula. Learning to work around standardized assessment protocol to advocate for necessary treatments is crucial for clinicians working with trans patients.

9EE14 (1751)
LGBTQ medical curriculum in Central Asia: experience of Nazarbayev University School of Medicine in Kazakhstan

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Background: Research shows that the LGBTQ population is at higher risk of specific health issues such as substance abuse, obesity, depression, high suicide risk, HIV, STDs. There is little research on the health of the LGBTQ population in post-Soviet Central Asian states. The LGBTQ population prevalence data in this geographic area are vague and partial. Moreover, there is stigmatization and prejudice toward LGBTQ people among the general public and service providers. In Kazakhstan, LGBTQ issues are only partially covered by medical curricula, and healthcare providers lack knowledge and skills for the provision of care to this population.

The aim of integrating LGBTQ health issues in the medical school curricula is to equip MD students with patient-centered skills appropriate to examine and manage LGBTQ patients focusing on their specific healthcare needs. The proposed paper discusses the introduction of the LGBTQ curriculum in the MD students' training in Kazakhstan. Established in 2015, Nazarbayev University School of Medicine is conducting its third year of the MD degree program, developed in partnership with University of Pittsburgh School of Medicine. The curriculum follows the core clinical competences of Western medicine including Patient Centered care, clinical skills, communication skills, professionalism, and medical knowledge. LGBTQ issues are integrated in the first two years of the program, including one whole session in Year 1 during the Behavioral Medicine course with lecture and small group discussion and two Simulated patient encounters in the small groups session during the course Advanced Medical Interviewing in year 2.

The introduction of the LGBTQ-sensitive module has increased students' understanding of healthcare needs of LGBTQ patients. The students well received the experience, according to courses' feedback, and had learned specific skills to provide better care to these patients.

The innovative LGBT curriculum will contribute to the strengthening of MD curricula and healthcare workforce in the country and the region.

9EE15 (220)
I'm a LGBT medical student, get me out of here: The role of sexuality in medical education and how it contributes to Northern Ireland's brain drain

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Background: The intention to leave among NI students is significantly higher than comparable Northern European countries and, in the highest skilled professions, was considered by some as a "necessity"[1]. It has been suggested that factors that may have an influence on this include geographic isolation, lack of opportunity and historically high levels of mobility among young people from the island of Ireland. This trend is particularly prevalent within the ranks of medics training in Ireland as a whole, with one study finding that 88% indicated they were either definitely migrating or contemplating migrating following graduation.

An ongoing study at Queen's University Belfast – investigating LGBT medical students compared to their heterosexual peers identified a novel factor contributing to the brain drain phenomenon. This study took the form of a survey disseminated to all medical students registered at QUB and had a total of 427 responses (30.5% response rate). It found that heterosexuals from NI are 1.5 times more likely to definitely plan to stay in NI compared to non-heterosexual students, and that non-heterosexuals from NI were over 5 times as likely to state definitely that they plan to leave NI.

This is particularly poignant for QUB's medical school, wherein around 70% of its medical students are from NI originally and around 22% of respondents identified as non-heterosexual.

Why native non-heterosexuals are more likely to plan to leave than non-heterosexuals who have originated from other countries is still unclear. However, these findings reflect data collected by the annual Young Life and Times (YLT) survey of 16-year-olds in NI. This study found that non-heterosexuals had worse experiences in education, reported worse mental health and were more likely to say that they will leave NI with no intention to return. In addition, this study found that 'brain drain' did not exist in a significant way in any group other than those with same-sex attraction.

These findings point towards the critical need for strategies to improve the non-heterosexual medical student experience and working environment, in order to prevent further and potentially irreversible loss of talented young doctors to other parts of the UK and beyond.

9EE16 (3050)
Increasing diversity in medical school admissions: Results from an Innovative MCAT Support Program

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Background: A diverse physician workforce is essential to meeting the health care needs of multicultural populations. The literature suggests under-representation of population groups among medical school candidates relative to national demographics, with under-representation of students from lower income groups internationally. Barriers to adequate representation include costs associated with admissions tests such as the Medical College Admissions Test (MCAT). At the University of Toronto, the Community of Support (COS) program supports students self-identifying as Indigenous, Black, or Filipino in preparing for medical school with the aim of increasing diversity in admissions. We present the implementation of, and results from a pilot program designed to assist COS members with financial need in preparing for the MCAT.

Summary of Work: We designed a ten-week MCAT course offered to prospective applicants enrolled in the COS program with financial need as assessed from student loan data. Students completed four supervised MCAT practice tests throughout the course, including baseline, midterm, and two final full-length practice tests administered by the Association of American Medical Colleges (AAMC) and preparatory companies. Paired t-tests were used to compare baseline and subsequent test scores.

Summary of Results: 31 of 33 students enrolled completed the program with two students withdrawing due to conflicting commitments. Baseline and midterm practice tests were voluntarily completed by 17/33 of students and revealed improvement in scores from 501.5 ± 4.9 to 504.3 ± 4.7 (p= 0.0032). Baseline and final practice tests were voluntary completed by 12/33 students revealed improvement from 502.8 ± 5.5 to 505.7 ± 3.6 (p=0.025). A program feedback survey was completed by 17/33 students with all students indicating the course eased the financial burden associated with the MCAT, and 88% indicated the course was financially accessible.

Discussion and Conclusion: Students reported this program eased the financial burden of the MCAT plus as a subgroup achieved a mean MCAT score surpassing the mean score of 501.8 among applicants and matriculants to US medical schools in 2016-2017 as published by AAMC.

Take-home Message: Results from the course indicate that a pilot subsidized MCAT preparation course for low-income high-potential students alleviates financial burden and improves MCAT scores.

9FF: Posters: Research and Evidence Based Medicine

Location: Hall 4.1, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

9FF1 (1746)
Preparing students for research projects: Exploring the gap between expectations and experienced learning during research projects

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Presenter:
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Background: Although much has been written about the structure and outcomes of medical students' scholarly projects less attention has been given students' expectations on such projects. If expectations are not aligned with the reality of supervision and research practices students' attitudes towards research and future career choices may be influenced negatively. In order to optimize teaching and learning activities and foster research-based curriculum development we aimed to compare students' pre-course expectations and assess which skills the students themselves felt the course had had the greatest impact on.

Method: A prospective cross-sectional questionnaire study. All students registered on a mandatory 20-week medical school research project course between 2011-2013 were e-mailed a questionnaire before and after the course. Of 652 students, 358 (mean 26 years; range 21-49; 63% females) returned both questionnaires corresponding to a response rate of 55%.

Results: Findings suggested alignment between expectations and learning outcomes with regard to ability to carry out a scientific project, to search and appraise the literature, furthermore also oral and written scientific communication and discussion, whereas there were discrepancies regarding research ethics and interprofessional collaboration. Differences in expectations did not correlate to gender, age or previous university degree but the youngest students (< 22 years old) reported they had improved in taking responsibility for their studies, and in evaluating their own development (p<0.001). Students with a previous degree showed less interest in doing research in the future than did those without a degree (p<0.001).

Conclusions: Understanding what students expect from research projects will help teachers bridge discrepancies between expectations and actual learning outcomes. Moreover, the impact of the course on generic skills was interesting and should be taken into account by teachers planning the curriculum. This may be particularly important for mandatory research projects since the students have varying levels of experience of, as well as interest in, research. Several practical recommendations were identified.

Take-home message: Students' expectations are valuable for strategic planning and evaluation of research project courses.

9FF2 (1835)
Facilitators and barriers of extra-curriculum research among medical students in Thailand: the student perspective

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Background: Research training is essential in a modern undergraduate medical curriculum. Undergraduate research in medicine is important to expose and encourage the students towards the newer advances and research practices. The present study aim to assess the perception of medical students towards doing extra-curriculum research, and identifying the facilitators and barriers faced by them.

Method: This cross-sectional study was conducted among 1st -6th years medical students at Phramongkutklao College of Medicine in January 2018. An anonymous online survey was designed to assess demographic data, perceptions, facilitators and barriers towards extra-curriculum research activity. Data were analyzed using STATA version 14.

Results: Of 606 students enrolled in the 2018 academic year, 486 (80.2%) responded the online survey. Of these, 11.5% had done extra-curriculum research while 58% expressed their interest in participating in research during studying in the medical school. However, a considerable proportion of students were not fully aware of the benefits of engaging in research. The student perspective were as followed; curriculum overload (51.4%), time constrain (47.1%), inadequate training/opportunities in research (46.1%), lack of interest in research experience (40.3%), lack of mentor guidance and cooperation (29.4%) and lack of motivation (27.4%). According to the students, perceived facilitators/motivation to undertake research included focus on pursuing higher degrees (52.9%), improving their potential in research skills (28.8%) and having mentor guidance/role model (27.2%).

Discussion: Thai medical students showed a significant interest in research, with a majority of the students planning to participate in extracurricular research activities during studying in the medical school, and having enthusiasm to be involved in research throughout their medical careers. Important issues have addressed by students i.e. decreasing the curriculum overload, more training workshops on research methodology, integration of research methodology into undergraduate curriculum as well as more research mentors and cooperation.

Conclusions: Medical education policies should aim to counteract the facilitators and barriers identified in this study to develop medical curriculum which is able to encourage medical students to put more enthusiastic about getting involved in research. Given the right support, medical students' interest in research can be successfully nurtured.

9FF3 (3419)
Revising an evaluation system for better impact assessment

Authors
Katherine Wang

Presenter:
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Background: The International Federation of Medical Students' Associations' (IFMSA's) Standing Committee on Research Exchange (SCORE) has provided over 1.3 million students the opportunity to experience research for over two decades. Our mission is to develop both culturally sensitive students and skilled researchers intended on shaping the world of science. Over 2500 students go on a research exchange each year to over 70 countries. After the exchange, each student fills an evaluation form assessing the exchange program academically and logistically.
Method/Results: Through evaluation forms, we gather data on how the research exchange impacted the students and their future in research. From our analysis of 2015 to present, using a visual analog scale from 1 to 10, 73% marked amount of learning as 7+, 73% reported 7+ motivation to do research and 61% reported 7+ usefulness to future scientific career. These results appear promising but it is difficult to assess whether these are a direct outcome of our exchange or to which extent our research exchange impacted these qualities, as the baseline of the student prior to the exchange is unknown.
Discussion: In order to better understand the direct impact of our research exchange on the students, we are developing a new system of evaluation involving both pre- and post-exchange assessment. Ten questions have been developed to evaluate if the student has gained knowledge, skills or been positively affected by the research exchange based on the goals and objectives of the research exchange program. The student will answer these 10 questions before and after the exchange, and the data will be analysed to determine the impact.
The new evaluation system will be implemented at the end of March, in time for the new exchange season. Data will be collected from the season and analysed to produce an impact assessment report.
Conclusions: Collecting impact through a pre-/post-assessment system will help us understand the direct effects of the research exchange program on the students and how we can use this to continue improving our exchange program for the best for our students.

9FF4 (3673)
An international peer-led research camp for medical students

Authors
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Presenter:
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Background: Research is a cornerstone in the development of medical science and the promotion of healthcare delivery around the globe. Unfortunately, medical students do not always have the opportunity to participate in a research project while in medical school. This might affect their understanding of the importance of research and ability to conduct their own research projects.
Method: As part of our efforts to facilitate research training for medical students, we have created a four-day peer-taught program where we systematically approach students in a stepwise fashion to introduce them to the basics of medical research. First, we present basic concepts that will enable students to read, comprehend and critically appraise a research study. Then, we familiarize them with essential methodological aspects to help them start designing their own studies. Finally, we brief them on how to publish their results in a peer-reviewed journal. The camp also includes journal clubs, open discussions, activities, posters fair, and a hands-on experience where students need to create a research project, present it at the end of the program, and appraise each other's work.
Discussion: The program is planned for late spring and our evaluation system includes both an objective part, where we use validated tools to assess students' knowledge prior to and after the training, and a subjective part that consists of surveys to investigate students' perspectives, attitudes and satisfaction. This international activity is a translation of several local projects conducted and led by medical students, and endorsed by professional external partners.
We believe that medical students are a vital force that can effectively participate in synthesizing evidence-based medical knowledge that can help to promote healthcare delivery worldwide. We also believe that building a generation of scientifically-oriented future physicians will help in battling the upsurge of public health threats that we are witnessing nowadays.
This research camp aims to expose students to the basics and significance of research at an early stage of their career in an attempt to boost the outcomes of their medical training and increase the impact that they impose on people's health.

9FF5 (2944)
"SciMo": a program to train medical students' competences to compete at scientific conferences

Authors

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Presenter:
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Background: Medical students should learn to critically appraise and feel motivated to actively contribute to medical research. Scientific work in terms of a master thesis is mandatory for all our students. However, medical students typically lack practical experience with the peer-review process and competences to present their work in abstracts and scientific talks. Therefore, we established the Science Month (SciMo) in which students not only improve their research skills, but also learn how to evaluate and present research data of their master thesis in a simulated research conference.

Method: The SciMo is part of the core curriculum for 5th year medical students in Basel. The SciMo-program includes compulsory as well as optional parts. Didactic formats range from lectures to small group tutorials to "one-to-one" coaching. Hereby students refine their master thesis abstracts, learn how to review abstracts and to present their work in a short and precise manner. A special electronic SciMo-conference tool was developed to anonymously distribute abstracts and collect reviews. All abstracts are published in an abstract book, printed by a medical publisher. Short presentations are held in small groups and evaluated by students and tutors. The best six presentations compete in a plenary session for three SciMo awards. An invited leader in medical research provides the SciMo-keynote lecture.

Results: Since its introduction in 2011, over 1200 students have completed the SciMo which is annually evaluated and updated. Over 90% of students appreciated the diversified teachings of the SciMo-program and deemed the training content useful for their future career. Students felt well supported to submit and present their master thesis at the simulated congress whatever stage they were at with their work (study protocols, collected data, completed analyses).

Conclusions: The SciMo fills a gap in traditional medical school curricula and provides an example of how medical students can acquire first-hand experience of a scientific congress fostering their competences and interest in medical research.

Take-home message: A program like SciMo provides a unique opportunity to make pre-graduate medical students familiar with research-based scholarly working.

9FF6 (517)
The Attitude of Medical and Pharmacy Students towards Research Activities: A Multi center Approach

Authors

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Presenter:
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Background: Positive attitudes to and opportunities for research activities with adequate provision of facilities and mentorship will equip medical and other health profession students for becoming future healthcare scientists.

Method: An anonymous, cross-sectional, self-reported online survey questionnaire was administered to medical and pharmacy students studying in various Asian and African universities through social media between May and July 2016. A 68-item close-ended questionnaire consisting of Likert-scale options assessed the students' research-specific experiences, and their attitudes towards scholarly research publications.

Results: A total of 512 questionnaires were completed, with a response rate of 92% from Asia and 94% from Africa. More pharmacy students (70.8%) participated than medical students (29.2%). Overall 52.2% of the pharmacy students and 40% of medical students believed that research activities provided a means of gaining respect from their faculty members. Lack of encouragement, paucity of time, gaps in research activities and practices, and lack of research funding were some of the most common barriers acknowledged by the students. A nonparametric Mann-Whitney test showed that a statistically significant difference was observed, in that more than 80% of the pharmacy students viewed scientific writing and research activities as valuable experiences ($p = 0.001$) and would like to involve their co-students in scholarly research activities ($p = 0.002$); whereas the majority of the medical students desired to be involved more in scholarly research publications ($p = 0.033$).

Discussion: The majority of the medical and pharmacy students in this study felt that publishing as a student would provide them personal fulfillment and a formative training experience, as well as regarding writing for publication to be a good experience; others claimed their mentors encouraged them to conduct research for publications. Cultivating and motivating student

participation in research activities in addition to their curricular coursework should be encouraged.

Conclusions: Pharmacy students had good attitudes towards research activities and a higher number of medical students desired to be involved more in research publications. Faculties may consider taking special research initiatives to address the barriers and improve the involvement of medical and pharmacy students in scholarly research activities.

9FF7 (3713)

Developing Interdisciplinary Student-led Initiatives against Antimicrobial Resistance in Primary Care: Protocol from the UK Primary Care Research Collaborative (UKPCRC)

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Background: Antimicrobial resistance is a growing issue in today's clinical practice in the UK and globally. Previous evidence from the literature suggest that 80% of antibiotics are prescribed in primary care .There is a clear need for more research in this area. Other medical fields have developed student-led collaboratives to help students and trainees improve research skills as well as recruit students into large-scale research projects, with considerable research outputs. However, there are none to our knowledge which have occurred in primary care till date and are led by interdisciplinary health students.

Method: We aimed to investigate the practicality of engaging health students in an interdisciplinary manner to audit and evaluate primary care antimicrobial prescribing for urinary tract infections across the UK. A pilot was undertaken in London, Manchester, Scotland and Wales to evaluate feasibility. The Royal College of General Practitioner's and Public Health England TARGET toolkit for documenting antibiotic stewardship was employed. Inclusion criteria consisted of cases of uncomplicated urinary tract infections in primary care as per electronic clinical coding over a defined time period. Students then completed the toolkit and evaluated their data against current national guidelines.

Results: Our initial findings suggest this project has capacity to be extended across a wider geographical region. We thus suggest the following protocol. We aim to recruit leads and students from universities across the country to extend this project. Each student would complete the above TARGET toolkit, completing approximately 40 documented urinary tract infections in primary care at GP practices. Data from all students across the country would then be analysed to evaluate antimicrobial stewardship patterns.

Conclusions: To our knowledge, this is the first known documented project of a student-led nationwide research collaborative in primary care. It is hoped that this project

will develop into a larger-scale sustainable initiative with collaborators across the UK, possibly providing the foundation model for a global Primary Care Research Collaborative.

Take-home messages: The UKPCRC was established in 2016 to engage students and trainees in primary care research

An innovative way for students and trainees to learn audit/research skills

9FF8 (3086)

Evaluation of medical students' attitudes to research opportunities

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Presenter:

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Background: Academic research provides foundations for modern medicine and it's essential for medical students to pursue them during their medical education. But, the available opportunities and supervision are variable; therefore, a formal pathway from medical school is necessary. To organise a formal pathway, it's important to understand the attitudes of students towards research and we aimed to ascertain by this study.

Method: 105 medical students attended the Barts and The London 7th National Undergraduate Surgical Conference, of which, 70 (66%) filled out an online questionnaire-based survey about research opportunities. Data was collected regarding demographics, previous research experience and exposure levels, intent to do research, challenges in obtaining and completing projects as well as confidence levels in various research skills.

Results: Student attitudes towards research opportunities and its associated challenges were explored. 90% of students stated that they were interested in research with variable areas of preference. 64% had approached someone with the intention of getting involved in a project, 56% got involved in research and only 46% of students completed their project. More than 90% of students felt that it was not easy to obtain a project, especially within the hospital setting. Furthermore, 55% students reported having difficulties with performing literature reviews and statistical analysis.

Discussion: The survey highlights that throughout all year groups, students find it hard to get involved in research projects. The biggest concerns were the perception of consultants, lack of timing and projects available and the challenge to finishing a project due to the students' limited knowledge.

Conclusions: Medical students at various career stages felt that it was challenging to get involved in a research project

due to various factors and it identified a definite need to develop a structured pathway to assist them.

Take-home message: It would be beneficial to medical students and doctors if there is a formal platform for students to access research projects.

9FF9 (2741)
A journey to improve students' awareness and competences in medical research

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Background: Medical schools are now aware that student involvement in scientific research is of value not only to broaden their scientific culture and complement their medical skills but also to increase postgraduate research productivity and the number of future physician-researchers.

Method: Being aware of a lack of research focus in the FMUL curriculum, two 5th year students asked DEM for their collaboration to design and implement a course based on a series of 5 thematic sessions plus a 'hands on' workshop on medical research fundamental topics. The objective of this study was to identify student course evaluation which, despite having been initially designed for a potential group of 20, ended up with 133 participants.

Results: After the course, students were asked to fill in an online evaluation survey, which response rate was 89%. The course appears to 'have exceeded' (67%) or 'met' (24%) the participants' initial expectations with only 9% reporting that 'they were not reached'. The relevance of sessions for the clinical practice was well recognised namely the 'Perspective of a Senior Researcher and a Young Doctor' (91%), 'Study design' (89%), 'Bibliographic search (hands-on-session)' (100%), 'Biostatistics' (86%), 'Scientific writing' (96%), 'Poster design'(88%). In terms of qualitative results, comments were globally very positive – 'excellence and diversity of contents', 'informative and useful course', 'good and accessible facilitators', 'innovative initiative that bridges School's Curriculum frailties' and 'very important practical component'. The need for more 'hands-on' sessions and 'more interaction with facilitators' seem to be the least positive aspects identified.

Conclusions: The unexpected attendance to this extracurricular course offered from 5.00 till 8.00pm, highlights the students' need for more information and skills regarding medical research. This course seemed to

have motivated students and make them feel empowered for the future growing demands of clinical research. Medical Schools must prepare students for basic/clinical research rather than simply asking for quality scientific work (for example a master thesis) without providing the necessary background knowledge and skills. Therefore Faculties must focus on promoting medical research throughout the curriculum, with an early start.

9FF10 (1407)
Developing an implementable Health Informatics curriculum for Otago Medical School – a new and innovative approach

Authors

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Background: Health Informatics (HI) is 'the study of design and application of technology-based healthcare service delivery, management and planning, with the aim of improving the quality and efficiency of healthcare services'. Doctors use HI everyday in clinical practice, most do not have training in HI skills. Our goal was to develop an implementable HI Curriculum for Otago Medical School. Our aim was to benchmark HI curricula in comparable medical schools.

Method: The websites of university medical degrees listed as eligible for registration to practice medicine with relevant country medical registration body in Australia (n=21), Canada (n=16) and the UK (n=32) were identified. The curriculum pages of the web-sites were reviewed, and data extracted regarding: 1. Declared HI courses, learning outcomes, teaching and assessment, and 2. Learning outcomes mapped to the 6 outcomes of a proposed medical HI curriculum.

Results: The website search found 78% (55/69) of medical schools have HI learning outcomes, but only 5% had HI as declared curriculum with dedicated learning time. 'Searching online information sources and databases' was the most frequently identified learning outcome (Australia 57% (12/21), UK 66% (21/32), Canada 63% (10/16)). An outcome related to 'Evaluating software and systems' was identified in 17% (12/69) of medical school curricula. Learning outcomes related to "Managing data and information" were most frequent in the UK medical schools (72% (23/32)), but less frequent in Australia (33% (7/21)) and Canada (38% (6/16)). The remaining three objectives (Knowledge Engineering and Decision Support, Communication and the Internet, and Data security and Confidentiality) were found in 14% - 44% of medical schools.

Conclusions: Declared HI curricula are infrequent in medical schools in Australia, Canada and the UK. While some HI learning outcomes are included, many curricula

have an absence of specific HI learning modules. Identification of components of an HI curriculum relevant to the current health environment is a high priority, along with practical means for implementation. Frequent curriculum revision may be required to keep pace with emerging technologies.

Take-home message: Medical educators should reflect if their HI curriculum is sufficient to equip future doctors for the modern health care environment.

9FF11 (2988)
Implementing health informatics in undergraduate medical curricula in leading medical schools in the Americas - not an easy task

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Presenter:
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Background: Medical graduates may not be adequately prepared for the modern challenges in health informatics implementation as medical education has barely added competencies matching the changing pace of today's technological world. This paper evaluates the integration of health informatics within medical curricula amongst leading medical universities in North and Latin America. As the region's leaders, these medical universities set the trend for other schools and the medical landscape to adapt towards the changing clinical environment.

Method: Online curricula offered from the top medical universities in North and Latin America according to QS World Ranking were examined for the presence of health informatics as an explicit component of the curriculum. The initial search identified courses meeting this definition. The data collected was consequently submitted to qualitative analysis.

Results: In North America, nine out of the ten top universities had at least one health informatics subject. Of these nine universities, six of them made those courses mandatory. By contrast, seven out of the ten leading Latin American universities had a health informatics course with only one university making the course mandatory.

The incorporation of Health Informatics subjects in North American universities is high. As North America sets the trends, Latin America would follow and include health informatics in their medical school curricula. However, the importance of those competencies is underestimated in America and aren't developing as quickly as the market itself. Beginning health informatics education during core medical education reduces resources necessary to train clinicians with emerging tools and processes. This

simultaneously provides opportunities for quick adoption of the changing health information technologies and reduces the burden of specialized training needed.

Conclusions: Although medical education is evolving to embrace recent development of health informatics, the movement hasn't yet fully rooted itself in top medical schools in Latin America. Medical curricula from other universities to evaluate the real impact of the health informatics deficiency in the Americas for further review is required.

9FF12 (2050)
Talking to physicians may help to motivate medical students to study Evidence Based Medicine

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Background: Evidence Based Medicine (EBM) is the reasonable use of scientific evidence in healthcare decision making. In a world with an overwhelming amount of information, EBM turns to be a synonymous of good medical practice and the need to incorporate its teaching to medical formation is clear, although still a challenge.

Method: The present study is a report of a teaching experience. First year students of Federal University of Health Sciences of Porto Alegre (UFCSPA) medical school were stimulated to make an interview with a graduated physician in order to understand the matter of EBM for medical practice and stimulate its learning.

Results: Students performed 52 interviews. All interviewees were unanimous in stating that EBM is very important in their current medical practice. Twenty-two said that they undervalued methodology and biostatistics when they were in medical school, and 30 suggested to the students that they should value EBM since beginning medical school.

All of the interviewed physicians said that knowing how to read scientific papers is important for them to keep updated and to have developed critical reasoning. The students were motivated by these interviews to value concepts that they consider very distant from clinical practice when they begin medical school.

Conclusions: Although the importance of methodology and biostatistics is clear to EBM, medical students undervalue those disciplines, which poses difficulties to their learning. Listening to professionals who use EBM in a daily basis in their practices helps to contextualize its importance.

Take-home message: Practical activities to motivate students may help to contextualize the importance of EBM in clinical practice.

9FF13 (380)
Can clinically integrated teaching help in assessing students' skills in applying evidence based medicine in clinical decisions?

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Venkat Hariharan
Ann Howard

Presenter:
Peter Thomas, UK

Background: The University of Buckingham Medical School is integrating Evidence Based Medicine (EBM) teaching as a longitudinal theme into its MBChB curriculum. While studies have evaluated whether EBM teaching can improve skills, knowledge and attitudes in medical students; there is lack of evidence on whether EBM teaching is effective in changing clinical practice or if schools can assess students' application of EBM knowledge and skills in clinical decisions. The aim of this study is to test the feasibility of integrating EBM teaching in clinical rotations and assessing students' skills in applying EBM in clinical decisions.
Method: In addition to EBM teaching in the pre-clinical phase, it has also been integrated into the clinical phase in primary and secondary care. Public Health team alongside clinical leads offer teaching in the form of interactive, clinically integrated small group seminars. Students are asked to complete a formative assessment where they develop answerable clinical questions from ward rounds and interactions in primary care; search and appraise evidence and then discuss the relevance of evidence to clinical practice. Students complete the assignment and present them in public health grand rounds.
Interviews and focus groups were held with clinicians (n= 8) and students (n=29) in order to gather perceptions of integration of EBM teaching and assessments into clinical placements.
Results: EBM teaching in the clinical phase has made it possible to assess students' ability to apply it in clinical decisions. Students' feedback suggests that they find the reinforcing of EBM teaching during clinical placements very helpful in appreciating its relevance to clinical practice. Clinicians are keen to further integrate EBM teaching and assessments into clinical placements in undergraduate medical curriculum.
Discussion & Conclusions: A clinically integrated teaching can encourage students to apply EBM in clinical practice. Clinicians play a central role in integrating EBM into the clinical phase of undergraduate medical curriculum.
Take-home message: Evidence Based Medicine teaching is quite effective in teaching students its relevance to clinical decisions when it is clinically integrated. It is feasible to formally assess students' application of EBM knowledge in clinical decisions.

9FF14 (1156)
Educating Healthcare Professionals in Clinical Photography. A perspective from medical education: Systematic Review

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Presenter:
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Background: Medical photography is not only crucial for disease diagnosis, patient follow-up, clinical communication, but also for medical education, research, and scientific documentation. In the past, it required a high level of technical skills. However, over the last years, due to the widespread use of 'smartphones', it has never been so easy to obtain medical images in professional environments. As a consequence, it has become a rising, complex and controversial issue worldwide which, as a recommendation, should see healthcare professionals acquire knowledge in medical photography during their training.
Method: We investigated for competences to train medical students in clinical photography. Methods for qualitative data collection included a PRISMA protocol for systematic review. Articles published from 2013 to 2017 were identified according to predefined inclusion and exclusion criteria in six databases (MEDLINE/PubMed, SCOPUS, Web of Science, ERIC, CINAHL, and Embase).
Results: 14.811 potential studies were initially found, of which 30 were included. This review identified essential competencies and, fundamentals needed to face current challenges in medical photography. Including current technology, existing standardized protocols for research, surgery, dermatology, forensics, and clinical trials. Also guidelines in relation to smartphone publishing of medical images and, evolving issues and legal perspectives, comprising patient's perception and rights governing privacy and copyright requirements when obtaining and publishing clinical pictures.
Discussion & Conclusions: The impact of assembling ICT and photography on 'smartphones' has been enormous for medical photography. The time-reduction in obtaining images, the low-cost of reproducing them and the ease of sharing photographs have increased the capture of clinical images but also their inappropriate management. Therefore, it's strongly recommended that students are advised and trained in clinical photography. Being necessary to take into account the diverse cultural, ethical and legal aspects and the wide variety of Journals publication's criteria. It is said that 'a picture tells 1000 words', but in the case of medical photography, this statement can only be true if the photographer's skills in taking high-quality clinical photographs are achieved and the patient's rights are respected.

Take-home message: We encourage implementing educational programmes in medical photography. Our course is constantly evolving since 1993.

9FF15 (2539)
Evidence-Based Practice Curriculum Development for Undergraduate Nursing Students

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Background: Equipping undergraduate nursing students with sufficient competence of Evidence-based practice (EBP) is essential for meeting the demands of future practice. Systematically integrating necessary EBP knowledge and skills into the formal curriculum allows students to have a better learning experience and outcomes. In Taiwan, however, a systematic nursing curriculum that integrates EBP concepts across a 4-year program has not yet been constructed. Additionally, engaging students in the clinical application of evidence remains a teaching challenge.
This study aimed to construct an EBP undergraduate nursing curriculum and develop clinical scenarios that support EBP teaching.
Methods: Three cycles of action research, incorporating both focus group interviews and questionnaire surveys, were applied to construct and evaluate the appropriateness and feasibility of the EBP nursing curriculum and relevant teaching strategies.
Results: An EBP nursing curriculum was constructed, integrating three levels of learning objectives and corresponding learning outcomes, teaching content and learning activities. Scenario activities were developed to familiarize students with the EBP process and maximize their learning of the clinical application of evidence. Through preliminary evaluation, the curriculum's appropriateness and feasibility were demonstrated, and was found to successfully fostered students' EBP competency and increased students' confidence and positive attitudes toward EBP.
Conclusions: A systematic EBP bachelor nursing curriculum with effective pedagogical strategies was developed, the process of which and the information provided could serve as a valuable reference for other nursing schools.

9GG: Posters: Patient Safety / Patients as Educators

Location: Hall 4.u, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

9GG1 (3715)
Improving final year medical students' knowledge in, and confidence of, patient safety incidents

Authors
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Presenter:
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Background: Undergraduate patient safety education typically focusses on ethical quandaries and human factors. This leaves a gap in knowledge regarding the practicalities of reporting incidents, basic governance surrounding serious incidents (SI) and what happens if you are an involved in an SI as a junior doctor. This project intended to increase knowledge of patient safety incidents and confidence in dealing with an SI in the early years of a medical career.
Method: This project used qualitative improvement methods to achieve its aims. Final year medical students completed surveys on their confidence in (using 1-10 likert scales), and knowledge of (using MCQs), patient safety issues before and after a tutorial. This tutorial focussed on why incidents are reported, who can report them and what happens if you are involved in a serious incident as a junior doctor. The tutorial was later redesign based on student feedback and the same data was again collected.
Results: Pre- and post-tutorial surveys were completed by 29 students. Of this group all had "heard of" incident reporting, 2 had been involved in an incident and 3 had received prior teaching on SIs.
After both the tutorial (intervention 1) and the second version of the tutorial (intervention 2) the number of students using the word "Datix" when describing how to report a patient safety incident, the number of correct responses to why incidents are reported, the ability of students to correctly identify SIs from non-serious incidents all significantly improved. After both intervention 1 and intervention 2, students' confidence in reporting incidents, knowing why we report incidence and their overall preparedness in dealing with an SI all significantly improved.
Conclusions: The programme was effective in increasing student's confidence in all areas of patient safety incident reporting that were measured. The programme was also effective in increase knowledge in almost all areas of patient safety incident reporting measured. The small sample size (n=29) of this project limits its generalizability. The number of questions on the survey was also small.

9GG2 (657)
Active learning instructional strategies for patient safety education

Authors
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Presenter:
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Background: Active learning which involves active participation of students have evidenced to get better student attitudes and promote higher order thinking. Using active learning instructional strategies and WHO patient safety curriculum with toolkits were implemented for patient safety education to improve safety competencies in everyday life of medical students.
Method: Different active learning methods were conducted for forty fourth year and thirty-one fifth year of medical students with topic 1-7 of WHO patient safety curriculum in academic periods within two years. Time schedule instructed four periods (topic1-4), four periods (topic5-9) and one period (topic10-11) in the fourth, fifth and sixth year with two hours each period.
Results: All medical students had participated activities such as paired activity for practice communication (Situation-Background-Assessment-Recommentation and Handover), competitive between groups for recall unsafety conditions, workplace based for human factor engineering survey in OR, OPD and wards, small groups discussion for scenario and video of adverse events to stimulate system thinking in Swiss Cheese Model, role play of adverse events in video clip for incident report practice and projects for quality improvement concepts. Immediately after class review, the contents which medical students mainly preferred to apply in their everyday life were Swiss Cheese Model, SBAR for communication and incidents reports.
Conclusions: Active learning instructional strategies help intentional engagement of medical students to get experiences what we want them to learn. Medical students could develop deep understanding of patient safety concepts that experiences make the concepts increasing clear. Active learning instructional strategies requires becoming involved the activities of medical students both physical and psychological energy lead to limit in group larger than 40. We have some level of risks to concern that we can't cover as much course contents and much pre-class preparation of both teachers and students.
Take-home message: How to assess and maintain safety competencies of medical students in everyday life until after graduate. We should design varieties of active learning activities with modest expectation.

9GG3 (2004)
Patient safety learning: A gap-analysis project to create solutions/innovations in the corporate Obstetrics and Anesthesiology module

Authors

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Presenter:
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Background: In view of the emerging importance of integrating the awareness of patient safety into medical curriculum, project-based learning was initiated allowing 5-year medical students to perform gap analysis to tackle issues on patient safety during the corporate Obstetrics and Anesthesiology module.

Method: The 9-week corporate module first started with an interactive 1-hour lecture on patient safety, before students were divided into groups of 5-7 people. Students chose the problem they had encountered during their daily practice, root-cause analyzed, and created either solutions or innovations to solve the problem. The students were scheduled to meet with their supervisor along the course and presented their work when completed the module. Assessment was done by supervisor, peer, and audience (lecturer, other personnel) feedbacks regarding their responsibility, creativity, systematic thinking, and practicality.

Results: There were 24 (16 obstetrics, 8 anesthesiology) unduplicated individual projects according to the SIMPLE guideline developed by the Thai national standards. Safe surgery (S) followed by care process (P) and medication safety (M) were the most selected issues. There were also projects concerning emergency response (E), for instance, one group chose to improve intra-hospital patient-transfer system. All projects were evidence-based which were systematically analyzed under supervision. Various solutions/innovations were existing which many can be practically applied to use. Open discussion at the final presentation was also useful.

Discussion: Students reported the benefits of the project in variety of dimensions both medical and non-medical related. Medically, students got to interact with other medical professionals enhancing their understandings and relationship. Besides, it was an avenue to learn to plan critically and execute actions constructively. Additionally, students got to ignite their creativity, something not usually found in a medical curriculum. Furthermore, the evidence-based process was systematic used by student group.

Conclusions: A project-based learning appropriately suits the patient safety education in order to enhance student awareness and ignite their creativity. Students are also able to systematically work as a team and experience inter-professional learning.

Take-home message: Patient safety education can be organized as a project-based learning and can develop various students' skills.

9GG4 NOT PRESENTED

9GG5 (1767)
Self-assessment of safety practices in students attending the Inter-Professional Education (IPE) for Patient Safety Course

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Background: An "Inter-Professional Education for Patient Safety Course" was arranged for the 6th year medical students, the 4th year nursing students and the 5th year pharmacy students. Groups of 12-13 students and 3-4 faculty staff were set. The activities composed of a half-day workshop, project-based learning and presentation, with the contents based on the WHO Patient Safety Curriculum Guide, multi-professional edition, Thai Patient Safety Goals, and Rational Drug Use Handbook.
To evaluate the safety practices among students attending the IPE for Patient Safety Course.

Methods: At the beginning of the workshop, all students had to engage in a self-assessment questionnaires, using electronic keypads. Nine aspects of safety practices were rated from 1: never done, 2: 50% done, 5: 100% done.

Results: A total of 399 students (44.4% medical students, 36.8% nursing students and 12% pharmacy students) completed the survey. Eighty percent were between 21-24 years old, and 65% were female. Most of the student (89%) had learned about patient safety. The top three rankings of always having practiced were checking drugs before prescribing or administering (53.4%), asking the patient's first name and surname (48.1%) and wearing a face mask when having a common cold (43.1%). The practice that was never performed, in highest orders, was checking the inpatient's wristband (17.3%), followed by speaking out at the detection of a medication error (14.5%) and checking drug interaction (10.3%), respectively. Comparison among the faculties, nursing students had significantly higher percentages of practice in; self-introduction, patient identification, hand washing, face mask wearing, and drug checking before administration. However, pharmacy students had the highest practice in; checking for drug

allergies and interaction. Medical students showed the highest practice in speaking out of a medication error.

Conclusions: Student safety practices were quite low for the checking of an inpatient's wristband, speaking out of a medication error, and checking drug interaction. Each profession had different strengths and weaknesses in safety practices, so the IPE might help to improve their competency.

Take-home message: Safety practices were inadequate in some aspects, and varied among each profession.

9GG6 (961)
Introducing a Structured Medication Reconciliation Practicum in Final Year Medical Education

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Background: Medication error can occur when patient is transferred between cares which imposes risk to patient safety. Medication reconciliation is important to minimise such errors but is rarely incorporated in medical education. Medical students usually learned this during clinical rotations which might not support safe prescribing. This study proposes to incorporate an interactive medication reconciliation into the medication safety curriculum for medical students in Singapore.

Method: The medication reconciliation practicum was introduced for final year medical students in October 2017. Medical students were required to pre-read materials with information and tips on how to perform an accurate and comprehensive medication reconciliation. Team-based learning was applied and co-facilitated by clinician and pharmacists. Students took turns to role-play as patient, doctor and observer over 3 scenarios. At the end of each 10 minutes session, observers would provide peer feedback and each group was asked to write a prescription before the Pharmacists' debrief. All students were asked to complete a pre- and post-survey to assess their understanding as well as the effectiveness of the lesson.

Results: Fifty final year medical students participated in this study. There was no statistical significance between pre and post survey results on their understanding of performing medication reconciliation (p= 0.78, SD=1.54). This could be related to the e-learning and clarifications made before the role-play. On a 4-point Likert scale, students found that the course materials were essential (3.47). In terms of learning, they were able to relate each of the learning objectives to the learning they achieved (3.59), agreed that ample opportunities were given to practice the skills (3.52) and able to apply what they learnt immediately (3.47). Most students reflected that this lesson reinforced the importance of medication safety.

Conclusions: The medical reconciliation lesson was well received. Incorporating an interactive medical

reconciliation lesson co-facilitated by clinicians and pharmacists allows the medical students to practice in a safe environment. It also teaches medication error which is currently lacking in the undergraduate medical curriculum.

Take-home message: Medication reconciliation practicum is important for medical student allowing them to practise and learn in a safe environment.

9GG7 (848)
Can trainee doctors refuse to work in unsafe conditions?

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Background: The conviction of manslaughter by gross negligence and subsequent revocation of a paediatric trainee's license to practice by the GMC has sent shock waves through the medical profession and education community in the UK. Dr Bawa-Garba was working in a severely understaffed paediatric department without consultant support where a six-year-old patient died of sepsis. A medical tribunal found that she was covering the workload of 3 other doctors, there was a serious IT breakdown at the hospital and the patient was looked after by an adult nurse due to staff shortage.

Method: Following concerns about the impact of this case on trainees, the GMC has issued guidance for doctors who find themselves in unsafe working conditions. It states that trainees must raise concerns about safety with their senior colleagues and healthcare managers with clear documentary evidence to show that this has happened. This paper explores the implications of this guidance for doctors in training and evaluates the ethical justifications of refusing to work in unsafe conditions.

Results: The moral objection to refusing to work is that doing so would put patients at risk of harm. It breaches doctors' contractual responsibilities and damages their relationships with patients and the public at large. The counter arguments state that it would lead to greater long term good for the patient population and doctors have a legal and moral right to refuse to work in conditions where safe patient care is not possible. They emphasise the principle of primum non nocere (first, do no harm), and the risk of civil or criminal action if harms occur to patients under their care.

Discussion: It would be difficult to extend common moral objections, historically developed for doctors' strike, to this novel contemporary context.

Conclusions: The risk of greater harm to patients and the increasing threat of litigation and prosecution would make it unsustainable to restrict, completely or even partially, a doctor's moral right to refuse to work in unsafe conditions.

Take-home message: It is both ethically justifiable and necessary to refuse to work in unsafe conditions within a clear agreed framework.

9GG8 (379)
Coroners Case Compendium

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Background: To review the Coroners decisions of clinical cases within our trust, and to present the learning points raised so that we may improve the care we deliver.
Method: We initially selected a small case series that was representative of a broad spectrum of commonly encountered clinical problems. We reviewed the notes from both a medical and legal perspective, and presented a summarised medical and legal view of each case –with additional references for further reading where appropriate. New cases will also be included as and when they are concluded. The cases will be uploaded to a web tool so they are easily accessible to both clinical and managerial hospital staff.
Results: Initial review of the project suggests an appetite for such an educational tool amongst clinicians. A survey of junior doctors suggested the following headings would provide the information of most interest: Story; Outcome; Medical Comment; Legal Comment and Further Reading, we have also chosen to include the additional heading of Organisational learning.
Discussion & Conclusion: The review of the Coroners cases from within the trust has proven to be a valuable resource of knowledge for hospital clinicians and managers. The cases have highlighted common problems and of equal use presented both medical and legal advice on how to avoid similar problems in the future, this we trust will prove invaluable to improving patient care. Further data collection remains ongoing and additional feedback from doctors and managers is being sought to ensure the case reviews retain the brevity essential to ensuring they are read, and yet remain comprehensive enough to remain of value. All the information is in the public domain, and as such this learning tool could easily be made accessible nationwide. We would hope this project will also assist the NHS to meet the recent guidance from both the Care Quality Commission and the National Quality Board on learning from deaths within the NHS.
Take-home message: Legal cases represent a previously under utilised wealth of knowledge that we must embrace as an educational tool to help drive forward care.

9GG9 (787)
Instant web and apps-based access to practical and procedural information improves patient safety and reduces adverse incidents by interns

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Background: The transition from medical student to a frontline medical worker, not only requires competencies in numerous generic medical procedural skills, but an increasing burden of responsibility for the care and safety of patients admitted under the supervising team. With a perpetual shortage of hospital beds and an ever-increasing clinical workload, the pressure to complete work on time, requires quick action on the part of the junior-most staff in the hierarchy – namely the interns. Consequently, the reduced time available for completing procedures and administrative duties may translate to reduced efficiency and adversely towards patient safety.
Method: A series of web-based and apps-based educational resources were developed for junior interns and doctors to use for quick access to important information and administrative practices related to procedures. These eLearning resources addressed key procedural steps that covered patient safety. An obligatory built-in self-assessment exercise ensured that all interns had access to the resource provided they reached competency on the assessment. Over a period of 5 years 1936 interns made use of the resources.
Results: Focus group interviews of 2 successive batches of CUHK interns (n= 220) revealed that 80% of interns were highly satisfied with the educational resources provided. They believed that the resources were available as and when needed and provided a useful reference. Guidelines embedded within the resource ensured administrative compliance. The education resource had a positive impact on patient safety. A 30 % reduction in prescription errors, a 50% reduction in transfusion errors, and a 50% reduction in specimen mislabeling and other identification errors was reported.
Conclusions: Just-in-time resources have a positive impact on user behaviors. Health-care is no exception. The use of APPS and the ever-increasing use of mobile devices enable us to place useful tools and reference that junior doctors could use in their daily practice. The challenge NOT to overwhelm them with information needs to be addressed. One possible means of doing this would be to embed NFC-interfaces at the site where procedures are being conducted to deliver safety and procedural requirements as a ready reference.

9GG10 (1236)
Speak Up, For Patient's Sake! Empowering Students and Staff with Interprofessional Communication and Teamwork Tools to Improve Patient Safety

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Background: The National Academy of Medicine and other reports depict alarming medical error statistics in the U.S. healthcare systems. These statistics have been attributed to poorly coordinated care and systemic problems in healthcare delivery. Contributing to this problem is inadequate communication. To address this issue we developed a patient-centered Interprofessional Collaborative Practice (IPCP) model of care that focused on interprofessional communication for third-year medical students, PA students and postgraduate interdisciplinary staff. Our goal was to empower learners with tools to more effectively communicate within interprofessional teams to improve patient safety.

Method: The setting for this experiential learning is a high acuity inpatient hospital unit. We designed and piloted a program that incorporated TeamSTEPPS tools and interdisciplinary bedside rounds to introduce students and staff to the role communication plays in patient safety. The interprofessional training focuses on the critical nature of communication and its impact on safety with the goal to empower learners with tools to confidently assert a safety concern, resolve conflict and coordinate care plans with interprofessional teams.

Results: To assess the program, we used questions from the Assessment for Collaborative Environments (ACE-15), TeamSTEPPS-Teamwork Attitudes Questionnaire (T-TAQ) pre and post training, and qualitative debriefs. Collected data revealed that during interdisciplinary rounds, 97% of the 25 respondents reported feeling safe bringing up patient concerns; 87% reported the team constructively manages disagreements; and 84% reported all voices on the team are valued. T-TAQ data is in the process of analysis.

Discussion: Students reported they had not considered how critical a role communication plays in patient outcomes and felt that interdisciplinary rounds provided accountability for the medical team to provide safer care plans. By empowering learners with communication tools, providers are better equipped to advocate for their patients, resolve conflict and develop coordinated care plans.

Conclusions: Fragmented care is a byproduct of learning in silos and task-oriented training. While there are many safety mechanisms already in place, effective communication is at the core. Training within this unique setting has proven to be viable, well received, and effective.

9GG11 (2080)
Learner-centered scenario design enhances psychological safety of workplace for novices in critical care unit

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Background: From the past experiences of Novice training, the evaluation standard is mostly focusing on single technical practices and tests. However, the training is not practical for the trainees to perform in the clinical practice nowadays. The lack of confidence caused by incomplete training may seriously impact trainees nursing ability, and in the long term the turnover could be much higher.
Therefore, in order to assist the trainees to perform better in the high pressured work environment, we develop a simulation training that is centered by the trainees and focusing on develop their sense of confidence and security after they finish their basic clinical technical Novice program.

Method: A simulation training is designed for the trainees who are already finished their basic training in respiratory critical care unit. It is designed for nine trainees who joined the program, and to evaluate not only by the trainers but also by the trainees themselves during the simulation process, and provide practical feedback after the training completes.

Results: In this training, the gap between the evaluation of trainers and trainees is very close. Most of the feedback from trainees are suggested that the lack of practical experiences can be made up by the simulation program, and they can build a stronger confidence when they face the patient.

Conclusions: Most of novice training are lack of the ability to integrate different situations. A simulation training that is closed to what is going to happen in the reality allows the trainees to have the opportunity to practice more, and by using the self-evaluation form, they could find out problems and difficulties. The result indicate that compared the new simulation program with the old one, most trainees are likely to have enough confidence to

cope with the emergencies, and overall elevates the result in terms of clinical nursing.

Take-home message: In order to decrease the stress of the novice in the clinical environment, we provide a simulation program that is focusing on trainees themselves after they have the basic clinical technical training to enhance the sense of security and reality.

9GG12 (3102)
The Interdisciplinary Patient Partner Program: Building Better Health Care Professionals through Mentorship with Patients

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Background: Patient and family centered care (PFCC) is a philosophy of care delivery. PFCC promotes collaborative empowering relationships among patients, families, and health care professionals. The four pillars of PFCC include information sharing, participation, respect and dignity, and collaboration. To teach concepts in PFCC, the healthcare organization's Client and Family Centered Care department partners with the College of Medicine, Pharmacy, and Nursing to match students with patient and family advisors.

Method: Students and Patient and Family Advisors are surveyed after participation in the 10-hour program. Ethics exemption was received (n=30) and advisors (n=14).

Results: Students reported a mean satisfaction score of 4.50 on a scale of 1 (Not at all) to 5 (Very much) (SD = .58). Students also completed the 9-item Attitudes Toward Patient and Family Centeredness Scale. Paired samples t-tests were conducted to gauge perceived increases over the program. Effect sizes (Cohen's d) were calculated as a practical measure of significance. All items increased significantly with large effect sizes. Families were satisfied with the program with a mean rating of 4.80 (SD = .42) on a scale of 1-5, with higher scores reflecting greater satisfaction. Comments from students and advisors will be presented.

Discussion & Conclusions: When medicine, pharmacy, and nursing students meet directly with Patient and Family Advisors they experience a positive shift in attitude towards the meaning of Patient and Family Centered Care and learned about the inter-dependencies between health care professionals and the importance of and interdisciplinary approach to health care. Many students commented on this as an added benefit to the structure of the program. Patient and Family Advisors highlighted the importance of sharing stories and exploring them through dialogue with the students as a key factor in the success of the program.

Take-home message: Matching medicine, pharmacy and nursing students with Patient and Family Advisors is an effective way to improve students' understanding of Patient and Family Centered Care.

9GG13 (2058)
How "Patient Centered Medicine" helps medical students get clinical competencies in Medical Education Center, Vachira Phuket Hospital

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Background: The term "Patient centered medicine" means that physicians have to understand the individual patient to diagnosis both disease and illness. As we know, education in medical schools focuses mainly on biomedical subjects but less on soft skills (communication skills, professional values, humanistic attitudes). The main aim of this study was to assess the clinical competencies of medical students after practicing patient centered medicine.

Method: Observations by a teacher of the medical students care of patients and deep interviews were performed in 24, 4th year medical students. Sequentially, questions about the following topics were asked; ideas, feelings, reflections, and what clinical competencies got better. The interviews were recorded and analysed using the qualitative SCAT method.

Results: Medical students developed better processes of caring for the patients; explored both disease and illness, technique of communication skill, family oriented care and holistic care. Their attitudes after practicing patient centered medicine were very impressed; they understood a doctor who works in communities, they understood themselves, they understood patients, they realized their own competencies for development, and got real information and better compliance from patients. They thought patient centered medicine is the key to successful care for patients nowadays.

Communication skills and holistic care were performed well and all 4th year medical students developed positive attitudes and opened their minds to understand others. Medical schools can help with this by creating this subject in their curriculums. Medical students should learn all of these skills because they are essential.

Conclusions: Patient centered medicine should be added to the curriculum of a medical school with reflection. Medical students should be given an opportunity to practice for more experiences and confidence in these skills as early as they can. Additionally, medical students can further their development by adding soft skills and good attitudes to their overall practice.

9GG14 (394)
Can narrative help bridge Patients', Caregivers' and Physicians' experiences of illness and care? Results from a scoping review

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Background: Patients, family caregivers and physicians tell different stories about illness and care experiences. Better understanding of the relationships among these narratives could offer insight into intersections and disconnections in patient, caregiver and physician perceptions of illness and care. Such understanding could support enhanced patient-centred care in medical education and practice.
Method: We conducted a scoping review of literature that analyzed narratives of illness and care written by at least two of our interest groups: physicians, patients and caregivers. A search strategy involving 9 databases located 6,337 citations. Two reviewers independently screened titles and abstracts. Full-text screening followed (n=82), along with handsearching of grey literature and bibliographies. Of these, 22 met inclusion criteria.
Results: Most of the 22 papers analyzed narratives by patients and caregivers (n=13), followed by patients, caregivers and physicians (n=7), and patients and physicians (n=2). Only 9 pieces compared perspectives. The rest combined narratives for analysis, largely those of patients and caregivers (n=12). Most of the 22 papers used descriptive content analysis to derive themes. Themes of humanity, identity, agency and communication intersect and diverge between groups. What was absent, however, was a more interpretive narrative analysis of structure, orientation and characterization within these narratives, which may have revealed even more than their content. This review offers a cautionary tale of lost potential and a call for the power of narrative and narrative analysis as an interpretive method. Many narratives are gathered and analyzed, but usually only thematically and rarely comparatively. Comparative narrative analysis may enrich understanding of how differences between perspectives come to be and what they mean for the experience of illness and care.
Discussion & Conclusions: Through narrative, we can understand not only the diverse and divergent experiences of others, but also the process of meaning-making behind the storytelling. Future research that aims to compare written reflections across groups should draw on analytical techniques of narrative inquiry. Narrative is a powerful tool that offers something distinct, and we call for researchers to explore and exploit that distinctiveness through a more robust use of narrative inquiry in the field.

9GG15 (1444)
Medical students' roles and functions within the longitudinal relationship with patients – from the perspectives of patients

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Background: One of the primary goals of undergraduate medical education is to prepare the graduates who exhibit the attitude and ability of patient-centered care. The foundation of patient care is the ongoing partnership between patient and health provider. However, the relationship between patient and medical student is short and fragmented in the framework of discipline-based rotational clinical training. The principles of longitudinal integrated clerkship (LIC) are continuity of care, curriculum, and supervision. This study explored the patients' perspectives of the LIC students' roles and functions in the base of continuity of care.
Method: Patients who were cared longitudinally by the LIC medical students were invited to participate. The data was collected by a trained research assistant with a semi-structured interview in person or over the telephone. The researchers thematically analyzed the transcribed verbatim using a general inductive approach to identify themes in patient's descriptions of their experiences interacting with medical students.
Results: The results of the analysis revealed three significant roles of students in the longitudinal integrated clerkship: friends of the profession, caretakers, and learners. The major interactions between patients and students identified in this study were students' comforting and consulting. Patients felt warmness from students' comforting. Through communication apps of handheld devices, patients felt much easier to access health advises. With support from attendings, patients recognized the student's assistive roles in care. And patients and students learned simultaneously during the processes of consultation: patients got health education or care and students learned communication skills and experience of care. Interviewed patients had high satisfaction with this program.
Conclusions: The LIC students could establish a longitudinal relationship with patients. This link was not like the disease treatment relationship between attendings and patients. From the patient's perspective, the roles of medical students were more like learners and friends of the medical profession. Therefore, what the patients expected the students learned from this

relationship were empathy and doctor-patient communication, not only medical knowledge and skills.

9GG16 (1599)
Evaluation and Impact of Patients' Feedback on Allied Health Students

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Background: Effective feedback is key to students' clinical learning and performance (Turan et al., 2009). Receiving patients' feedback can allow students to understand the patients' values and improve on their own clinical and communication skills.
This study aims to:
• evaluate the patients' feedback on Allied Health students and its usefulness for the students; and
• discuss the implications on clinical training.
Method: A cross-sectional study was carried out through face-to-face interviews with patients visiting the Department of Rehabilitation or University Medicine Clinic (UMC) from 28 Mar 2016 to 29 Dec 2017. The questionnaire contained seven (7) sections that surveyed the patients' viewpoints of the students.
The clinical educators of Physiotherapy (PT), Occupational Therapy (OT), Speech Therapy (ST) and Psychology (Clinical) [CP] students identified coherent patients who were able to provide comments. At the end of the posting, students evaluated the usefulness of the patients' feedback in their learning.
Results: 137 patients participated in the survey voluntarily and 100% were satisfied with the treatment received from the students. Constructive qualitative comments, both positive and negative, were received.
While there were patients who felt that students were patient and professional, others felt that some students lacked confidence. With the patients' constructive feedback on their performances, students opined that they were able to obtain insight into the patients' values, how to treat them better and improve on their communication skills.
Discussion: There is a common perception that patients are unaccepting of students and their treatment. However in this study, we have shown that 100% of the patients surveyed were satisfied with the treatment received from the students. Together with the encouraging comments provided, these has helped to boost the confidence in the students.
Conclusions: This study will continue in AY18/19 as the questionnaire is enhanced to survey the patients' perception of having Allied Health students as part of the healthcare team.
Take-home message: Patients provided constructive feedback on the Allied Health students, which the latter found useful. Students were able to improve their communication skills, clinical performance and overall confidence.

9GG17 (924)
Evaluation of an Online Education Resource on Radiation Therapy Created for Post-Prostatectomy Prostate Cancer Patients and their Caregivers

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Background: We created an online program for patients with prostate cancer considering post-operative RT and their families or caregivers.
Purpose: Evaluation of effectiveness of this program and assesses the use and reach
Method: Survey evaluation process using Purpose-based Information Assessment tool
Results: Nineteen patients and caregivers participated in this study. Of these, 14 agreed to participate, and only five completed the study (36% response rate). All were patients post-prostatectomy and the majority were 65 years or older (80%, 4/5). Sixty percent were Caucasian or European and 40% (2/5) as African-American. Eighty percent (4/5) reported more than high school education. Sixty percent lived ten kilometers away from the Centre. "Information about how you used the information-Forty percent (2/5) spends one to three hours and 60% (3/5) spend less than one hour; Overall Quality, 40% (2/5) rated the information somewhat helpful, 60% (3/5) very helpful and all would recommend it to others. Sixty percent (3/5) did not find the information hard to understand but 20% (1/5) found it a bit hard to understand; Types of Help The most valued types of help that reported were organizing thoughts, understanding prostate cancer and its treatments, deciding on treatment, as well as planning The lesser valued involved providing emotional support and discussing the situation with others. The online education program is hosted by the website MedSchoolForYou.ca. Since its launching in April 2015 the program has had 16,606 page views. The average time spent on any page in the program was 30 seconds. The pages with the most views included the main page, Understanding My Situation and Prostate Cancer Diagnosis, Making a Decision and Radiotherapy Procedures Involved. The videos with the most views were the introductory video and the videos on the Understanding My Situation and Prostate Cancer Diagnosis, Making a Decision and Side Effects pages. Most page views were from May 2015 to January 2016.
Conclusions: Overall, this online education resource has the potential to reach a large number of patients and their caregivers who desire specific information and involvement in future treatment decisions.

9GG18 (2592)
Clinical teachers' perceptions of informed consent inquiry in patient care involving medical students

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Background: For medical students' clinical skills learning, it is vital that they participate in patient care. Patients need to be inquired an informed consent for students' involvement in their care. The Ombudsman in Finland claimed that students' participation requires a written consent from a patient. The aim of this study was to explore the clinical teachers' perceptions of inquiring informed consent for medical student involvement in patient care.
Method: The data were collected with an online survey addressed to clinical teachers at the University of Helsinki 2017. The survey consisted of items on informing the patient, asking for their consent and patients' refusal of student involvement. 83 teachers responded, 54% female and 46% male. Most of the respondents were experienced teachers. 45% had over 10 years, 29% 6-10 years of clinical experience and 60% were over 50 years old.
Results: Teachers who answered the survey involved patients very frequently in their teaching. 36% reported to always and 40% to often have patients in their clinical teaching. Most teachers, personally inquired consent from patients before teaching with students (always 54%, often 12%, sometimes 6%, never 4%). 22% of the teachers reported that someone else in the unit inquired consent. The teachers reported that teaching units informed patients by letter (32%) or upon admission (15%). 32% reported they did not know the procedure, and 18% told that the unit informed the patient. 97% asked consent in spoken and 3% in written.
Most teachers inquired informed consent personally. There were hurdles in the chain of the events of the teaching units' informing patients and documenting the consent in the health record. Similar challenges from patients' and students' perspective have been recognized in previous studies on the same topic.
Conclusions: Students actively participate in patient care in patient care in Finland. The process of informing and asking for consent requires clear instructions, procedures and commitment from the whole teaching hospital community.
Take-home message: Systematic directions and procedures of inquiring informed consent and commitment from the whole healthcare community is required to improve informed consent inquiry.

9GG19 (2580)
3D3P: Digital Do's and Don'ts, Potency and Pitfalls of the Patient portal

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Background: Physicians and patients increasingly communicate using e-consults. E-consults are defined in this study as written asynchronous messages within an electronic health record. Communication training of medical students traditionally focusses on face to face interaction, with emphasis on non-verbal cues. In e-consultation these cues are missing. In order to effectively use e-consultation, specific training is required. The 3D3P project aims to develop such training, the first step being identifying features of good vs. poor e-communication.
Method: Two approaches were employed. Assessing user opinion and analyzing real life e-correspondence. Individual open interviews were held with 7 patients and 6 physicians. Subsequently, items identified in the interviews were discussed in focus groups with 3 patients and 3 physicians each. Moreover, students in Communication and Information Sciences systematically analyzed written messages for text characteristics indicative of potential miscommunication.
With this knowledge, an electronic teaching module for undergraduate medical students is currently being developed. This module aims to provide skills for effective communication via e-consults. Results will be evaluated by questionnaires, semi-structured interviews and rating students' performance on e-consult scenarios prior to and after the e-module.
Discussion: In general, e-consults are valued by patients and doctors as a medium for short simple questions. In addition, e-consults can help order patients' thoughts. Notably, many doctors overestimate the clarity of their messages.
Simple characteristics were identified, that make a message better appreciated and understood by patients, e.g. formal salutations, double check of patients' understanding as well as agreement regarding suitable subjects and response time.
Full results of the learning outcomes of the teaching module will be presented and discussed at conference.
The 3D3P Project identified different elements of effective electronic asynchronous communication. These elements form the basis for the development of an e-module regarding e-consultation.

Take-home message: E-consults are becoming essential in doctor patient interaction. Future physicians should receive training focused on this form of communication, since it differs vastly from face to face communication.

9HH: Posters: Continuing Professional Development 2

Location: Hall 4.u, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

9HH1 (2632)
Using case studies to test a model of education for health and social care staff that leads to patient benefit

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Presenter:
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Background: NHS investment in education and training of health and social care staff exceeds £40 million annually. The process for translating this into improved patient outcomes is unclear. A model of learning transfer that benefits patients has been derived from a realist synthesis (Illing et al. 2017), and provides a useful tool to inform the development and implementation of educational interventions. Our aim was to test this model (programme theory) in real NHS settings by delineating context and mechanisms that can be causally linked to patient outcomes.
Method: A purposeful sample of cases were selected to inform educational interventions aiming to address NHS quality indicators (safety, clinical effectiveness, and patient experience) in different acute care contexts. The opinions of programme initiators, managers, educators, and staff were sought using a semi structured interview. Examples of contextual factors, mechanisms for change were identified to compare with the model. Published and internal reports pertaining to the interventions and data on patient outcomes (research, audits, and patient surveys) were reviewed.
Results: Each intervention reported positive and negative experiences. Overall organizational climate, individual motivation, training relevance and quality, and the management of change in the clinical context were key indicators for effective implementation, maintenance, and spread of learning through each organization. The fit of the programme theory varied depending on the extent to which patient's behaviour could influence outcomes. Patient safety in surgery was dependent on reducing health professional error, whereas patient adherence to treatment was strongly influenced by patient characteristics. Unsuccessful aspects of interventions provided support for the theory.

Discussion & Conclusions: The model provided a good fit with practice and could be used to provide a framework for developing good educational practice in clinical settings. We are seeking to extend model testing to non-acute settings to examine generalizability to other healthcare contexts.
Take-home messages: Educational interventions are complex and multifaceted but their effectiveness can be understood using a theory of transfer of learning. Testing of this theory has provided evidence that NHS organizations can make education beneficial for patients with a supportive climate, motivation and well designed, relevant education.

9HH2 (3289)
Permanent education as a training strategy for health professionals in the context of quality management with a view to certification in humanization

Authors
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Araiê Prado Berger de Oliveira

Presenter:
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Background: Quality management focusing on humanization has as a fundamental strategy on training of health professionals. Continuing education enables quality of life of patients and employees. In this perspective, what is the potential for the implementation of the permanent education program in a reference pediatric hospital?
Method: The aim of this study was to verify the feasibility of implementing the Planetree program in a Pediatric Reference Hospital based on the experience of another Certified Reference Philanthropic Hospital. Methodology used was exploratory-descriptive of qualitative approach, observing convergences and divergences, verifying implemented programs and the necessary adaptations. There were eight subjects from the Child Hospital sectors according to Planetree criteria. Data collection performed through a questionnaire and semi-structured interview and the analysis and elaboration of an intervention proposal to adapt the context to the proposed model. The Research was approved by the Ethics Committee.
Results: Through field research and semi-structured interviews, it was possible to delimit the implemented processes of humanization and criteria of care centered in the patient of the two hospitals. In the first hospital, a highly complex philanthropic hospital, the accreditation process is consolidated, with certification in humanization (Planetree). Despite the difficulties in making the initial training feasible, since it has 15,000 employees to be trained, it used distance mode, enabling everyone to be trained. In the second hospital, philanthropic and the largest exclusively pediatric hospital in the country, for some criteria there was 100% compliance: Family Involvement; Program of art / activities and entertainment; Spirituality and Diversity; Healthy communities; Human interaction. This reality brought recognition and international awards, but not yet a specific accreditation in

humanization. In other criteria, such as Food and Nutrition, Complementary Therapies and Access to information, there was disagreement on some topics, which represent opportunities for improvement.

Conclusion: The children's hospital has great potential for certification as long as the organization works on the gaps found and broadens its processes of Permanent Education for health professionals. Strategies such as distance education, and active methodologies are indicated. These actions can provide greater excellence in the services provided, increase the quality of the service, financial sustainability and accreditation.

9HH3 (3616)
The relationship among age, self-efficacy, and personality in CPD activities to remediate dyscompetence

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Background: Due to the ever accelerating breadth of knowledge in medicine, maintaining currency can be a daunting task. We report an effort to parse age related differences to differences in cognitive processes.

Method: Data from a series of CPD activities focused at the core competencies areas of interpersonal and communication skills, professionalism, and systems-based practice were aggregated to explore the relationship among knowledge of the core competencies and age of the learner. The activities were conducted over several sessions and provided to individuals who were identified as dyscompetent in at least one of those core competencies

The dataset is drawn from 111 CPD participants. The data were aggregated into three Activity time frames: Initial (prior to instruction); Middle (second or third instructional session); and, Late (fourth, fifth, or sixth instructional session).

The analyzed data included the measure of knowledge of the meaning and effect of the core competencies, the Activity (when measure was taken), age (range: 28-75 years), participant's personality as measured by the Ten Item Personality Inventory (TIPI), and a two factor measure of self-efficacy (Historic Success and Personal Confidence).

Results: Both participant age and Activity were significantly related to Knowledge. The interaction between the explanatory variables was not significant. Three personality dimensions (Openness, Extraversion and Emotional Stability) were significantly related to Knowledge.

Self-efficacy was related to both Openness and Emotional Stability (Personal Confidence) but not to Extraversion.

Discussion & Conclusion: The Activities appear successful at increasing knowledge in these core competency areas for all age groups across time frames. The effect of age

with this instructional design may be abetted by personality structure. Personality is thought to be very stable over time. Those more adaptive to change are more likely to respond to the activity. Self-efficacy because it is teachable may offer a viable approach to supporting older learners whose personality structure might impede learning.

Take-home message: Age does not appear to uniformly impede learning in an appropriately structured activity. Results suggest addressing self-efficacy may improve the benefit of CPD activities to older learners.

9HH4 (2239)
One step backwards, but one giant step forward: The challenges of introducing backwards planning in CME design

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Background: During the summer of 2017 each of the five AO North America clinical divisions (Craniomaxillofacial surgery, Hand surgery, Spine surgery, Trauma surgery, and Veterinary surgery) convened thought leaders to attend an individual 2 day backwards planning process for the development of future CME activities. These sessions were facilitated by an experienced PhD educator and were designed to adopt best practices in curriculum development.

Several challenges were encountered when introducing the backwards planning process. These included:
* Absence of evidence based guidelines on many topics
* Lack of information regarding participant knowledge and skills gaps
* Difficulty differentiating participants wants from needs
* Expectations that certain topics must remain core agenda items regardless of their value or need
* Difficulty shifting from teacher centered instruction to a more learner centered instruction
* Prior over-reliance on lectures over other teaching formats

Each clinical division developed unique solutions in attempts to overcome the challenges they faced in backwards planning. Assumptions and extrapolations had to be made using available data. Brief surveys and data collection were sometimes required to delineate participants needs. Continuous encouragement to think outside the box, or at least outside the lecture, were necessary to develop a learning activity that was learner centered, and that promoted active learning and engagement.

9HH5 (203)
A Novel, Interactive Narrative Medicine Conference: Impact on Personal Resilience

Authors

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Presenter:
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Background: We report the impact of a novel, 3-day, interactive narrative medicine conference in Portland, Oregon. The central question explored is if an active-learning narrative medicine conference impacted personal resilience.

Method: 140 participants, including health care providers, patients, caregivers, scholars, and artists explored narrative medicine through a combination of large, didactic sessions and small group interactions. The emphasis was on developing narrative competence – the ability to express, listen, absorb, and be moved to act by stories of healing and illness. Focused writing and generous listening exercises were used throughout and integrated with art-based activities. Participants were identified by name only, not by profession or role with the intention to decrease hierarchies and create a sense of team. Participants were invited to complete a conference evaluation within 14 days. Qualitative analysis was used to identify themes. Data were analyzed individually by members of the research team, then discussed until 100% consensus was achieved.

Results: Our response rate was 61% (85/140). The overarching theme was enhancing personal resilience attributed to conference participation. Seven sub-themes were identified: identity formation, expanding teamwork, building self-compassion, refocusing on patient-centered care, generating community and connection, building awareness of parity and equality in healthcare settings, and promoting self-care and self-reflection through expression and writing.

Discussion: International attention is emerging on the need for collaborative practice and patient-centered care, yet few opportunities are available for patients, caregivers, and healthcare providers to develop connections and learn how to collaborate. Our novel, hands-on, interactive conference focused on writing and hearing stories of illness and healing and illness provided an opportunity to create community, and learn with/from each other.

Conclusion: Engaging in writing and hearing stories of health and healing in mixed-role groups was reported to strengthen participants' sense of resilience. Next steps include a six-months follow up to assess the integration of narrative skills into everyday practice in healthcare encounters and determine if there is a sustained impact on personal resilience.

9HH6 (737)
The Effects of Team-Based Learning Techniques on Nurses' Perception of Continuing Professional Education

Authors

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Presenter:
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Background: Team-Based Learning (TBL) is a collaborative learning and teaching strategy that have been widely used to include education of all health care professionals. Most students in Taiwan come from a background of teacher-centered learning and little is known about the application of TBL in continuing nursing education. The purpose of this study was to apply the TBL method in a continuing professional education (CPE) workshop and evaluate its effects on nurses' learning outcomes.

Method: A quasi-experiment with one-group pretest-posttest design was conducted to examine the effects of team-based learning in CPE. Fifteen nurses were divided into ten groups participating in a workshop on Port-A-Cath in 2017. The first and second levels of Kirkpatrick's evaluation were used to evaluate nurses' learning outcomes and investigate nurses' perceptions of TBL learning in CPE through a self-structured questionnaire.

Results: The age (P=0.508), length of service (P=0.099) were non-significant in the overall satisfaction with the TBL course. The overall satisfaction with the TBL course was significant (p<0.0001), especially for those who were college educated or higher (p=0.046).
90% of nurses thought that their intrinsic motivation of learning, the ability of autonomous learning, communication, interpersonal skills, and their capacity for work after the Team-Based Learning (TBL) Workshop increased. In addition, 87.41% of nurses volunteered to ask questions during the lesson.

Discussion: In general, nurses in TBL classes have much more positive attitudes. Although the results of Kirkpatrick's first and second levels answer to our expectations, but if we want to further explore and find more useful and effective teaching methods that improve the nurses learning outcomes, we should assess it through Level 3 (Action) and Level 4 (Results) of Kirkpatrick's evaluation.

Conclusion: Taiwanese students are culturally conditioned to learn passively, without asking or answering questions verbally in the classroom is an obvious dilemma for

teachers. Perhaps this is a teaching strategy for Taiwanese teachers to encourage students to ask questions or respond to questions in a group.

9HH7 (811)
Reflection revisited: how physicians conceptualize and experience reflection in professional practice – a qualitative study

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Background: In the last decades, developments in health care have accelerated and require physicians' constant adaptation, change and learning. Competencies such as cooperation, communication and leadership have become preconditions for professional practice, calling upon reflective capacity. In light of this context, we explored how physicians conceptualize and experience reflection in professional practice.
Method: We conducted a qualitative study using in-depth interviews with 13 hospital-based physicians from various specialties and institutions. The interviews were transcribed verbatim and were analyzed iteratively, following the interpretative phenomenological analysis approach.
Results: Data analysis resulted in the identification of three main topics: fuzziness, domain specificity and dialogical dynamics of reflection in professional practice. Reflection was conceptualized as a fuzzy process of contemplation and action, leading to change and hopefully improvement of personal performance and health care in general. Physicians' experiences with reflection were different for the patient domain and the team domain. Whereas experiences in the patient domain were recalled first and discussed in relatively clear terms, those in the team domain came second and were discussed in more ambiguous terms, rendering these experiences rather 'remote' and 'shady'. In order to achieve improvement in daily practice, honest and open dialogues were perceived as necessary. These dialogues were regarded as the result of an interplay between an internal and an external dialogue. The internal dialogue required sensitivity and courage of the individual; the external dialogue required psychological safety and encouragement of the environment. Within the team domain however, handling the external dialogue effectively was not self-evident, underlining the importance of psychological safety.
Discussion & Conclusion: This study draws attention to the interdependence between the individual and the collective

contributions to reflective activity in professional practice. Apart from its importance to physicians' individual medical performance, reflective activity is also important to the functioning of a team of physicians. To allow reflection to rise from an individual activity to a team activity, it is necessary to invest in a safe environment in which people are encouraged to think, act, and be engaged.

9HH8 (2198)
Associations between Continuing Medical Education (CME) Teaching Methods and Participant Reflection on Content Adjusted for Learning Style

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Background: Goals of CME are to improve knowledge, change behaviors, and positively impact patient outcomes. Reflection on CME content is prerequisite to knowledge synthesis and behavior change. Learning styles are the individualized and preferred ways that a student perceives, comprehends, and retains information. Attention to participant learning styles has been suggested as a framework for planning CME curricula. Our research question was: "What CME teaching methods stimulate the most reflection on the content when adjusting for participant learning style?"
Method: We conducted a cross-sectional study of all participants (N=393) at the Mayo Clinic Updates in Internal Medicine (N=175) and Psychiatry Clinical Reviews (N=218) CME courses. Participants completed the Kolb Learning Style Inventory and a previously validated reflection on CME content questionnaire (5-point scale) for each presentation. Teaching method utilization (example: cases studies, learning pauses) was coded for each presentation. Associations between teaching methods and participant reflection were determined using a multivariate model adjusting for learning style.
Results: 241 surveys were returned (response rate=61.3%). After adjusting for learning style, participant reflection scores were higher if the following teaching methods were used: cases (β=0.62, p<0.0001), audience response system (β=0.83, p<0.0001), and summary slides (β=0.62, p<0.0001). For each of these variables, the diverging learning-style participants had higher reflection scores than those with assimilating, converging, or accommodating styles. There were no associations between reflection scores and specific objectives, article citations, or learning pauses.
Conclusion: We report the relationship between CME teaching methods and participant reflection scores after adjusting for learning styles. Presentations that employed context (cases), interaction (audience response), and distillation (summaries) stimulated participant reflection on the content. These teaching methods generated higher

reflection among divergers, who tend to emphasize traits of curiosity, reflection, and experiencing. Awareness of techniques that stimulate reflection in CME may improve educational outcomes.

Take-home messages: 1) CME presentations that were contextual, interactive, and distilled stimulated greater reflection among CME course participants. 2) Certain CME teaching methods may produce more reflection for specific learning styles. 3) Understanding synergistic relationships between teaching methods and specific learning styles may improve educational outcomes in CME.

9HH9 (1809)
Evaluating the impact of a coaching pilot on the resilience and retention of UK General Practitioners

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Presenter:
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Background: The UK Faculty of Medical Leadership and Management (FMLM) was invited to provide 4 sessions of 1:1 coaching to 50 general practitioners (GPs) who were actively considering leaving the profession, or had recently returned to practice after a break. The aim of this pilot project was to support and enable the GPs to remain in practice and to evaluate the impact of the approach.
Method: Four professional coaches designed the application process, selected the GP coaches delivered the coaching and gathered feedback. An independent academic expert was engaged to analyse the feedback and verify the evaluation.
Evaluation tools included two tools for measuring individual stress/resilience, a pre- and post-coaching questionnaire, qualitative interviews with the four coaches, and the collation of informal feedback.
Reasons for GPs applying included burnout, becoming disillusioned, losing confidence in their ability to do the job in the current pressurised climate, being dispirited by patient demands or complaints and work-life balance issues. GPs also wanted to reflect on their careers and make decisions about next steps.
Results: GPs rated their likelihood of leaving the profession, both before and after coaching, on a scale of 1–10, where 1 was highly unlikely and 10 highly likely. The pre-coaching average score was 7.2, whereas post coaching, the average had dropped to 4.9.
The Human Function Curve pre-coaching measures placed 31 GPs (60%) in the 'exhaustion' or 'burnout' segment of the curve, indicating that this cohort was unhappy and under considerable pressure. By the end of the coaching, 63% (of the 83% who responded to this question) were operating in the 'safe zone', compared with 8% pre-coaching.
Discussion & Conclusions: Building on the positive outcomes of this pilot, additional coaching programmes should be provided to meet the needs of doctors who have been identified as potentially benefitting from coaching and to evaluate longer-term impacts. Making coaching more accessible as part of continuous professional development could contribute to alleviating recruitment and retention issues.
Take-home message: Coaching can be of value to struggling GPs to enable them to flourish, despite the increasingly demanding climate in which they operate.

9HH10 (1394)
Towards National Needs Assessment – Perceived CPD Needs of Qatar Healthcare Practitioners

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Background: Since March 7 2016, ALL healthcare practitioners in the state of Qatar are mandated by Qatar Council for Healthcare Practitioners (QCHP) to participate in continuing professional development (CPD) activities to be able to renew their license of practice. This participation is regulated by the National Continuing Medical Education (CME) / continuing professional development (CPD) framework and accreditation system. National CPD needs assessment would be of great importance to inform planning for healthcare workforce CPD and though a comprehensive National CPD needs assessment is not yet conducted, several efforts towards assessing the CPD needs of different healthcare professions in Qatar were initiated.
In March 7 2016, Qatar Council for Healthcare Practitioner – Accreditation Department (QCHP-AD) launched Qatar's National CME / CPD Accreditation system and framework. Since that date, all licensed healthcare practitioners (Physicians, Nurses, Pharmacists, Dentists, Allied Health Professionals and Complementary Medicine Practitioners) working in state of Qatar are mandated to participate in CPD activities and fulfill CPD credit requirements to be able to renew their license of practice. Fifty percent of such CPD requirements are mandated to be collected from participation in accredited group learning activities.
Method: A questionnaire for assessing the perceived CPD needs of dentists and dental allied health professionals was developed and electronically distributed among target healthcare practitioners. Responses were collected, analyzed for this research.
Results: The results of distributed questionnaires show national CPD needs perceived by dental and allied health professionals in terms of common gaps in practice and convenient CPD formats.
Discussion: Interprofessional and team-based education can play important to improve quality of care and patient outcomes. Online and blended CPD formats are convenient formats for provision of CPD.
Conclusions: Qatar's dentists and dental allied health professionals perceive some common gaps in practice that

should be considered in planning for CPD activities targeting such professionals. The conducted needs assessment represents a step that should be built-upon to have a national CPD needs assessment for all healthcare professions in the state of Qatar.

Take-home message: National needs assessment inform planning for CPD of healthcare workforce and ensure improvements in healthcare quality and patient outcomes.

9HH11 (229)
Moving beyond traditional medical education: Building capacity among healthcare professionals in nutrition

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Background: With the rising rates of lifestyle-related chronic diseases (NCD's) worldwide, it is important for doctors and healthcare practitioners to possess adequate knowledge and skills in nutrition. Published literature suggests most healthcare practitioners are inadequately trained in nutrition. Furthermore, while nutrition research has considerably advanced, it has also resulted in confusion. Distinguishing reliable nutrition research findings from those that are invalid and surrounded by sensationalism is imperative. With the soaring rates of diabetes, obesity and heart disease in Qatar and beyond healthcare professionals must remain abreast with evolving nutrition research. Incorporating up-to-date evidence-based information in continuing professional development (CPD) programs in the broad area of nutrition is a step in the right direction.

Method: It is in the above context, that we developed and implemented an evidence-based certificate course in early 2016 at Cornell in Qatar for doctors and healthcare practitioners. Three courses have been offered so far. The 50-hour course consists of 32 hours of face-to-face learning and 18 hours of online self-study. The activity is approved by the local accreditation agency, enabling practitioners to gain CPD credits for re-licensure.

Results: 150 participants from varying interprofessional and cultural backgrounds have completed the course to-date. Multiple educational strategies enable active, learner-centric and self-directed learning. The learners provide feedback orally and via an anonymous evaluation. A majority of learners have indicated an increased level of nutrition knowledge and skills; improved knowledge focused on management and prevention of chronic diseases; acquisition of skills to better manage illness and promote health; and empowerment with practical cross-cultural information to help manage patients in a holistic manner.

Discussion & Conclusion: The course curriculum is robust and up-to-date. It has been well received. Scheduling conflicts are an ongoing challenge but manageable. Participant feedback and nutritional scientific advances are considered for future course offerings. Nutrition education is effective when delivered to a multicultural audience with participants from interprofessional backgrounds.

Take-home message: Ignoring nutrition in patient evaluation and management is not an option. CPD programs must be customized to meet the needs of the local healthcare professions community to provide life-long interprofessional learning opportunities.

9HH12 (3679)
Assessing Educational Need: A Multiprofessional Approach

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Presenter:
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Background: Hospitals have a duty of care not only to the patients they treat, but also to their employees to provide high quality training and continuous professional development for all. How this is best achieved or structured to meet the needs of everyone though is less clear.

Method: A baseline review of educational practice at the Evelina London was undertaken to ascertain how staff access training and to explore their feelings about current and future education provision. This was mainly through 1:1 or group interviews with all staff groups. The conversations were collated and thematically analyzed.

Results: Thematic analysis revealed areas of strength in simulation and for the breadth of courses available. Descriptions of good educational practice within departments exist but not necessarily everyone is aware of this. Several generic gripes were expressed by all professional groups, for example the need for more time to attend sessions and awareness of sessions. Within different professional groups specific needs also emerged. Participants enjoyed voicing their views and valued the chance to share ideas about future initiatives.

Discussion: Whilst a number of educational opportunities exist for staff at the Evelina London sometimes they are not always able to access them due to a multitude of factors. When planning events educators need to not only address the participants' learning needs but also consider system or logistical issues and create mechanisms to facilitate sharing of good educational models.

Conclusions: Even though everyone has their individual learning needs by undertaking a review of education through the use of 1:1 interviews we were able to gain an appreciation of the similarities of issues facing teams when accessing education. An advantage of asking multiple professionals their views about education meant a robust and comprehensive insight was achieved into current education practices and this generated a plethora of ideas of how to improve things.

Take-home message: An educational needs assessment is one approach to developing education within an institute. Current employees can be an invaluable asset to generate innovative ideas as they have an appreciation of the key issues affecting training and education.

9HH13 (2145)
Understanding the brokering role of clinician-scientists: a realist review

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Background: Healthcare is a knowledge intensive industry. Knowledge generated through research should inform clinical decisions and enhance patient outcomes. Practice problems should form the basis for new research questions. Yet, the worlds of research and practice do not connect effortlessly, boundaries exist at various levels. Effort from both sides is required to facilitate connections. Clinician-scientists (CS) are professionals who, by virtue of their dual-role, are well placed to span the boundary between research and practice. Limited empirical attention has been given to the nature of their brokering activities.

Method: This literature review, a realist review, provides an insight into CS broker activities in context.
The databases CINAHL, Embase, WebOfScience, PubMed and PsychINFO were searched. From the initial 3312 articles, nine articles were selected for the final full text review. Articles reporting empirical data on CS broker activities were included. Text fragments related to the broker role of CS were coded and subsequently context-mechanism-outcome configurations were identified.

Results: CS performing broker activities were described as 'having an ambassadorial role'. Outcomes of broker activity were as follows: at organisational level broker activities led to increased use of evidence based practice and an increase in clinically relevant research results. At individual level broker activity led to professional development in skill, knowledge, status and attitude. The contextual factors required to achieve organisational outcomes were higher in number and complexity than those required to achieve individual outcomes. Mechanisms instrumental in achieving outcomes indicate that brokering requires a high degree of change management and networking skill.

Discussion & Conclusion: Training and continuing professional development for CS should focus on research, clinical practice and brokering a connection between the two. Brokers require competencies in three distinctly separate fields of knowledge. This might contribute to an understanding of the difficulties with work-related pressure experienced by CS.

Take-home message: The change management and networking skills needed to be an effective broker add a third skill set to the acumen of a CS who already displays research and clinical skills.

9HH14 (2840)
Let Participants Be the Master of the Class: Using Corporate Training Skills in Continuing Professional Development

Authors

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Background: Though student-centered education is a common concept in our under-/post-graduate medical education, most of our continuing professional development (CPD) program is still conducted in a teacher-centered way. The core concepts of adult learning are: Self-concept, past learning experience, readiness to learn, practical reasons to learn, and driven by internal motivation. Those five concepts are widely used, especially in corporate training, such as business marketing, team building, time management, and creativity inspiration. We tried to integrate corporate training skills in our CPD program.

Summary of work: There are five key steps in our education process: 1. Opening of the class: introduction of teacher and the importance of the topic; 2. Grouping: to separate participants in groups of 4-6 persons; 3. Award driven: design a contest and the winning group will get award; 4. Multiple teaching techniques: such as catechetical method, group discussion, walkthrough method, video education, and game... 5. Ending with participants' feedback.

Summary of results: We collected 45 participants' feedback after 2 classes of "Advanced empathy workshop", a CPD program designed for medical staff members including doctors, nurses, physical therapists and pharmacists. The average score of program assessment was 98.0%, while the average score of teacher assessment was 98.97%. Among 45 students, 42 of them gave positive feedback to teachers and the program.

Discussion and Conclusion: The key corporate training skills for a successful CPD program are: 1. Well control of

the learning environment, including seats, place of chairs and tables, pretest of all equipment, video and audio support; 2. Pre-evaluation of participants' needs and demands, by a pre-class survey and assignment of learning material. 3. Teacher's experience in problem solving, guidance and fast response during teaching.

Take-home message: Corporate training skills can be integrated in all fields of postgraduate/continuous medical education. Faculty development is crucial before conducting CPD programs.

9HH15 (683)
The Pacemaker Agenda: Promoting a culture of wellness, scientific update, and happiness for teaching Professionalism and Ethics in daily practice

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Presenter:
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Background: To prepare General Practitioners for the growing opportunities in private practice in São Paulo (Brazil), SOBRAMFA - Medical Education and Humanism, has developed an innovative learning agenda required for all trainees and senior members. The practicing scenarios include: Geriatric Care, Managing Complicated Patients with comorbidities in Hospitals, Palliative Care, Family Medicine Clinics and Ambulatory, Home Visits, Nursing homes and Hospices. Ethical dilemmas, and ongoing challenges come daily to our practice. An assorted routine of regular meetings booked in advance permits to combine a busy work schedule with scientific learning, develops competences and professionalism, solves ethical issues, and allows physicians to perceive personal success in their lives.

Method: The Pacemaker Agenda (PA) working for 15 years includes:

• Scientific "pacemaker" - Weekly Scientific Meeting. Case-base discussion, update with articles from the most relevant publications, case-decisions for specific patients supported by Evidence Based Medicine, and solve ethical issues.

• Construction "pacemaker"- Monthly Meeting. Conducted as workshops include topics to promote reflective practice: professionalism, medical education, ethics, humanism, personal development, teamwork, and leadership.

• Cultural monthly Meetings –with leaders coming from non-medical fields. (Philosophers, Journalists, Educators, Lawyers, Artist and Musicians, Entrepreneurs, Humanists). At dinner time displayed as a familiar get-together.

• Young Doctor Monthly Meeting- case-based discussions leaded by medical students, and the young doctors play the facilitator role.

• Mentoring and Evaluation- every trimester the trainees are evaluated and giving feedback by their respective preceptors.

Results: The main outcomes of the agenda are:
•   Effective Training- Clinical Competence
•   Mastering Communication
•   Respect, Credibility and happiness

Conclusions: An innovative learning agenda composed by an assorted routine of regular meetings combining a busy work schedule with scientific learning scenarios, to develop competences, professionalism and reflection over perceived personal success are provided. The Pacemaker agenda is set for training young family doctors for the wide basket of services and the growing diversity of opportunities in family practice in Brazil.

Take-home messages: 1. Set an agenda combining a busy work schedule with real scientific learning,
2. Including meetings regarding philosophical, educational and cultural issues a familiar, collaborative and teamwork scenario is created

9II: Posters: Teacher Evaluation

Location: Hall 4.u, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

9II1 (260)
Teaching skills in medical school

Authors

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Nicolas Rodriguez León, Instituto Universitario Italiano de Rosario, Rosario, Argentina
Walter Bordino, Instituto Universitario Italiano de Rosario, Rosario, Argentina
Roberto Garcia Turiela, Instituto Universitario Italiano de Rosario, Rosario, Argentina

Presenter:
Mario Secchi, Instituto Universitario Italiano de Rosario, Argentina

Background: This paper presented is the result of research on teaching skills in Medical School and higher education, supported by IUNIR and the Spanish Agency of International Cooperation for Development (AECID) of the Ministry of Foreign Affairs and Cooperation, which focuses on competency-based training of teachers in health sciences of Italian University Institute of Rosario (IUNIR) in Argentina
Method: Twelve competencies were defined over all worked. The study was conducted with IUNIR teachers of Medical School and a group of experts from other participating universities (multicentric). The sample consisted of 145 IUNIR teachers (100%), of them 81 women and 64 men aged between 22 and 57. The average year of University experience was 11 years modality (in this or another University). For data collection, a questionnaire was that aimed to explore teaching skills as academics health sciences.
Results: From the results obtained, the participating teachers teaching competencies identified the following order of preference: Teacher Professional Identity : 35.%, Planning: 20.6%, Motivation: 15.2%, Institutional Belonging: 11.0%, Research:6.9% ,Communications: 4.5%, Innovation: 3.4%, Methodology: 2.0%,Mentoring: 0.6, Evaluation: 0.6%, Interculturaty: 0.6%, and Media integration: 0.6%.
Discussion & Conclusions: This multicentric research of teaching skills enabled us to expand and establish a nest ranking by the same teachers. This study allows to use the results and form a larger program of research and action for own training and professionalization of teachers in health sciences. Teaching competencies are, for some time, preoccupation in the teaching-learning process at any level of education and country. These competencies allow teachers become better professionals and contribute to the assessment of professionalism and the optimization of the quality of education in medical school.

9II2 (3025)
Leadership matters? The evaluation system of educational program directors in Taiwan

Authors

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Wei-Leng Chin, E-Da Hospital, Kaohsiung, Taiwan
Wei-Chieh Hung, E-Da Hospital, Kaohsiung, Taiwan
San-Nan Yang, I-Shou University / E-Da Hospital, Kaohsiung, Taiwan

Presenter:
Chi-Wei Lin, I-Shou University / E-Da Hospital, Kaohsiung, Taiwan

Background: Good training programs can build up strong basis for future clinical practice in all medical specialties, and program directors may play an important role conducting the training programs. There are 23 official medical specialties regularly accredited by Residency Review Committee (RRC) in Taiwan. The accreditation standards for the program and program director are set up by each medical association and approved by RRC. Our study aims to exam the standards for evaluating program directors, compare the differences between specialties and evaluate the applicability of the standards.
Method: The accreditation standards regarding program director's qualification and responsibilities in each medical specialty were acquired from Ministry of Health and Welfare and related medical associations in Taiwan. The standards of qualifications were classified into four major domains and the standards regarding responsibilities were also allocated into five domains for further analysis.
Results: As for qualifications of program directors, all specialties set standards regarding experiences, twelve specialties exam research abilities such as recent publications, but only 5 specialties put attention on continuing education such as specific faculty training. Ten specialties set vague requirements for leadership and professional fame, however, being both department chief and program director concurrently exists contrary opinions in different specialties. Most specialties share the same requirements about responsibilities of the program director, but only family medicine demands teaching activity supervision and emergency medicine asks for clinical hours restriction to protect supervising hours.
Discussion & Conclusion: None of the surgical related specialties set standards for continuing education, and among them, only ophthalmologists ask for recent publications while urologists and plastic surgeons demand directors to have academic titles. No objective standards such as previous managerial position can well represent leadership. Standards related to responsibilities reasonably distributed in planning, trainee affairs, supervising and reporting, but most of them are directly adopted from official version of RRC without any modification, which may limit the applicability in each specialty.
Take-home message: The role of educational program directors in education program is crucial, but current

evaluation and accreditation system specifically for program directors in Taiwan still leave some room for improvement.

9II3 NOT PRESENTED

9II4 (1881)
Dilemma and changes: exploration of the factors of students' feedback provision to teachers

Authors
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Ren-Huei Fu, Chang Gung Memorial Hospital, Chang Gung University, Taoyuan, Taiwan
Chang-Chyi Jenq, Chang Gung Memorial Hospital, Chang Gung University, Taoyuan, Taiwan

Presenter:
Liang-Shiou Ou, Chang Gung Memorial Hospital, Chang Gung University, Taoyuan, Taiwan

Background: Students' reluctance to give feedback to teachers creates obstacles for teachers' professionalism development. This study aims to explore the factors of improving students' feedback provision to teachers.
Method: A qualitative group interview method was used within a realist evaluation framework. Realist evaluation seeks to understand how mechanisms work in contexts to produce outcomes. Eight focus group interviews were conducted with n=50 fifth-grade medical students following paediatric training.
Results: Seven contexts (Cs), eight mechanisms (Ms), and five outcomes (Os) produced eighteen C-M-O configurations. Specifically, the context of "culture," includes the "medical environment," "trainees' learning alternatives," and "questionnaire issuing strategy". Mechanisms include psychological/emotional feelings, such as "fear," "understanding teachers' dilemma," and "not believing changes will happen," obstructing students' feedback provision. One example of how the C-M-Os come together is: in the context of a Confucianism society, fear (mechanism) leads to students' failure to provide feedback.
Discussion: Although students appear dissatisfied with teachers' professional performance, "Confucianism" and the "medical environment" in the context influence students' emotional feelings such that they are reluctant to provide feedback to teachers.
Conclusions: We need to think of ways in which we can provide a safe environment in which students can feel free to give feedback to their seniors. As a result, both the quality and the provision of feedback could be enhanced.
Take-home message: Culture and environment restricts students from giving truthful feedback; however, if students' fears and worries could be reduced, their provision of better quality feedback could be enhanced.

9II5 (1497)
Does the tutor matter? The relationship between students' satisfaction from their tutor and their overall satisfaction from the clinical rotation

Authors
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Abraham O. Samson, Bar-Ilan University, the Azrieli Faculty of Medicine, Safed, Israel
Basem Hijazi, Bar-Ilan University, the Azrieli Faculty of Medicine, Safed, Israel
Lea Even, Bar-Ilan University, the Azrieli Faculty of Medicine, Safed & the Western Galilee Medical Center, Nahariya, Israel

Presenter:
Nomy Dickman and Lea Even, Bar-Ilan University, the Azrieli Faculty of Medicine, Haifa, Israel

Background: Medical students complete clinical rotations during their clinical years. In each department, a junior resident plays the role of a "tutor" that covers medical, logistical and personal aspects. This role has yet to be investigated in depth in the medical education literature. Our experience taught us, that good departments typically get good remarks on their tutors. Accordingly, we assessed the contribution of students' satisfaction from their tutors to students' overall satisfaction from the clinical rotations.
Method: A retrospective chart review (2014-2017) of all students' teaching surveys, on their experience in the clinical rotations, focusing on the tutors' role was conducted. 710 students completed the questionnaires (102 rotations with 40 tutors) in the departments of internal medicine, pediatrics, obstetrics and gynecology, and surgery, in two hospitals. The perceived satisfaction of the clinical rotation was assessed using a Likert five rank scale. Qualitative written assessment of the tutors was converted into one to three numerical scale. Spearman correlations tested the relationship between perceptions of tutors and satisfaction from clinical rotations.
Results: A positive, high significant correlation (rs = .78, p < .01) was found between students' satisfaction from the tutors and their overall satisfaction from the clinical rotations. Despite the fact here are on average 10 physicians teaching per clinical rotation, only with respect to tutors we found high positive correlation between these two parameters. Interestingly, in two departments when only the tutors (no other staff) were changed from one group to the next during the same year, the departmental satisfaction score rose with the tutor's score.
Conclusion: Our findings confirm our practice-based hypothesis: perceived students' satisfaction from the tutors was positively correlated with their satisfaction from the clinical rotations. To the best of our knowledge, this is the first time in the literature that the relationship between students' satisfaction from their tutors to students' overall satisfaction from the clinical rotations has been reported.
Take-home message: Based on our results, it is essential to study in-depth the characteristics of "excellent" tutors and to invest substantial resources in training tutors.

9II6 (1123)
Exemplary allied health educators: Perspectives and insights

Authors
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Heidi Tan Siew Khoon, Tan Tock Seng Hospital, Singapore
Kum-Ying Tham, Tan Tock Seng Hospital, Singapore

Presenter:
Charmaine Krishnasamy, National Healthcare Group, Singapore

Background: Clinician educators design and implement clinical learning experiences for students and junior staff. Awards are given to recognise their contributions to their professions, and in teaching and developing others. This study was conducted to understand what it means to be an exemplary clinician educator i.e. one who has received awards repeatedly, and their perspectives on good practices. Insights from allied health professionals who received at least three of these annual awards, will be shared.
Method: Individual semi-structured interviews were conducted with six award recipients from Medical Social Work, Physiotherapy, and Occupational Therapy. The institution review board approved this study. Interviews were audio-recorded and transcribed verbatim. A grounded theory approach was used with open coding to cluster codes into categories, and axial coding to establish connections between categories. Themes were identified.
Results: The participants had 10 to 20 years of clinical practice and 7 to 15 years as supervisor-educators. Three themes emerged: Being open to receiving feedback and to learning; Fulfilling their dual core roles as clinicians and supervisors, and being authentic; Being practical and looking ahead. They were proactive in seeking honest feedback and in improving; and open to learning from mentors, peers, and their supervisees. Patient care was top priority, and they actively shared their knowledge, utilising various formats, to help others develop. While the participants were thankful to receive the awards, they were also mindful of their responsibilities, and some felt burdened to do more, and reflected on more cost-effective methods of training. They were intentional in reflecting on their performance, unafraid to admit that which they did not know, and in filling knowledge gaps. While awards served as encouragement, the real source of fulfilment was knowledge that they had contributed to another person's success.
Conclusions: Exemplary clinician educators value their core roles as clinicians and supervisors, pursue continuous learning and improvement, are motivated to help others progress and learn, and find fulfilment in contributing to the professional success of another person. These perspectives and insights can contribute to the development of resources and training for future clinician educators.

9II7 (3586)
What makes a good medical teacher? Perspective of Polish medical students

Authors
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Michał Nowakowski, Jagiellonian University Medical College, Cracow, Poland

Presenter:
Dawid Bugara, Student's Scientific Group of Teaching and Examining Methodology Jagiellonian University Medical College, Cracow, Poland

Background: Teacher's personal traits have a large influence on the education that medical students receive. Part of that influence also comes from whether they succeed in meeting the expectations that students might have towards their teachers. Hence understanding those expectations might let us specify what makes a great teacher. A factor to consider is that this may be influenced by local or national culture. Therefore, the students' perspective should be explored in order to improve the quality of education and effectiveness of educators in medical college.
Method: The aim of the study was to determine the opinion of Polish medical students about the most appreciated characteristics of an academic teacher and to define the most desirable way of conducting didactic classes. The prepared questionnaire was distributed electronically among students from 7 different Polish medical universities.
Results: The survey was completed by 336 students. As many as 91.1% of them believed that not every person is able to be a good academic teacher. Students most often defined personality traits (96.4%) as a predisposition to the teaching profession. The most appreciated character traits were helpfulness, friendliness, patience and respect for students (over 99% of students agreed with all of them). Ability to transfer knowledge was a key factor for 98,8% while only 64,9% appreciated diagnostic skills and case management and only 10,4% scientific achievements. Regarding teaching methods: 83% of students appreciated a personal feedback. Other admired factors were preparation of teachers' own didactic materials (84.9%) and precise specification of requirements (97%). Only 31.5% of the students positively rated the presence of multimedia presentations during seminars. 91,7% appreciated teachers sharing their personal challenges. Up

to 34,3% of students did not see the benefit of learning in a team with other students.

Conclusions: Medical students have defined current expectations towards academic teachers. Those expectations are reasonable and in line with the majority of educational principles. They also show that more emphasis should be placed on teachers' non-technical skills development and demonstration of the value of teamwork.

Take-home message: Students have reasonable expectations. Why not try to meet them?

9II8 (3410)
Do Postgraduate Trainees Learn from Peer Feedback on Video Consultations and can they Facilitate Sessions for Themselves?

Authors

Rachel Phillips
Helen Allbutt
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Presenter:
Rachel Phillips, GP Unit, NHS Education Scotland (NES), Edinburgh, UK

Background: Research shows that despite initial logistical and psychological challenges, doctors at all stages find peer review of their video consultations improves practice and resilience. However, most studies emphasise the importance of skilled facilitation for this which is prohibitively expensive in an era of budget cuts. Training students to become peer tutors may make regular scheduling of video sharing feasible. Our pilot project aimed to evaluate whether early stage GP Trainees in SE Scotland, introduced to a model of peer feedback on video consultation, could successfully facilitate sessions for themselves.

Method: Six trainees were recruited to two groups that met three times during their first GP attachment to provide peer feedback on video consultations according to a set format. The first session was facilitated by a near peer, observed and recorded. Trainees were then left to facilitate the next two sessions whilst being observed. Authors met after each session to analyse and agree interpretation of data. Data was synthesised with trainee and facilitator views gathered through focus group, interviews and emails. The intervention was evaluated using Kirkpatrick levels and programme analysis proposed by (Haji et al 2013)

Results: Evidence of learning was observed in knowledge, attitudes and confidence. Trainees revealed changes to their practice in workplaces (Kirkpatrick level 3). All participants critically analysed their own and others' consultations when watching videos and giving feedback and some found choosing the videos for each session also triggered learning. The near-peer facilitator reported educational benefit from watching trainees consult and joining their discussions.

Conclusions: Our data showed educational value in peer and near-peer feedback on consultations for clinical postgraduates. Trainees were able facilitate sessions by themselves but preferred facilitation by a near-peer. The

discomfort of exposing one's consultations can be mitigated by establishing a supportive, constructive atmosphere and a structured format.

Take-home messages: • Peer feedback on video consultations provides valuable formative assesment and learning
• Post-graduate Trainees can self-facilitate the peer feedback process
• Near-peer facilitation adds insight and helps challenge group thinking

Haji et al 2013. 'Rethinking programme evaluation in health professions education: Beyond "did it work?"', Medical Education, 47(4)

9II9 (1940)
Teachers' Academy: Five years of teachers' reward system - lessons learned?

Authors

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Presenter:
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Background: The Teachers' Academy (TA) was established at the University of Helsinki, to reward teaching excellence, improve status of teaching and create an inspiring scholarly community. The Academy members and their home units were awarded. First members of TA were selected in 2013. This study examines the Academy members' perceptions of the impact of TA on teaching esteem, academic careers and teachers' networking.

Method: Data were collected with an anonymous online questionnaire. The target groups were all the four cohorts (2013, 2014, 2015 and 2017) of TA (N=80). The respondents came from all the four campuses and cohorts of TA and were very experienced teachers with an extensive training in university pedagogy. 65% were female and 35% male.

Results: Becoming a member of TA was an important step in the participants' academic career. At the university level, the appreciation of teaching had increased, whereas in faculties and units, the valuation of teaching merits had not improved. TA members reported that the most important effect of TA was in providing them an interdisciplinary community. This network crossed the faculty boundaries and spread teaching innovations throughout the university. The individual grant was used for research (58%), educational innovations (96%), courses (60%), seminars and conferences (88%) and international visits (58%). The home unit grant enabled the TA members to support the colleagues' participation in educational conferences.

Discussion: Reward systems are important to stimulate teaching and learning and to support scholarly teachers' careers. In Helsinki, the decision of extending award grants to the member's home unit and establishing one

Academy for the whole university proved successful. Teachers' networks and innovations spread throughout the university and internationally.

Conclusion: his study provides an overview of the impact of the TA after five years of establishing a teachers' reward system. The TA model offered teachers a stimulating interdisciplinary community and fostered international networking. In the trajectory of esteem of teaching, no progress was seen at the unit and faculty level.

Take-home message: The Teachers Academy in Helsinki rewards both excellent scholarly teachers and their units. Improving the status of teaching requires further actions.

9II10 (435)
Perceptions of Characteristics of Effective Clinical Teachers among Medical Students and Residents in an Asian Healthcare Setting

Authors
Shirley Beng Suat Ooi
Clement Woon Teik Tan
Janneke M. Frambach

Presenter:
Shirley Ooi, National University Health System, Singapore

Background: Almost all published literature on effective clinical teachers were from western countries and only two compared medical students with residents. Hence, the purpose of this study is to explore the perceived characteristics of effective clinical teachers among medical students compared to residents graduating from an Asian medical school, and specifically whether there is a difference between the cognitive and non-cognitive domain skills, to inform faculty development.

Method: This study was conducted at the National University Health System (NUHS), Singapore. Using a pragmatic qualitative research design, maximal variation sampling of six final year undergraduate medical students at the National University of Singapore, and six residents from the NUHS Residency programme, was done. Semi-structured one-on-one interviews using open-ended questions were audiotaped and transcribed. Analysis was done using a three step approach based on Grounded Theory principles.

Results: Baseline clinical competence in their clinical teachers were identified by both students and residents. However, medical students valued a more didactic spoon-feeding type of teacher in their earlier clinical years. In contrast, final year medical students and residents valued feedback and role-modelling at clinical practice. The top two characteristics of approachability and passion for teaching are in the non-cognitive domains. These seem foundational and lead to the acquisition of effective teaching skills such as the ability to simplify complex concepts and creating a conducive learning environment. Being exam-oriented is a new characteristic that has not been identified before in "Western-dominated" publications.

Discussion: The results support Jonassen's theory of constructivism (1991) as seen by the medical students at the beginning of their clinical year wanting more didactic

teaching to 'spoon-feed' them with medical knowledge. The more senior learners valued self-directed learning and feedback to help them deal with more complex ill-defined problems encountered during their daily clinical work.

Conclusions: There are differences in the perceptions of effective clinical teachers between medical students and residents. Medical training institutions should look for clinically competent teachers with foundational non-cognitive domain skills such as approachability and passion for teaching first before developing their cognitive domain skills further to make them effective teachers.

9II11 (2328)
A stepwise evaluation strategy to improve teaching skills for young faculties in a teaching hospital

Authors
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Yaw-Don Hsu
Wei-Yun Wang
Hsu-Kai Huang
Cheng-Chin Hsieh

Presenter:
Cheng-Yi Chao, Pharmacist, Taipei, Taiwan

Background: The evaluation of teaching efficacy of young faculties is critical but is a big challenge. In this study, we aimed to set up an evaluation system to improve the teaching skills for young faculties in a teaching hospital.

Method: An evaluation system, which includes items of teaching contents, teaching attitude, teaching skills, and course design, had been established by the consensuses meeting of physician educators in the hospital. There were two to three sub-items in each item. Each sub-item was scored as "below the average", "in the average", "above the average", and "far above the average". Seniors faculties were requested to evaluate the teaching efficacy of young faculties according to the evaluation system. A second evaluation was performed for the young faculties who did not reach the average in any of the sub-item. In the second evaluation, the young faculties were educated with the basic requirements of the teaching process and then evaluated by two senior faculties, including one physician educator.

Results: In the year of 2017, there were totally 30 young faculties receiving the evaluation in the hospital. Ten of them (33%) did not reach the average in any of the sub-item in the first evaluation. The most common sub-items they did not reach the average were "inspiring and practical teach", "variety of teaching modalities", and "interaction between teacher and students". After well delivering the basic requirements of each sub-item to the young faculties, all of them pass the evaluation in the second evaluation.

Discussion: Our results suggested that young faculties need guidance and well-monitoring to achieve better teaching efficacy. A stepwise, comprehensive evaluation system is required for the young faculties who are not familiar with teaching process. We will deliver the information of such evaluation system to our young faculties in the pre-educational training course.

Conclusions: Being a young faculty, how to be a qualified teacher is an important objective that he/she needs to learn. An evaluation system with detailed and comprehensive requirements will play a vital role to guide them to be qualified.

9II12 (2430)
Design and Validation of an Instrument to Evaluate Clinical Training in Health Careers

Authors
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C Cerda
R Rojo
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L González

Presenter:
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Background: Clinical teaching covers a significant proportion of the curriculum ofhealth professions students. The clinical teachers guide the development of generic and specific competences of the future health professionals. The aim of this study was to design and validate an instrument to evaluate clinical teaching. We applied this instrument to explore the strengths and weaknesses of Faculty members, in order to detect areas for improvement.

Method: The instrument was designed based on literature review, the qualitative exploration of students' (focus groups) and clinical teachers'opinions (in-depth interviews), and expert judgment. The instrument consists of 31 items related to the clinical teacher´s role. The answers were collected on a Likert scale, 1-to-5. It was applied in 2017 to 443 students from different careers. We performed an exploratory and confirmatory factor analysis to establish the validity and reliability of the construct(Cronbach´s alpha).

Results: Of the 31 items of the survey, "Demonstrates theoretical knowledge of their professional practice" was eliminated due to non-discrimination. Two factors were identified: (F1) related to Clinical Teaching Performance (25 items; Cronbach's alpha 0.97) and (F2) Learning Environment (5 items; Cronbach's alpha 0.76). The averages of each factor were 4.7 and 3.8, respectively. Theitems with highest averages were "Demonstrate experience in practice" (4.7), "Encourage incorporating ethical aspects into clinical work" (4.5), and "Encourage self-learning" (4.5). Lower averages correspond to "Enough number of experiences" (3.8), "Adequate material resources" (4.0),and "Analyzes clinical practice objectives" (4.0).

Discussion: The items of the instrument confirm the representativeness of the domains to be evaluated;hencethe instrument has a high validity and reliability in the two identified factors. This survey allowed us to diagnose the competencies of clinical teachers, enabling to detect areas where additional training is required.

Conclusions: The evaluation of the clinical teacher is critical as it guides the role that theyshould assume in the

clinical teaching process. Here we have developed an instrument of high validity and reliability to assess clinical teachers. This instrument will allow the continuous improvement of the training process, which should be both systematic and reflexive.

9II13 (1600)
Effect of Matching Communication Styles on Educators' Effectiveness and Overall Training Experience

Authors
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Sherlyn Chan, National University Hospital, Singapore
Wee Kee Hew, National University Hospital, Singapore

Presenter:
Wee Kee Hew, National University Hospital, Singapore

Background: Having good communication skills is a characteristic of an effective educator (Sutkin, et al., 2008). Appropriate listening and speaking skills can allow educators to encourage participation, build relations and teach more effectively. More importantly, they will be able to understand and appreciate the uniqueness in students, thereby motivating them in their work.

Method: In this study, we investigate from the students' perspective, the effect of matching communication styles between the educators and students on the educators' effectiveness and the overall training experience. Data was collected from 116 educators and 214 students (01 Feb 2016 to 30 Apr 2017) from Diagnostic Radiography (DR), Radiation Therapy (RT), Physiotherapy (PT), Occupational Therapy (OT), Speech Therapy (ST) and Pharmacy.

Using materials from Motivation Resources Pte Ltd, educators and students completed a set of 30 questions to determine their communication styles. For each student and educator pair, the similarity in their communication style was matched as a percentage. The students' reports were shared with the educators for adaptation of the appropriate style to facilitate students' learning.

At the end of the attachments, students were asked to rate the effectiveness of their educator and their overall training experience. Average scores were used for analysis.

Results: 20% - 80% match in communication styles resulted in proportionate increment in the educators' ratings ($R2 = 0.8682$). However, it did not correlate to better training experience ($R2 = 0.1991$).

Discussion: With matching communication styles, educators were able to relate, motivate and teach students better. Hence, students perceived them as being more effective. Conversely, this did not result in the students having a better training experience. An interpretation to this is that a good training experience is multifactorial, which includes having adequate resources, a conducive learning environment and training that meets the objectives. Apart from having an effective educator, other aspects of the clinical training need to be considered for a good training experience.

Conclusions: Matching communication styles between the educators and students resulted in more effective

educators, but did not correlate to a better training experience.

9II14 NOT PRESENTED

9II15 (1370)
Using OSTE and OSCE to Evaluate Respiratory therapists as Clinical Teachers: Differences in Clinical Teaching Skills and Professional Technologies ability

Authors
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Presenter:
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Background: Respiratory Therapist works not only clinical therapy, but also acts as clinical teacher in daily practice.
Method: We used objective structured teaching examination (OSTE) and objective structured clinical examination (OSCE) to assess whether they have differences in teaching skills and professional technologies ability, and then to further analyze and improve teaching skills and professional technologies.
Results: A total of 12 respiratory therapists who are clinical teachers, accepted 2 OSTE stations including incentive spirometry feedback teaching, and arterial blood gas technology teaching, and 4 OSCE stations which evaluate procedure of using metered dose inhaler, small volume nebulizer, oxygen and mechanical ventilator. The Examiner will test the procedure, timely feedback, and response the satisfaction survey. SPSS was used to analyses data.
The total scores of OSTE and OSCE 65 points vs.79 (p <0.01) were analyzed by paired T test. The results showed that OSCE was significantly higher than OSTE. The average passing rate of OSCE was 85%, was also higher than that of OSTE(50%). The average learning satisfaction was 83%. Clinical teaching skills (feedback and technical teaching skills) was significantly worse than professional technologies, thus teaching skill training program was arranged [one minute teaching and feedback method in clinical teaching Skill]. The satisfaction rate of teaching program was 86%, and it is helpful to enhance clinical teaching ability.
Conclusions: Through OSTE and OSCE assessment, we find that there is a difference in teaching skills and professional technologies ability among clinical teachers in respiratory therapist. To reduce the number of respiratory therapist who can only do professional ability without teaching, we can nessarily implement the training program for clinical teaching ability.
Take-home message: OSTE and OSCE can be applied to test the respiratory therapist who can be a clinical teacher or not. These test also can be assessed their teaching skills or professional technologies competence.

9II16 (2200)
Prevalence of observed characteristics of positive doctor role models in general internal medicine: a cross-sectional study with resident physicians

Authors
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Felicitas-Maria Lahner
Sören Huwendiek
Sissel Guttormsen

Presenter:
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Background: Observational learning from supervisors is a main element in postgraduate education. The importance of doctor role modelling in professional development of postgraduates has been shown by medical educators worldwide. We aimed to evaluate, which positive role model characteristics are prevalently observed by residents of general internal medicine during their day-to-day-work with supervisors.
Method: A 60-item questionnaire was developed. We first identified 144 characteristics of positive doctor role models from the literature. By content analysis, we derived 10 distinct characteristics per category "teaching skills" and "personal qualities". To each characteristic, three practical observable examples were identified and implemented into the questionnaire to support content validity. The questionnaire was pre-tested and distributed web-based to 255 residents of 12 different sized training sites of general internal medicine in Switzerland in Mai 2017. Residents were requested to indicate, to which degree they have observed the outlined characteristics of their supervisor during the last 4 weeks. Respondents could drag a slider to adjust the level of the observed characteristics intuitively on a scale from 0-100%.
Results: 188 residents completed the questionnaire (response rate 74%). A t-test showed that "teaching skills related" characteristics were significant lower prevalent than "personal related" characteristics (t(259.71) = -5.72, p<0.001). 6 out of the 20 characteristics had a prevalence of ≥ 85%. Highest prevalent characteristics were: "Has integrity" (92.54%), "Is enthusiastic about his work" (87.96%) and "Has availability" (87.41%). Lowest prevalent characteristics were: "Directs his/her teaching to the learners' needs" (65.15%), "Stresses the importance of the doctor-patient-relationship" (65.95%), and "Provides feedback to trainees" (72.07%).
Conclusions: Prevalence of positive role modelling characteristics can be pointed out selectively. This could be used as a basis for tailored faculty development strategies to foster role modelling in postgraduate education. As 14 out of 20 characteristics had a prevalence of <85%, we conclude that positive doctor role modelling is actual an underestimated and dormant teaching opportunity in our training sites.
Take-home messages: Prevalence of positive role modelling characteristics can be pointed out selectively. Role modelling is a powerful but dormant teaching opportunity in postgraduate education in Switzerland.

9II17 (2173)
Prototyping: Rapid PDSA Cycles for Accreditation System Reform

Authors

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Presenter:

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Background: The current Canadian residency education accreditation system has evolved into a system with many manual procedures and process-oriented standards. Three Canadian accrediting colleges came together, forming CanRAC, to develop a new conjoint residency accreditation system that is aligned with the principles of competency-based medical education (CBME), and comprises 10 components. However, given the high-stakes nature of accreditation, there was a desire to test any new innovations before they were fully deployed.

Method: Interviews with Canadian postgraduate deans highlighted strengths and challenges of the current system; more than 50% identified that the system needed major, transformative change. CanRAC created a governance structure to develop a new accreditation system, with key stakeholders, by consensus, using a multi-year, iterative development process. During this process, stakeholders identified the need to implement the changes in a way that would recognize the importance and size of the change, give schools and programs time to prepare and adjust to the changes, and continuously seek input and make improvements as the changes were implemented.

Results: CanRAC developed a three-stage prototype model of implementation; each prototype collected and implemented feedback from previous phases and increased in impact on and effort required by accreditation stakeholders. Prototype 1 focused on a small group of volunteers providing feedback on draft standards and processes while observing the current process; Prototype 2 expanded to a group of shadow surveyors conducting the new accreditation process in parallel with the current process; and Prototype 3 consists of full testing by the schools, programs and surveyor teams.

Discussion & Conclusions: The Canadian residency accreditation system had not undergone a comprehensive review and reform in more than 20 years. The CanRAC prototype model balanced the need to introduce major transformative change in the system in a rapid way, while recognizing the length of time needed to prepare for accreditation and the need to continuously improve the new system prior to its full implementation.

Take-home message: The CanRAC prototype model of rapid improvement cycles and increasing impact on stakeholders provides a successful, pragmatic change management model for health professions education and accreditation reform worldwide.

9JJ: Posters: Student Stress and Burnout

Location: Hall 4.u, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

9JJ1 (876)
A Factorial Validation and Psychometric Properties of the Thai Version of the Maslach Burnout Inventory - Student Survey among Thai medical students

Authors

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Background: Burnout is a psychological condition consisting of high emotional exhaustion, low personal accomplishment and depersonalization. It is prevalent among medical students especially in Western countries. The Maslach Burnout Inventory survey is the gold standard to diagnose but it has never been translated into Thai language nor validated to use in Thai context.
Method: The Thai version of the Maslach Burnout Inventory-general survey for student (MBI-SS) was developed to measure burnout among Thai medical students by a two-stage process, namely the translation process and testing the result for factorial validity and psychometric properties. Then interrater reliability (IRR) by means of Kappa's was assessed to identify the degree of agreement in translation process. Data from the questionnaire was tested for internal consistency. A confirmatory factor analysis was carried out using as fit indices of the X2, df, Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), and the Root Mean Square Error of Approximation (RMSEA).
Results: 545 medical students participated in the survey (76.1% response rate, female 52.1%). The IRR was acceptable with Kappa of 0.83. The confirmatory factor analysis demonstrated to an adequate fit of X2/df=2.619, CFI=0.937, TLI=0.944 and RMSEA=0.060, which indicated that the Thai version of the MBI-SS provided reasonable fit to the data among Thai medical students. However, removal of a factorial model with item 13 provided a superior fit with RMSEA 0.055. Internal consistency by Cronbach's' alpha was acceptable with 0.79.
Conclusions: The Thai version of the MBI-SS was shown to have adequate validity and reliability. The final model with item 13 removal provided superior fit than the original version.
Take-home message: The Thai version of the MBI-SS represents a valid and reliable instrument to diagnose burnout among Thai medical students.

9JJ2 (1132)
The Prevalence and Associated Factors of Burnout in Thai Medical Students

Authors

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Background: Burnout has been described as a syndrome of emotional exhaustion, relating to students' mental distance from studies and reduced academic efficacy. Many studies show students experience high burnout during medical education. Little is known about the prevalence of burnout, and its associated factors, among Thai medical students.
Method: The Maslach Burnout Inventory-Student Survey (MBI-SS) questionnaire was translated to Thai and distributed to 671 second- to sixth-year medical students at Naresuan University. High burnout can be characterized by a score of >14 on exhaustion, >6 on cynicism, and <23 on academic efficacy. The GPA <2.5 (from 4) or the failure to pass the National License tests were used to classify poor academic achievement. Gender, medical school admission scheme, and age were recorded. Results were analyzed using the Chi-square test.
Results: A total of 510 medical students (76% response rate) completed the survey. The second-year to sixth-year students demonstrated various high burnout rates (13%, 12%, 22%, 24%, and 35%, respectively; p<0.001). The prevalence of high burnout in low-performing students was significantly greater than that in the high achievers (31% and 18%, respectively; p=0.024). While the difference in high-level burnout between graduate entry students (mean age 29, 14%) and the undergraduate group (mean age 21, 18%) was not significant (p=0.229), a significant difference was found in high emotional exhaustion (42.50% and 61.03%, respectively; p=0.001). There was no difference between male (21%) and female (16%), p=0.244.
Conclusions: High burnout progressively develops over the course of medical education, with the highest in the final year; possibly due to increased professional responsibility. The lower degree of emotional exhaustion in graduate entry students could be related to greater motivation, emotional maturity or better coping strategies from previous studies, whereas high burnout found in low-performing students may be caused by academic struggle or low motivation. These factors should be further investigated.
Take-home message: The clinical academic year may lead to high burnout in medical students. There should be an appropriate support system/program to assist and/or prevent the increasing rate of burnout.

9JJ3 NOT PRESENTED

9JJ4 (3257)
Well-being and educational environment in initial clinical training in medicine. Perception of students from 11 Chilean medical schools

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Background: In medical schools training is relevant to develop competencies related to professionalism and self-care that benefit the integral formation and professionals of excellence, who are also prepared to face a high demand, similar to the demand that they will find in the postgraduate and professional practice. Chile offers undergraduate medical education that lasts 7 years. The common profile of Chilean medical schools describes the clinical competencies for which they must be prepared and including being able to self-care (recognition of personal limitations and ability to ask for help). The objective of the study is to evaluate the perception of well-being level and the educational environment that Chilean medical students have during their undergraduate initial clinical training.
Method: 4th and 5th year students from 11 Chilean medical schools participate. Student well-being levels were assessed with the MHC-SF and the MBI. Educational environment perceptions were evaluated with the DREEM. The data will be analyzed through Chi-square tests and T test.
Results: 50% of students reported flourishing mental health levels. One third of the participants perceived high levels of burnout risk (emotional exhaustion). The educational environment was evaluated as excellent or more positive than negative by 70% of the students. There are differences in the indicators of well-being and the educational environment between schools. The results also suggest associations between the perception of risk of burnout and educational environment.
Conclusions: Medical students in clinical training report high levels of positive mental health at the same time that a proportion of them perceive high levels of risk of burnout. The perception of risk of burnout is associated with the educational environment of which the students part of. Despite of the high level of burnout risk perceived, this is a population with high levels of positive mental health that can be a protective factor to maintain motivation and continuity of studies.
Take-home message: High risk of burnout requires the identification of contextual factors to respond to these findings. It is also suggested to identify organizational and individual opportunities to promote self-care of students.
Funding provided by FONDECYT 1150340.

9JJ5 (590)
Dispositional Mindfulness - a protective factor for burnout in undergraduate medical students?

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Background: Medical students are continuously exposed to stressful situations that may impair their physical and psychosocial wellbeing as they progress through their clinical training. Without timely academic and medical assistance, one in two students may develop burnout, a syndrome characterized by emotional exhaustion, depersonalization, and loss of the sense of purpose and achievement. Many burnout-reducing interventions apply some form of mindfulness practice. However, little is known about the relationship between dispositional mindfulness and psychosocial wellbeing with burnout during clinical training. We studied the relationships between these variables across the undergraduate medical curriculum.
Method: In 2017, 240 students enrolled in years three, four, six and seven of a 7-year medical curriculum at a large Chilean university answered dispositional mindfulness, psychosocial well-being, distress, and burnout questionnaires. We compared scores across study-years and analyzed the relationships between psychosocial well-being and distress as well as the distribution of mindfulness scores in students with or without burnout. ANOVA and Chi-Square tests were used to compare scores across study-years and proportions, respectively.
Results: Burnout frequency ranged from 47.1% to 69.9%, with year six presenting the highest level. Wellbeing and distress displayed a significant inverse relationship. Students without burnout had higher dispositional mindfulness and psychosocial well-being, and less distress compared to burned-out students.
Discussion: This study confirms the high prevalence of burnout in medical students and reveals its sensitivity to progression along the curriculum. The soaring burnout levels in year six may relate to the increase of students 'responsibilities on direct patient care.
Conclusions: Causal relationships cannot be drawn. However, the negative association between dispositional mindfulness and burnout warrants further research and may open new avenues for preventive interventions.
Take-home messages: • Given its high prevalence and associated risks for students and patients, clinical teachers

and medical education authorities should address burnout during medical training.

• Curricula should be analyzed for its influence on students' wellbeing and revised to facilitate healthy transitions into clinical setups.

• Deliberate practice of mindfulness and positive psychosocial resources should be explored as means to potentiate students' wellbeing and resilience during clinical training.

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9JJ6 (2537)
Stress management for medical students: Scientific knowledge converts into practical tools through interaction and reflection

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Background: High level of harmful stress is common among medical students. In order to give students useful knowledge and tools, a compact and optional course "Stress management methods for students" was designed in University of Helsinki. The course has been organized twice (2016 and 2017) for group of approximately 50 students.
Method: Students kept stress and sleep diary before the course, attended interactive lectures on physiology and psychology of stress, connections of brain function, sleep and exercises to stress, studying techniques and mindfulness. All lectures included research based knowledge and practical methods. Furthermore, students prepared a group presentation of optional theme and wrote individually a reflective journal. Journals (N=67) were analysed by content analysis.
Results: Students participated course mostly because they had experienced stress during first study year and needed tools for their studies and for future as practitioners. Participants became more aware of their stress symptoms and their helpful and harmful ways of coping with stress. Especially sleep diary and knowledge about sleep and stress gave new insights. Sharing their experiences with peers was felt encouraging and relieving. Active group work empowered students and they highly appreciated peers' point of views.
Discussion & Conclusions: Students were stimulated by versatile scientific knowledge as well as new practical tools. They started to see stress as a functional reaction that can not be totally avoided, but rather could be used as resource. A framework which combines physiological, psychological and social aspects of stress helps medical students to understand the emotions that are connected to stress. Furthermore, diverse content gives every student some new coping mechanisms, for example

mindfulness or, at least, reinforces good, but forgotten habits.
Take-home message: Most of the participants were very satisfied with the course and would recommend it to their peers. This interactive course is one way to create a culture that supports healthy stress coping mechanisms at the very beginning of medical school. As one student crystallized: "A doctor who is feeling well is a best resource a patient can have".

9JJ7 NOT PRESENTED

9JJ8 NOT PRESENTED

9JJ9 (2071)
The voice of medical students to establish the meditation course at Maharaj medical education centre

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Background: Regarding positive evidence of meditation in medical education, many medical schools and medical education centres(MEC) have developed meditation course. However, little is known about students' preferences concerning meditation course. To devise a meditation course which would be most suitable for medical students, Maharaj MEC created a questionnaire to ask every clinical year students.
Method: The electronic questionnaires were sent to 91 undergraduate clinical year medical students in 2017 to gather information about characteristics of the preferred meditation course. Questions include the willingness to join the course, positive factors affecting meditation practice, preferred teaching styles and meditation techniques.
Results: Of 91, 67(73.6%) completed the questionnaires. Results showed that 62(68.1%) were willing to join the course for improving their mental health. All of them agreed that learning both theory and practice using interactive study would help them gain more applicable knowledge. The variety of meditation postures and techniques were mentioned by the students. In addition, sitting, lying and walking were the top three preferred meditation postures while awareness of breathing and open-monitoring meditations were the top two meditation techniques they preferred.
Conclusions: It is seen that meditation course is of students' interest, with some details of the programme being noted. To meet the needs of the students, the proper meditation course should consist of both interactive theoretical part and practical training. This is as

provision of theory would inform the principles of meditation practice that could help the students choose their own preferable meditation techniques under instructors' supervision.

Take-home message: The interactive theoretical teaching and practical training seems to be a proper teaching method of meditation for medical students.

9JJ10 (1687)
Does a gap year work against stress? A cross-sectional study of Finnish medical faculties in 2016

Authors

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Background: In Finland, a gap year in between medical studies has gained popularity. Medical education has gone through several reforms, from problem-based learning in 1990´s to the latest of competency based education. Health care working environment has also become more efficient and causing reduction in tutoring facilities for medical students at workplaces. We studied the prevalence of gap years (n=152) as well as intentions to take a gap year (n=348) reported by students in five medical faculties and potentially associated factors such as stress, motivation and social support.

Method/Results: Data were collected with online survey to 2nd–6th year medical students in September 2016 (total n=1557, response rate= 36%). The most common phase to take a gap year was in the clinic. Prevalence of gap years was 11% (8% men vs. 14% women). There were differences between faculties (17% vs. 7%). The most common reasons reported for taking a gap year were student exchange (24%), unspecified need for break (24%), concerns of wellbeing (20%) and family reasons (17%). Almost one third of students intended to take a gap year. These students reported higher study burden and stress and lower motivation than others. Students who had taken a gap year reported equal amount of study burden, stress and low motivation.

Conclusions: Students report several different reasons for taking a gap year. The phenomenon appears to be related partly to student-related factors and partly to learning environment. The study burden seems to be at a higher level for those who intend to take a gap year or have already taken it. If a gap year doesn't increase motivation nor reduce stress and coping problems, it may not be beneficial to students to take a gap year. Instead faculties should develop new strategies to identify students in need for intensive support.

Take-home message: A gap year may be effective to gain more experience and new skills, but it doesn't seem to be helpful in stress reduction nor in increasing motivation in studies.

9JJ11 (1732)
Disillusionment in medical education: An exploratory study

Authors

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Background: Although associated with work attrition and burnout literature, disillusionment or the "… feeling of disappointment, akin to depression, arising from the realization that something is not what it was expected or believed to be, possibly accompanied by philosophical angst from having one's beliefs challenged" has been little studied in medical training. In this study we explored the experience of disillusionment in medical training.

Method: An exploratory qualitative methodology using focus group discussions (FGD) was employed. Participants were recruited by email. A total of 5 FGDs (n=39) comprising medical students from 2 preclinical (MS1 and MS2, n=15) and 3 early clinical (MS3 and MS4, n=24) FGDs were conducted. The experience of disillusionment in medical training was discussed using a semi-structured guide. Discussions were audio-recorded, transcribed, and independently analysed for themes and subthemes by a family physician, a nurse educator, and a medical educationalist.

Results: Four themes emerged: (i) Mismatched expectations: disillusionment occurred when reality challenged pre-existing expectations and meaning perspectives. This fueled (ii) uncertainty about role and purpose in the world of medicine. (iii) Resilience factors were marshalled through self-reflection and enlisting the psychosocial support system. Mentors exemplified patient-centredness despite pressures to do otherwise. This could lead to (iv) personal growth in the form of deeper self-awareness and strengthened resolve in medical training.

Discussion: Medical training does well to prepare students for the unexpected inherent in medical practice. Transformative learning theory (TLT) informs us that "disillusionment" may be understood as a "disorientating dilemma" that cascades transformative learning. Illeris posits that this in fact affects the identity of the learner. Students described how meaningful purpose gave reason to endure self-deprivation in the course of duty, and mentors showed how it was possible.

Conclusions: Finding meaning in the care of patients fortifies students in their resolve to endure difficulties in the process of medical professional identity formation. We train learners for this capability by encouraging critical self-

reflection and providing a platform for support and discourse on their experience.

9JJ12 WITHDRAWN

9JJ13 (3587)
Long-term peripheral placements, social isolation, and mental health. What does this mean for medical students?

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Background: Depression and suicidal ideation amongst medical students is increasingly prevalent with hierarchical structures, a competitive environment, and social isolation playing pivotal roles. Within this critical context, modern medical curricula are increasingly adopting long-term peripheral placements, whereby students can be moved away from central sites (and support systems), for months at a time.
As students from GKT School of Medical Education, year-long peripheral placements have also been propositioned as part of Curriculum 2020. We are concerned about the social isolation this could cause, and the consequential impact on mental health.
Method: To understand the impact of long-term peripheral placements on students' mental health, we undertook a literature review using the Web of Science. Key terms such as 'peripheral placements', 'mental health', and 'medical education' helped us to analyse and identify recurring themes and key factors. A scoping search focussed on high-impact publications.
Results: Students who undergo long-term peripheral placements experience higher levels of social isolation, which is associated with depression. They are also less likely to access mental health services. Otherwise, there is limited research on the impact on students' mental health. Conversely, many positive educational consequences are reported; from improvements to rural healthcare provision and increases in medical students' competency levels.
Discussion/ Conclusions: It is worrying to see that peripheral placements lead to social isolation. Before introducing them, medical educators should address the gap in literature by exploring the impacts on students' wellbeing– especially considering the stressful nature of the jump from pre-clinical to clinical years. Preventive measures should be put in place. The one-sidedness of research, with focus on academia, is concerning. This suggests that educators prioritise academic success over student wellbeing, despite the gravity of 11% of medical students reporting suicidal intent. Do educational advantages outweigh the negative impacts on mental wellbeing?

Take-home messages: • Long-term peripheral placements have benefits on educational elements of clinical training.
• Medical students report increased social isolation on long-term peripheral placements.
• Social isolation is associated with depression.
• Medical schools should prioritise mental wellbeing and do more research on the impact of long-term peripheral placements on students' health, before implementation.

9JJ14 NOT PRESENTED

9JJ15 (1712)
The comparison of stress level among students in engagement of surgery and non surgery clinical rotation

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Background: The growing debate regarding stress level of students in the clinical rotation at medical program has been receiving consirable attention recently. Medical students face numerous stressors during their clinical years, including difficult clinical events. The greater differences environments and work load compared to under-graduate contribute to increasing stress, especially when the students enter surgery clinical rotation. Our objective was to specifically studied the comparison of stress level among them when they engaged in surgery or non surgery.
Method: A cross sectional descriptive analytic study was carried out on all students in surgical fields (obsgyn, surgery) and non surgical fields at the 3 Teaching Hospitals of Universitas Muhammadiyah Yogyakarta after one month discharge from their rotation. Level of stress was measured by DASS 21 after modified. The subjects consisted of 24 students in each groups.
Results: Data analyzed with independent T-test. There were significant differences between two groups (p: 0,001, 95% CI:11,12-14,32). In surgical group 10% students had severe depression with serious anxiety and average stress level, 5% had mild depression with average anxiety. In non-surgical group there was no student with severe depression. Only 5% have mild depression with mild anxiety.
Discussion & Conclusion: Students experienced many difficult clinical events and poor team dynamics most stressful. This is likely due to their role in the hierarchy, stress of evaluation, and vulnerable position as a medical student especially in surgical group. Students were not stress because of the patient care rather than the new environment and night shift everyday during ten weeks of their rotation. They did not perceive medical errors or patient care events as stressful given their lack of autonomy and they don't yet feel responsible for patient care.
Take-home messages: Surgical group had effects on stress level compared to non-surgical group.

Stress level among students in surgery clinical rotation
should be emphasized as attention in medical education.

9KK: Posters: Curriculum Evaluation: Case Studies

Location: Hall 4.u, CCB
Date: Tuesday 28th August
Time: 1600-1730 hrs

9KK1 (3261)
Developing a Continuous UGME Curriculum Quality Review Process

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Presenter:
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Background: With the development of new knowledge in medicine and expectations for physicians, medical school curriculi are perpetually undergoing iterative evolution and enhancement. The living nature of such programs necessitates an accompanying continuous or cyclic process for curriculum scrutiny to evaluate direction, applicability and quality of content and learning objectives. At the University of Saskatchewan, a major curriculum change was implemented for the 2018 graduating student cohort. Subsequently, it was recognized that a more robust and formal course review process was required for the entire UGME curriculum.
Method: The University of Saskatchewan Curriculum Quality Review Sub-Committee (CQRSC) was established as a subcommittee of the curriculum committee in July 2016. A course review cycle was created to review each UGME course once during a four year cycle. Each course review involves the course director filling out a comprehensive template outlining course information including course hours, changes made, evaluations, assessments, which program level objectives are covered, and which vertical themes are covered in the course. Next, during the course review orientation, the course director provides an overview followed by an assessment summary from the assessment specialist and an evaluation summary from the evaluation specialist. Three course review focus groups then look in detail at content and objectives as well as for consistency with key documents including the Program Level Objectives, Medical Council of Canada Objectives, CanMEDS roles, Learning Charter Goals, Future of Medical Education in Canada Recommendations, Social Accountability, and longitudinal curricular themes. A summary report is then created, reviewed and approved by CQRSC for presentation to the Curriculum Committee.
Results: Course directors report that it has been useful to identify ways to improve the course and commend courses for successes. Recent accreditation visit confirms that the process complies with accreditation standards for program review.

Discussion & Conclusion: Continuous curricular review can be done comprehensively and effectively using a peer review process. A key requirement for successful and effective course review is active faculty investment and participation.

9KK2 (2686)
Inadequacies of musculoskeletal medicine curriculum for undergraduate medical students: an institutional and regional study

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Background: The musculoskeletal disorders account from up to one in four of the general practice consultations and almost one third of the complaints among primary care clinical practice, however the time and importance given to its teaching is neglected in most Medical Schools.
Method: Medical students from the 1st to the 5th year were enrolled in a survey using the Freedman and Bernstein musculoskeletal examination test, in order to evaluate the acquisition of musculoskeletal competencies. Time spent with theoretical and practical activities; students' confidence in performing physical examination and in making diagnostic hypotheses for musculoskeletal disorders were also evaluated.
Results were analyzed using software R (Austria). Descriptive data and confidence interval were determined. Categorical data were analyzed using Chi square test. Continuous data were analyzed using a one-way ANOVA. The level of significance was set as $p < 0.05$.
Results: 545 students completed the questionnaire being from year 2=115/167 (29,6%); year 3=118/138 (30,4%); year 4=98/130 (25,3%); year 5=57/110 (14,7%). Nobody achieved the pass mark established as 70%.
The level of confidence in performing musculoskeletal examination was very low (3.7 2.2, n=386) and had no relationship with the percentage of right answers in the questionnaire (r=0.331; 95% CI 0.239-0.417, p<0.001). The confidence in physical examination was higher in the third year (4.8 1.7, n=118).
The majority (83.7%) of the students considered reasonable or good the amount of time spent with theoretical classes (83.7%) and also it was the most common teaching methodology used during the program (44.5% 23.4, n=349).

Discussion: Burden of musculoskeletal problems seen in primary care medical practice is well known. Undergraduate teaching accounts for the only exposure to orthopedic problems to most of the general practitioners. Universities are concerned about the adequacy of the musculoskeletal programs taught in their institution. Students' results were found insufficient in all the topics evaluated.

Conclusions: The way musculoskeletal disorders are being taught must be reviewed. Attention to curricular competencies, standardization of the contents, commitment of teachers, improvement of active teaching methodologies and good and in-depth syllabus could help improving the results.

9KK3 (2967)
Pre-orientation program at the University of Arkansas for Medical Sciences (UAMS) in three consecutive years: What do students perceive important in their adjustment to medical school?

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Background: A pre-orientation program to assist entering students with successful transitioning to medical school1 was implemented at the UAMS in 2015, 2016 and 2017. Preference was given to applicants that were the first generation college graduates, had a nontraditional academic background or self-identified as an under-represented minority. The program differed in length: two days in 2015, ten in 2016, and five in 2017.

Method: Twenty-nine, 37 and 24 students participated in three consecutive years of the program. The two-day program consisted of social events and small group discussions with faculty and second-year medical students. The expanded ten-day program included lectures and team-based learning in basic science, and hands-on activities (in the anatomy lab, ultrasound session, and suturing). Workshops were conducted on time management and test-taking skills.2 Students' study methods were assessed by Learning and Study Strategies Inventory (LASSI). Students engaged in daily lunch discussions with second-year students and faculty. 3 The briefer five-day program included fewer lectures in basic science, similar hands-on activities, a lecture on social determinants of health and mindfulness, and participation in an inter-professional free community clinic.

Results: Programs were evaluated by online survey at the end of the first semester with response rates of 93%, 89%, and 67%. Across the programs, participants rated with high importance development of friendships and academic relationships with their peers, upper-class students, and faculty. The highest importance was given to daily discussions with second-year students (63% in 2017). Hands-on activities were perceived with higher importance than content lectures. Scores on LASSI anxiety subscale were negatively correlated and time management positively correlated with students' performances in the Anatomy module and the first year ($p < .05$)

Conclusions: The pre-orientation program had the positive impact on the connectedness of program participants with classmates and faculty and improved their comfort level to ask for help. Medical students could benefit from assistance in time management and reducing anxiety in the first year of medical school. Hands-on activities could increase the motivation of students.

Take-home message: Participants connectedness with classmates and faculty, increased confidence, and reduced stress improved their adjustment to medical school.

9KK4 (1329)
Adapting Approaches to Value-based Care into Education: What, Why, and How

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Background: University of Utah Health is well known for its value-based care. A key to this success has been use of a simple value equation by the clinical enterprise (Value = Quality + Experience / Cost). With funding from the American Medical Association Accelerating Change Initiative, we have explored how to best adapt this equation to promote value-based education.

Method: We interviewed key stakeholders (10) from medicine, nursing, dental, health, and pharmacy about how to measure quality in health professions education, including entire curriculum to course level interventions. Using a structured protocol we gathered both quantitative (priority rankings of different domains of quality measures) and qualitative data (rationale for rankings about measurement strategies).

Results: The majority of interviewees supported use of value-based education strategies, with recognition that the conditions shaping use of the value equation in education were quite different than in health care. Interviewees tended to prioritize measures of core knowledge and skill acquisition over measures of readiness to collaborate or transform one's field. Interviewees tended, on average, to give relatively equal emphasis to process and outcome measures, but with a few interviewees expressing strong and contradictory preference for one over the other. Finally, interviewees

had little consensus regarding actual measures for their specific programs/projects.

Discussion & Conclusion: The general idea of adapting value-based care approaches for education appears to have support from educational leaders across health professions colleges at one institution in the US, but without a consistent strategy for doing so. Based on our interview data, we recommend that a panel of expert educators be created (modelled after a National Institutes of Health study section) who could estimate the relative value of specific proposals for educational interventions weighing probable quality estimates over cost estimates.

Take-home message: Measuring quality in medical education is important and challenging. Applying principles of value-base clinical care to education shows promise when applied to medical education in the US.

9KK5 (210)
The clinical skills confidence: reflection from the first year of practice

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Background: Training for effective healthcare providers, the Faculty of Medicine highlights the importance of reflection and feedback system to assess and develop our curriculum and instructional resources. Hence, a survey has been conduct to assess how their 2014-year graduates have performed during their first year in practice.

Method: A cross-sectional survey of 163 doctors who graduated from Faculty of Medicine of Naresuan University in year 2014 was carried out in 11 provincial hospitals in the lower northern area of Thailand during year 2015. The questions were constructed to identify self-confidence in their clinical procedures and patient treatment using Likert scale.

Results: There were 87% response rate. Male was 53. The mean of confidence for all skills was 3.79 ± 0.76. The highest mean of confidence was the anesthetic skills and intubation = 4.14 ± 0.55, followed by emergency care 4.05 ± 0.99 and internal medicine skills =4.05 ± 0.51 respectively. Surgical skills = 3.97 ± 0.50, Orthopedics skills = 3.77 ± 0.56, Obstetrics and Gynecology = 3.86 ± 0.55, Pediatric skills = 3.82 ± 0.59, Radiology 3.73 ± 0.54, chronic diseases and long term care = 3.83 ± 0.57. On the other hand, Ophthalmological skills = 3.37 ± 0.69, Oto-Rhino-Laryngology = 3.39 ± 0.64 and Psychiatric patient caring skills = 3.47 ± 0.65.

Discussion & Conclusions: The mean of clinical skills self-confidence were high but in some courses with limited time in our curriculum; especially in Ophthalmology, Oto-Rhino-Laryngology and Psychiatry, the graduates need more time to practice. Thus, we should suggest the

medical students to spend time after class or apply for post-graduated clinical course to be proficient.

Take-home messages: Most of the self-confidence in clinical skill of Naresuan's graduated doctors was high especially emergency care and life saving skills. The less learning time in rotation, the less clinical skill confidence of the graduates. Thus, we should concern about this aspect when design and develop the curriculum.

9KK6 (339)
The confidence of medical interns to perform basic medical procedures based on criteria of The Medical Council of Thailand

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Background: According to The Medical Council of Thailand criteria, medical students have to perform their competence in medical procedures to obtain their national medical license. Medical students have to practice medical procedures with training manikins and patients to maintain accuracy in the treatment, reduce the medical errors and increase their confidences.

Method: A cross-sectional descriptive study was conducted in 30 medical interns who work at Surin hospital. The research tools were demographic and specific questionnaires involved 5 from 42 most concerned medical procedures according to The Medical Council of Thailand criteria. The data were analyzed using descriptive and chi square statistics ($p<0.05$).

Results: All medical interns had completely practiced only two procedures of the criteria with both manikins and patients which are advance cardiopulmonary resuscitation and endotracheal Intubation. Their confidence on medical procedural skills in advance cardiopulmonary resuscitation 76.48%, endotracheal intubation 90.14%, lumbar puncture 80.19%, amniotomy 74.6% and normal labor 70.19%. The confidence to perform medical procedures significantly correlated with the number of patients they had been practicing as following: advance cardiopulmonary resuscitation P=0.007, endotracheal intubation p=0.03, lumbar puncture p=0.33, amniotomy p=0.008 and normal labor P=0.001

Discussion: All the medical interns realized the importance of medical procedural skills training with manikins and patients under medical staff supervision. However, the only two criteria that interns had completely practiced were advance cardiopulmonary resuscitation and endotracheal intubation with both manikins and patients. The average confidence to perform medical procedures was more than 70% and significantly correlated with the number of patients they experienced during procedural skill training.

Conclusions: The medical interns recognized the importance of practicing basic medical procedures with manikins and patients under the supervision of medical

staffs to reduce medical errors and thus increase their confidences. However, the number of patients during procedural training is the factor that may affect their confidence on procedural skill.

Take-home message: In order to prevent the medical errors, medical interns should practice basic medical procedural skill training with manikins and patients under staff supervision to increase their competence and confidence before graduation.

9KK7 (578)
Undergraduate medical curriculum in the University of Tartu: strengths and weaknesses of the curriculum and factors affecting changing the curriculum according to university teachers

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Background: In Estonia undergraduate medical training is offered by University of Tartu. In recent years it has been pointed out that there are several shortcomings in the currently implemented curriculum. New approaches to the organization of studies have been suggested as a solution. Feedback has been collected from the students and received during curriculum evaluation but the position of the university teachers has not been investigated.
Method: The aim of this study was to describe the strengths and weaknesses of the undergraduate curriculum and factors supporting and inhibiting changes in the curriculum according to university teachers. Consequently, a qualitative study was conducted by interviewing 12 university teachers of the medical studies. Data was analyzed using thematic analysis method.
Results: The results showed that the teachers valued a strong theoretical background and hands-on approach to teaching and learning. The teachers questioned the rational for dividing the curriculum into pre-clinical and clinical studies and rather saw it as a source for gap between theory and practice. The current system was used as a basis when discussing possible changes in the curriculum and the teachers tended to find similarities between a new approach that was introduced to them during the study and the current system.
Discussion & Conclusions: The results were partly controversial. Strong theoretical basis of the curriculum has been valued by students too but the results regarding hands-on approach to teaching and learning are contradictory in the results of this study as well as with previous feedback to the curriculum. Initiation of curriculum development and changes in the structure of the curriculum are difficult since majority of teachers have no experience outside the current one.
Take-home message: Teachers opinion about the curriculum and factors influencing curriculum change is just as important as the students and other parties participating in the process.

9KK8 (3317)
The National Policy on RDU Curriculum: Is it possible to implement it in the Medical Education Centers under The Ministry of Public Health (MOPH), Thailand?

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Background: The Ministry of Public Health (MOPH) in Thailand implemented a Rational Drug Use (RDU) policy in 2017 to promote medication safety. For education, a Memorandum of Understanding (MOU) between the MOPH and five Health Profession Councils and medicine-related faculties was created. The MOU covers teaching RDU as a core competency, adding RDU to the professional examinations, and including RDU in continuing education. A teachers' guide and RDU teaching workshops were also established. This study aimed to evaluate the effectiveness of the RDU policy one year after it was implemented in the Medical Education Centers (MECs) under the MOPH.
Method: A survey about RDU teaching in 37 MECs under the MOPH was completed by their director or deputy director during January 2018. Data were analyzed and described.
Results: Among the 21 MECs that responded, 18 (85.7%) knew the policy, 15 (71.4%) had attended a workshop and 4 (19.0%) had used the teachers' guide. No MEC provided RDU lectures as a core topic. Sixteen MECs integrated RDU with skills teaching such as taking a drug history, prescription writing, administering drugs safely, providing patients with appropriate information about their medicines, and monitoring drug therapy. The average teaching time was 2.2 ± 0.9 hours. An awareness of RDU was taught in 17 MECs when they had an opportunity. All MECs agreed that monitoring and evaluation of the impact of drug therapy and misconceptions about generic drug quality were the weak points for medical students. The obstacles are: not enough time, partial understanding of the RDU curriculum and using the teachers' guide.
Conclusions: To implement the National Policy on teaching RDU as a core topic effectively, an explicit core curriculum is required from the medical schools as this is directly linked to the curriculum of the MECs. Lack of time and poor understanding of the RDU curriculum were the main obstacles.
Take-home message: Including RDU in the core curriculum, cooperation between medical schools and MECs, and strong support from the MOPH and medical councils are needed for the success of the RDU teaching policy.

9KK9 (1639)
The teacher's role in classroom teaching – A qualitative research on the opinion of Taiwanese medical students

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Background: Due to rapid expansion of medical knowledge, medical education in Taiwan has undergone major reform during the last two decades. Learner-centered approaches (such as PBL, CBL, TBL), new curriculum design (such as organ-systems block), and new evaluation methods (such as OSCE, mini-CEX) were introduced and implemented. More emphasis was placed on clinical training, with lectures markedly reduced to cover only the necessary knowledge. In response to the drastic change, effective and efficient classroom teaching/ learning become a challenge to medical teachers.

Method: A qualitative research using in-depth interview method was performed to investigate medical students' opinions and expectations about classroom teaching. Twenty one high-grade medical students (year 5 and 6) participated in this study. The questionnaires comprised open questions covering the respondents' subjective preferences and objective judgments on effective teaching. Data were collected from taped interviews conducted by two trained interviewers. The interviews were transcribed, coded and analyzed.

Results & Discussion:

(1) Teaching models: There is no "almighty" model. The best teaching model should be tailor made. For fundamental knowledge (for example, biochemistry, immunology, ……), face to face teaching will be better. Small group discussion, PBL, CBL or TBL are suitable for clinical knowledge, and a good teacher guiding the discussion is very important.

(2) Teaching methods: Streamlining teaching materials and key point teaching, with supplementary information are favored. Backboard with chopsticks or powerpoint, which one is better? Everyone has his own taste. No matter which one, handout or lecture note is very important.

(3) Teaching style: Good teachers show their thinking process about the learning issues/ items. This will help students learn the issue more easily. Interest-inducing and concentration enhancing approach are also highly appreciated.

(4) Self learning is important, with reduced lecture hour. For example, online learning, lecture notes, self learning powerpoint file,…..etc. However, knowledge is boundless, the content of supplementary materials should be adequate and must learn for future physician.

Conclusion & Take-home message: Medical teacher of the new era should be a coach, rather than a knowledge provider.

9KK10 (3403)
Medical Education in Georgia: Crossroads of East and West

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Background: Through the History the connection of Europe and Asia was the milestone for most of the Empires. Georgia was playing crucial role in connection of East and West. One of the brightest examples is the Caucasus rote of the Great Silk Road going through Georgia. This country from the beginning of times was the concentration of different cultures, creeds, traditions.

Method: The aforementioned experience is continuously used in NVU, where we make the merging of East and West in Medical Education, both in teaching and learning process as well as in assessment. Today teaching at Medical School becomes more and more demanding. The diversity of the students envisages new challenges for the academic staff. Students enter the New Vision University from different cultural and socioeconomic backgrounds and bring various types of experiences. Our University aims to grow the world competitive MD. The presentation introduces the assessment methodologies used in New Vision University and how they are adjusted to the reality of the world.

Moreover, NVU provides students with opportunities to improve their knowledge in order to implement it in practice effectively.

Results: The assessment methodologies based on the International Standards and incorporate country specific experiences.

Discussion & Conclusions: New Vision University at the different loops of the curriculum refers different types of the assessment, which is integrating MCQ based on experiences of different countries (e.g. USMLE, MCI, PLAB, and etc.) with the practical spot examination (OSCE, USMLE step 2 CS and etc.), as well as capstone projects prepared by students on there last year of education.

9KK11 (3204)

Curriculum evaluation: Case study of Anesthesia Internship, Faculty of Medicine, Universidad de los Andes, Bogotá, Colombia

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Background: This case study in pre-graduate Anesthesia internship aimed at analyzing the curricular system to understand the necessary changes and adjustments regarding teaching and evaluation methods to meet requirements of Competency–Based Medical Education (CBME).

Method: A case study was conducted in 2014/2015 with 8 students in their internship year and 6 professors of medicine. The sources of information were: academic documents, observation in operating rooms, seminars and subject revision, academic meetings, interviews, learning diaries. The different sources of information allowed a muli-layered perspective, canvassing the curriculum, the learning process and the evaluation of the academic program according to CBME.

The curriculum promotes the CBME model by recommending teaching strategies such as observation and supervised practice in operating rooms. Together with topic-centered tutorials it enables students to understand and apply techniques and skills and helps to integrate the various aspects of their studies.

Results: The results show teachers being actively involved, facilitating and guiding the learning process. Students felt more motivated to study and specify problems. Although objectives and learning strategies correspond to CMBE, evaluation practice is more summative than formative, so contrary to the principles of this educational model. Acquired knowledge is mainly evaluated by written exams (summative evaluation) forming a high percentage of the grades. Mainly though scenarios of this clinical rotation are seminars and participation in surgery rooms - all evaluated subjectively without any objective criteria or evaluation matrix.

Discussion: Medical education rooting deeply in traditional models faces difficulties creating a curriculum consistently in accordance to CMBE.With the variety of learning approaches during this rotation in anesthesia, the curriculum has to connect different learning processes in clinical scenarios adequate for CMBE. Results show a low level of coherence in teaching and evaluation practice making it difficult for students and teachers to satisfactorily account for all progress and performance levels.

Conclusions: The curricular system has to be focussed regarding its educational model to clearly shape academic programs. Evaluation must reflect the applied teaching strategies and methods using different criteria and measurements to unfold the full potential of CBME.

9KK12 (2587)

Strengths and Challenges of Implementing an EMI Medical Program in China: Developing Remedial Strategies for an "Alien" Curriculum

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Background: In many non-English speaking countries, English-medium instruction (EMI) has been widely advocated in medical education as a way to achieve internationalization and improve educational outcome. But discussions on EMI medical program seldom address the issues that faculty and students have to deal with, while only focusing on the acquisition of terms and disciplinary knowledge.

Method: In this case study, interviews (N=12), questionnaire survey (N=262) and focus group (N=18) were conducted to investigated the strengths and challenges of implementing an EMI medical program from 2007 to 2017 in Shantou University Medical College (SUMC), China. A comprehensive view of this program was obtained by involving students from different grades and faculty members teaching foundation and clinical courses. Quantitative data was subject to statistic analysis and verbal data were verbatim transcribed, analyzed and coded for triangulation.

Results: The EMI program proves to be effective in terms of student performance in OSCE and USMLE in the last several years. Its strength lies in the longitudinal curriculum development that successfully initiates conceptual changes of education philosophy. The inadequate English proficiency of local teachers have impaired the EMI teaching quality, classroom interaction in particular, with 51% of teachers and 71% of students unsatisfied with the clarity and depth of teaching content. Both the teachers and the students adopt strategies to remedy these disadvantages, ranging from problem-based and active learning strategies, motivation mechanism to the appropriation of original English textbooks for localized needs.

Discussion & Conclusions: Problem-based and case-based educational concepts are essence of EMI medical program, executed through perseverant use of original English textbooks and sustainable faculty development. Without the institutional culture of active learning, the remedial strategies would not be effective. The acculturation takes 2-3 years for both faculty members and students, implying the need to develop an EMI program longitudinally for substantial changes, rather than a superficial change in the teaching language.

Take-home message: EMI medical program entails profound transformation in learning/teaching practice. The challenges of implementing such an "alien" curriculum can be properly dealt with by building the institutional culture through faculty/student training.

9KK13 (762)
Perceptions of Emergency Medicine: from getting in the way to getting on the way

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Background: The Emergency Department (ED) is the frontline of the NHS, seeing 23 million patients in 2016 alone. Bristol medical students have placements in the ED in their 3rd/5th year. Other research has considered the student perceptions impacting career choice, but there is little on student views of the learning experience in the ED. This study seeks first to explore the student perceptions and experiences of their undergraduate placement in emergency medicine, and second seeks viable strategies to improve their learning experience.
Method: White space questionnaires investigated perceptions of ED attachments from 23 3rd/5th year medical students. These responses were then further explored through focus groups.We have designed and are currently implementing a pilot novel near-peer support programme in which 5th year students have been allocated one on one time in the ED supporting a 3rd year medical student. This will be a structured session including observed clerk-ins, real-time feedback, and practical advice about emergency medicine. This will be followed by a further student focus group and written questionnaire, and reflections on the experience from the 5th year students.
Results & Discussion: 43% of all 23 students completing the questionnaire spontaneously used the phrase "getting in the way" or "feeling in the way" in answer to what they were least looking forward to in their ED placement. Focus groups revealed that although students feel like this in multiple clinical areas it was more pronounced in the ED, and that they felt that peer support in ED would be of benefit. Other themes to emerge were: self-reported feelings of "being useless", being allocated a clinical role was rewarding, and confidence in seeking learning opportunities increases between 3rd and 5th year.
Conclusions: Students perceived themselves as "getting in the way" in clinical environments, particularly in the ED. To support their learning in emergency medicine we are implementing a near-peer led clinical support pilot.

Take-home message: A peer led teaching and support intervention in a clinical environment aiming to reduce self-reported feeling "in the way" and getting students "on the way" to becoming more confident in the ED.

9KK14 (1306)
How to efficiently close the gap between expected and actual performance during assembly of mechanical chest compression device (LUCAS)?

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Background: Mechanical chest compression (CC) devices has replaced manual CC in some emergency department (ED). ED staffs are said to familiar with the device and could incorporate it into the existing resuscitation. Is that the truth?
Method: After videotape recording the resuscitation of cardiac arrest were examined, the process of assembling mechanical CC device (i.e. LUCAS) was identify as an important interruption of CC during the early resuscitation phase. 24 experienced ED staffs were enrolled in a resuscitation quality improvement program (RQIP). Participants document their confidence in assembling the LUCAS before the workshop.
The participants were guided through steps based on Kolb's cycles:
Experience step: Participants were divided to form groups of three and sequentially assembly the LUCAS on a full-body manikin. Primary outcomes were recorded: LUCAS assembly time(AT) and Chest compression fraction during the assembly (CCF). Participants document their confidence again.
Reflection step: Participants were divided into four groups, each group has to derive measures that streamline LUCAS assembly through group discussion.
Conceptualize step: Four groups shared their idea and derived a stepwise approach to assembly LUCAS under supervision of facilitator.
Planning step: Participants were asked to deliberately practice on this approach. Primary outcomes were recorded.
Finally, participants were asked whether they would adopt this approach in future.
Results: 20/24 participants were confident before experience step but decrease to 8/24 after step. A Stepwise approach to streamline the assembly of LUCAS was derived. After deliberate practice, AT and CCF were greatly improved. All participants unanimously would adopt this approach in future.
Discussion & Conclusion: There is a discrepancy between expected and actual performance on LUCAS assembly. A RQIP was designed based on problem-solving approach

through steps following Kolb's learning cycle. The participants experienced to find their problems. Then they actively engaged in process of solving the problem through group discussion and team-based learning. After deliberate practice on the approach they created, they unanimously would adopt it in their future daily practice.

Take-home message: Active experience and engagement is powerful to learn and improve resuscitation quality.

9KK15 (73)
Assessment of Knowledge Regarding Sexually Transmitted Diseases Among Students in a University in Riyadh, Saudi Arabia

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Background: Sexually transmitted diseases (STD) are infections that are spread during any sexual contact. Signs of STD may include vaginal or penile discharge, pelvic pain, and ulcers around genitals or on them. However, most of the STD are asymptomatic which increases the possibility of transmitting it to other persons. Although the incidence of STD in Saudi Arabia is low in comparison to other countries, further efforts are needed to avoid health, economic, and psychological problems. STDs can cause severe health complications such as pelvic inflammatory disease, ectopic pregnancy, infertility, cancer, infections of newborns, and even death . Incorrect sexual health knowledge results in adapting negative behavior and risky sexual practices. Sexual health knowledge is affected by multiple factors including: educational background of parents, internet and other social factors. In Saudi Arabia, discussing sexual topics is usually limited due to cultural and religious values.

We are conducting a cross- sectional study among university students in a private university in Riyadh, Saudi Arabia to explore their knowledge of STDs and safe sexual practices in order to determine knowledge gaps regarding this topic and based on that we can initiate well established health programs.

Method: The study is a cross-sectional study that targets students of the 1st, 2nd, and 3rd years of medical college and 1st, 2nd, 3rd,and 4rth years engineering and business colleges at Alfaisal University. A paper based self-developed questionnaire will be distributed to the students.

Discussion & Conclusion: The students generally have poor sexual education.

Take-home message: Determining the gap in sexual education is fundamental to raise awareness about STD to decrease its prevalence.

9KK16 (3521)
The relationship of clinical performance and program satisfaction - is it independent or interactive? Experience from the clerkship program of international medical students

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Background: Assessing learning outcome and program satisfaction is important but also challenging. Since the complex nature of teaching-learning process, both the learning outcome and satisfactory result may be interactively influenced by each other in some situation. The study was conducted to find if these important outcomes totally independent or reciprocally affected in certain conditions.

Method: Thirty-four international medical students are divided into 9 groups during clinical rotation and evaluated according to their clinical performance. The program satisfactory evaluation was also performed at the end of each session. Descriptive analysis and Pearson's correlation were performed to discover the relationship between the performance outcome and satisfaction.

Results: The mean score was 86.6/100 and the satisfaction was 4.5/5 in total 172 group-sessions. The Pearson's correlation coefficient was 0.04 ($p=0.63$), representing no relationship without statistical significance. The results were similar in most departments except emergency department (ED), which showed high correlation with statistical significance (correlation coefficient 0.83, $p=0.04$).

Discussion: The results showed no obvious factors simultaneously influencing both students' performance scores and the satisfaction for the program. ED is the only exception which showed strong correlation. Considering ED also had the lowest satisfactory result, students might feel frustrated and regard their relatively low learning outcome as the consequences of poor program design and environment.

Conclusions: In conclusion, international medical students' learning outcome and their satisfaction to the clinical department showed no correlation in general, but the result could be different in lower satisfaction program, which may show strong correlation between them. The learning outcome of students and satisfactory evaluation results for clinical program should be monitored regularly and analyzed carefully. They are generally independent but can also be interactive in some specific situations, which may conceal issues to be solve immediately.

9KK17 (3394)

Comparison of the results of the graduation surveys of Yeditepe University Faculty of Medicine between the years 2013-2017: What has changed regarding the self-perceived competency level of medical graduates on program outcomes?

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Presenter:

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Background: The undergraduate program outcomes of Yeditepe University, Faculty of Medicine were revised in the year 2013. 47 program outcomes were defined under seven roles namely; (1) physician at primary health care level, (2) leader and manager at primary health care level, (3) advocate of health for community and individuals, (4) ethical medical practice, (5) communicator and collaborator with all stakeholders, (6) researcher and scholar in medicine, (7) effective career manager. Since the academic year 2013-2014 the graduate questionnaire regarding the program outcomes has been applied to graduates at the end of the each academic year.

The aim of this study is to compare the self-perceived competency level of medical graduates at different years on curriculum outcomes. This study is planned as a panel study which serves to the continuing revision process of undergraduate medical education program as a whole. The results it was applied was shared in AMEE Conference 2015 as oral presentation.

Method: A questionnaire including socio-demographic variables and 47 items related to competencies were applied to all 200 graduates. The graduates rated each item on a ten point categorical scale from least to highest competency level.

Results: The internal consistency of questionnaire was high (Cronbach's 0,974). The average competency score under the role of primary care physician was higher (7,3413±1,04987) in 2017 compared with the total average score of the previous years (6,8820±1,24277), (p-value =0.025,statistically significant). Similar results were observed for health advocacy (7,4022±1,26434 / 6,8101±1,60551) and ethical medical practice (7,5057±1,44694 / 6,9348±1,57734), (p-value = 0.023 and 0.030 respectively, statistically significant).

Discussion: The average scores of the leadership and managerial role competencies were relatively higher although there was no statistical significancy which could be explained by the implementation of a new clerkship program, Transition to Clinical Settings in the year 2014.

Also seminars in Internship program could have supported these differences.

Conclusions: We conclude that the results of graduation surveys serve as an important component of program evaluation.

Take-home message: Graduation surveys aiming to obtain students' ratings of their competency levels, are much more efficient if they are applied continiously and systematically.

SESSION 10: SIMULTANEOUS SESSIONS

Wednesday 29th August
0830-1015 hrs

10A: Symposium: Assessing Social and Behavioural Sciences in Medical Education: Square Peg in a Round Hole

Location: Event Hall
Date: Wednesday 29th August
Time: 0830-1015 hrs

Presenters:
Jeni Harden, UK
Tracey Collett, Plymouth University, UK
Dan Hunt, AAMC, USA
Ellie Hothershall, University of Dundee, UK
Kathy Kendall, University of Southampton, UK
Hiroshi Nishigori, Kyoto University, Japan
Madalena Patricio, University of Lisbon, Portugal

Summary: Attention has turned in recent years to the broader inclusion of social and behavioural sciences (SBS) in medical curricula. However, there is as yet only limited evidence about how best to assess these subjects. This is very pertinent given that SBS questions have recently been included in the MCAT exam in the USA (in MCQ format) and are likely also to be included in the proposed UK Medical Licensing Assessment. This symposium will discuss key issues including: whether and how SBS is included in assessment blueprinting; what is being assessed (knowledge, skills, competencies); and whether, and on what basis, tools used for assessing SBS are considered to be 'fit for purpose'. We will hear from speakers representing a range of educational contexts. Each speaker will identify a key challenge which we will then open for discussion among the panel. Those attending the symposium will be invited to participate with questions and comments in the traditional manner and via Padlet (an online collaborative space). Although focussed on SBS, the symposium is of wider relevance to medical educators interested in assessment.
Format: Short presentations by a maximum of 4 speakers followed by a discussion of the key challenges identified. The panel (speakers and a discussant) will respond to questions and comments from the symposium participants. We would prefer to make this interactive so we plan to encourage discussion via Padlet, the online collaborative wall which participants can access during and after the session.
Who should participate in the symposium? The primary group attending this session is likely to be those with an interest in SBS. We have demonstrated in our AMEE sessions (workshops and a symposium) over the last three years that there is a strong interest in this area. However, this session will also appeal to those with interests in assessment more generally including those with interests

in other areas that are often regarded as more challenging to assess such as humanities and professionalism.

10B: Symposium: Undergraduate National Medical Licensing Exams from an international perspective: lessons learned and future directions

Location: Montreal, 2nd Floor, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

Presenters:
Sören Huwendiek, Institute of Medical Education, Bern, Switzerland
Raphael Bonvin, Medical Education Unit, Fribourg, Switzerland
Brian Clauser, National Board of Medical Examiners, Philadelphia, USA
Ingrid de Vries, Medical Council of Canada, Ottawa, Canada
Mi Kyoung Yim, Korea Health Personnel Licensing Examination Institute, Seoul, Korea
Marc Braun, conseil scientifique du CNCI, Nancy, France
Christoph Berendonk, Institute of Medical Education, Bern, Switzerland

Summary: A national licensing exam (NLE) represents a very special type of high stakes exam. It is typically a large-scale "one shot" exam that assesses several years of training. The licensing role of those exams require them to be highly defensible. With all these constrains, NLEs can assess certain competencies and use specific methods. This symposium will offer an insight into the assessed competencies and the assessment methods used from the perspective of five countries running such exams (Canada, USA, France, Korea and Switzerland) and discuss the lessons learned and future directions among the presenters and with the audience. As deeper insights in these important issues concerning NLEs are usually not easily accessible we decided to establish this symposium.
Who should participate in the symposium? All who are interested in high stakes assessment and want to get more insights on the lessons learned and future directions drawn from NLEs.
What will they gain from participating? Participants will get an insight into the National Licensing Exams of four countries. In particular, they will learn about following aspects:
Main experiences and lessons learned from countries with established NLEs concerning the competencies assessed and methodological approaches used.
Visions and future directions for NLEs from an international perspective.
Further, participants will be invited to reflect on how to transfer these reflections to the exams they are involved with.

10C: Symposium: Glocalisation of Medical Education and the Teacher's Role

Location: Sydney, 2nd Floor, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

Presenters:
Dujeepa Samarasekera, National University of Singapore, Singapore
Lambert Schuwirth, Flinders University, Australia
Lee Shuh Shing, National University of Singapore, Singapore
Matthew Gwee, National University of Singapore, Singapore
Yvonne Steinert, McGill University, Canada

Summary: Educational discourse in recent years has increasingly centred on the 'twenty-first century skills' that aim to prepare students to meet the challenges and demands of the society. There is also a trend in adopting and adapting curricula, teaching-learning methods /materials and assessment formats conceptualised and operationalised in different countries/settings to one's own. Most times, educational philosophies, cultural and contextual issues have been ignored when operationalising these educational activities. This has led to ground level challenges where the teachers and students have been struggling to cope. Consequently, many misconceptions have colored the actual discourse leading to conflict and negative impact to international collaboration in medical/health professions education. However, Clifford (1988, p. 76) mentioned that "We come to understand our own culture by trying to understand others". In this symposium, instead of highlighting the differences between cultures and educational philosophies, we would like to discuss some of the best practices in incorporating and contextualising such educational activities with different philosophies in order for the medical/health professionals to acquire skills required for the 21st century. Clifford, J. (1988). The Predicament of Culture: Twentieth Century Ethnography, Literature, and Art. Cambridge, Massachusetts: Harvard University Press.
Who should participate in the symposium? The symposium is suitable for teachers, academic heads, curricular leads of undergraduate and post graduate medical education, program directors and mentors of health professionals.
What will they gain from participating? After attending this session, participants will gain understanding of: glocalisation in different settings or context contextualisation of different educational activities adopted or/and adapted in different countries roles of teaches in incorporating cultures and educational philosophies in adopting or/and adapting different educational activities.

10D: Symposium: Social Realities Impacting Medical Education - XVI Iberoamerican Session

Location: Singapore, 2nd Floor, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

Presenters:
Alberto Dougnac, ASOFAMECH, Chile
Milagros Garcia Barbero, SEDEM, Spain
Julio Cesar Gomez, AMFEM, Mexico
Geneviève Moineau, AFMC, Canada
Debora Silva, AAMC, Puerto Rico
Pablo Pulido, PAFAMS - IAI, Venezuela
Ricardo Leon Borquez, PAFAMS, México

Summary: The main challenge for education in the health professions resides in the demonstration, by the educational institutions, of their contribution to health systems performance for the population they serve. Identification of Key problems and priorities along with accepted social responsibility are needed.
New models for provision of healthcare services are emerging as a result of natural disasters, earthquakes, hurricanes as well as economic, political violence, migrations and financial crises in the countries and regions. The scope and complexity of these problems require comprehensive quality solution. Significant challenges in society and in science and technology may end up requiring understanding to be addressed appropriately. If not resolved promptly, medical education and health systems of the future could be shrouded with uncertainty, or potential instability.
This session will analyze concrete examples of interactions between academic Institutions, public health policies and results of the real impact and involvement of Medical Schools. Addressing new health care determinants with social justice and responsibility.

10E: Research Papers: Discourse and Theory

Location: Delhi, Ground Floor, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

10E1 (186)
A critical discourse analysis of accreditation standards in pharmacy and nursing education programs

Authors

Leigh Chapman, The Wilson Centre, University of Toronto, Toronto, Canada
Cynthia Whitehead, The Wilson Centre, University of Toronto, Toronto, Canada
Ayelet Kuper, The Wilson Centre, University of Toronto, Toronto, Canada
Elise Paradis, Leslie Dan Faculty of Pharmacy, University of Toronto, Toronto, Canada
Paula Rowland, The Wilson Centre, University of Toronto, Toronto, Canada
Lisa Richardson, The Wilson Centre, University of Toronto, Toronto, Canada
Michelle Spadoni, School of Nursing, Faculty of Health and Behavioural Sciences, Lakehead University, Thunder Bay, Canada
Carrie Cartmill, The Wilson Centre, University of Toronto, Toronto, Canada

Presenter: Leigh Chapman, The Wilson Centre, Toronto, Canada

Introduction: Formal accreditation standards shape key structures and practices by powerfully influencing what is taught in health professions education. Accreditation systems in healthcare are intended to improve patient care and reflect the values of a profession. One essential step in promoting core ideals such as compassion and caring is to ensure that these professional values are emphasized within formal accreditation standards and related documents. Accordingly, this research project critically examined caring and compassion in the accreditation standards for Canadian nursing and pharmacy education.
Methods: This project used accepted principles and practices of critical discourse analysis to interrogate accreditation standards and related pertinent documents. In addition to this primary textual archive, the project team also analyzed secondary documents, consisting of regulatory documents related to health professions education and other key profession-specific policy documents.
Findings: Accreditation standards for pharmacy and nursing education foreground curriculum development and delivery, education program outcomes and evaluation processes. Both sets of standards also introduce quality as a fundamental goal of the accreditation process and draw heavily on the competencies and education outcomes defined by their associated regulatory bodies.
A key finding was the relative absence of the words caring and compassion in the documentary archive. In the nursing accreditation standards, the words 'caring' and 'compassion' were not found, however compassion was found in 11 places in the nursing documentary archive. All references to compassion were from a single regulatory competency document (i.e. Jurisdictional Competency Process, 2012) in which 'compassionate' was listed adjacent to the terms 'safe', 'competent', and 'ethical' to describe nursing care in a variety of practice settings.
In the pharmacy accreditation standards, although the word 'compassion' appears in the introductory preface alongside the terms 'empathy' and 'integrity', it does not appear subsequently in the standards. There is also no explicit reference to compassion found in the associated documents for pharmacy education.
Discussion: In the documentary archive, the listing of compassion contiguously with other terms has the effect of deemphasizing its importance. When the term is but one of several listed concepts, it does not suggest primacy of compassion and caring, despite these being key concepts in humanistic healthcare education. In our analysis, we also found an explicit focus on educational outcomes and competencies, which highlight education processes such as curriculum development, delivery and evaluation. Notwithstanding the necessary importance of a focus on outcomes in any accreditation program, the absence of any substantive emphasis on compassion in a healthcare education program is problematic. We realize that it is possible that accrediting bodies view compassion as more of an ideology to be subsumed under educational program values and curricula. Nevertheless, although the term 'compassion' itself is amorphous, it is arguably the most important professional ideal of any healthcare provider.
Conclusion: Healthcare practices will be imperiled if we ignore the importance of training practitioners to provide humane, compassionate, person-centered care. Accreditation standards must include fundamental professional ideals such as caring and compassion. Healthcare education programs must explicitly espouse these professional values. Those teaching in educational institutions must also ensure that they train professionals to be caring and compassionate health care providers. This project provides essential information to ensure alignment of formal standards for nursing and pharmacy education accreditation with core values of compassion and caring that are essential for holistic, person-centered healthcare.

10E2 (184)
Recognising, valuing and enhancing the role of clinicians who teach: an exploration of medical school practices

Authors

Claire MacRae, University of Edinburgh Medical School, Edinburgh, UK
Derek Jones, University of Edinburgh Medical School, Edinburgh, UK
Terese Stenfors, Karolinska Institutet, Stockholm, Sweden

Presenter: Claire MacRae, University of Edinburgh Medical School, Edinburgh, UK

Introduction: A great deal of undergraduate medical teaching in Scotland is delivered in the workplace by practising doctors, many of whom do not have a formal contract with their medical school. Increasingly these doctors complain that they feel unappreciated by and disconnected from their medical schools. This issue is of concern, because teachers who do not feel valued are likely to lack motivation to participate in faculty development, and ultimately the absence of any formal accountability means that they could refuse to teach at all. Our research aimed to explore why teachers and teaching in one medical school were perceived to be undervalued despite formal efforts to recognise contributions to teaching, and to suggest realistic ways to improve the situation.

Methods: A critical realist (CR) perspective was adopted, allowing 'the medical school' to be analysed as a unit consisting of more than the sum of the individuals it employs. The 'depth ontology' of critical realism acknowledges complexity and the unseen effects that organisational rules and norms have on individual behaviour. CR research begins with a problem, and attempts to understand why it arose and why it persists [1]. It assumes that problems experienced by individuals or groups have 'real' causes, often located at organisational level.

A qualitative, mixed-methodological approach was taken, combining a CR case study [2] with Critical Discourse Analysis (CDA) [1]. An intensive, transdisciplinary theoretical phase identified potential causal mechanisms of the issue, which were then investigated empirically. A corpus of around 1000 organisational documents related to undergraduate medical education was analysed using CDA. This documentary analysis was then combined with the wider case study data, including structural features of the organisation, perspectives of individuals, and the positioning of the organisation in its social, historical and cultural contexts. Continuous, iterative comparisons of data and theories then suggests the most likely mechanisms.

Results: Four types of contributing factor were identified:
1. 'Interventions', particularly overuse of teaching awards creating a winner-loser culture;
2. 'Organisational factors', such as prioritising assessment and quality assurance during meetings whilst neglecting to talk about teaching at all;
3. 'Individual factors', including breach of the 'implied contract' governing who, what, how and when clinicians expect to teach;
4. 'Contextual factors', including government initiatives to reduce doctors' autonomy and to regulate the profession.

Discussion & conclusions: Faculty development research is often conducted by, or for, education organisations seeking insights into the 'best' ways to recruit, retain and train faculty. However, changes implemented following such research may yield disappointing results, as tensions arise when attempting to balance individual attitudes, beliefs and experiences with organisational constraints, including time, money and regulatory frameworks.

Our results suggest that the problem being investigated is the cumulative result of many linked factors interacting over a period of time. We feel that our findings can inform multiple small, feasible changes at key points in these chains, such as reducing the emphasis on award ceremonies, and including more teaching related 'standing items' on committee agendas which are more likely to lead to long-term success.

The next phase of our research involves comparative case studies in two other medical schools to further explore the extent to which organisational and regulatory contexts affect this issue.

References: *Fairclough N. Critical discourse analysis the critical study of language. Second edition. ed: Abingdon, Oxon : Routledge 2013.*

Edwards PK, Mahoney J, Vincent S. Studying organizations using critical realism a practical guide: Oxford : Oxford University Press 2014.

10E3 (127)
The Stethoscope of the 21st Century: Discourses Advancing the Inevitability of Point-of-Care Ultrasound in Medical Education

Authors

Zac Feilchenfeld, Sunnybrook Health Sciences Centre, Division of General Internal Medicine, Department of Medicine, University of Toronto, Toronto, Canada
Ayelet Kuper, Sunnybrook Health Sciences Centre, Division of General Internal Medicine, Department of Medicine, and The Wilson Centre, University of Toronto, Toronto, Canada
Cynthia Whitehead, Women's College Hospital, Department of Family and Community Medicine, and The Wilson Centre, University of Toronto, Toronto, Canada

Presenter: Zac Feilchenfeld, Sunnybrook Health Sciences Centre, Division of General Internal Medicine, Department of Medicine, University of Toronto, Canada

Introduction: In recent years point-of-care ultrasound (POCUS) has become a widely used clinical tool in a number of clinical specialties. In response, POCUS has been incorporated into medical curricula across the learning continuum, bolstered by enthusiastic appraisals of the technology's benefits for learners, clinicians, and patients. In research previously presented at AMEE and subsequently published, we found an absence of evidence supporting the incorporation of ultrasound in undergraduate medical education.1 In our current work we have sought to understand the nonetheless persistent enthusiasm for increasing integration of POCUS into medical education.

Methods: We conducted a Foucauldian critical discourse analysis (CDA) to identify and analyze discourses that legitimize and privilege the use of POCUS in medical education. We assembled an archive beginning with articles retrieved from MEDLINE using search terms "ultrasound," "ultrasonography," and "medical education;" added relevant texts from reference lists; and used Google Scholar to add relevant articles that cited titles already included in our archive. All 1553 articles were evaluated for relevance: we excluded articles that did not address ultrasound and medical education by reading titles and abstracts (741), full texts where no abstract was available (248), or after initial inclusion due to a more thorough evaluation (91). Our archive contained 573 texts

published in journals between 1980 and 2017. Each article in the archive was analyzed to identify frequently occurring truth statements (expressing concepts whose truth need not lie in evidence, but are unquestioned within particular discourses).2 We used these truth statements to characterize the major discourses that construct representations of POCUS in medical education.

Results: We identified three dominant discourses that have emerged and developed over recent decades: 1) A visuo-centric discourse prioritizes visual information provided by the ultrasound machine as more 'truthful' than clinical data obtained via other means or other senses than sight. 2) A utilitarian discourse emphasizes the clinical utility of POCUS in improving patient care, and the need for dedicated training to achieve competence, necessitating ultrasound-integrated curricula across the continuum of medical education. 3) A modernist discourse redefines POCUS as the central clinical and educational tool of the 21st century physician, replacing centuries-old outmoded tools that should no longer belong in our modern, technological world. As is expected in CDA, these discourses overlap and converge; in this instance, the core discursive effect makes the further elevation of POCUS in medical education, and the corollary attenuation of other curricular priorities, appear inevitable.

Discussion & Conclusions: Dominant discourses influence what can and cannot be said, what is or is not questioned, what is 'natural' or 'obvious'. In our archive, the increasing integration of POCUS into medical education appears discursively to become natural, obvious and inevitable. Evidence for the utility of POCUS (in clinical or educational applications) is therefore not required, and any absence of evidence can be dismissed as evidence only of insufficient study, which would indubitably uncover expected and accepted truths. Therefore, these three dominant discourses, separately and together, engender ideal conditions for the proliferation of POCUS in medical education. Identifying these discourses and their underlying assumptions allows critical scholars to ask questions that do not take for granted these supposed truths. While our findings are provocative, proposed curricular changes deserve rigorous assessment and critique, especially when endorsing a change that calls for considerable financial and temporal investment with unknown risks and benefits.

References: *Feilchenfeld Z, Dornan T, Whitehead C, Kuper A. Ultrasound in undergraduate medical education: a systematic and critical review. Medical Education. 2017;51:366-378.*
Foucault M. The Archaeology of Knowledge: And the Discourse on Language. New York City (NY) Vintage Books; 1972.

10E4 (55)
When learning isn't just learning: Alignments and tensions between university based and workplace initiated continuous professional development programs

Authors
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Cynthia Whitehead, University of Toronto, Toronto, Canada

Presenter: Paula Rowland, University of Toronto, Canada

Introduction: Continuous professional development (CPD) has been historically perceived as separate from clinical workplaces. Leaders in CPD argue for an evolution of the field, advocating for better alignment between educational delivery and workplace needs. Proposed CPD strategies include developing curricula in response to workplace priorities and situating education directly in the workplace setting. However, health care organizations are not empty vessels. Instead, these organizations are occupied by near constant change efforts. These change efforts are often accompanied by workplace initiated CPD programs. As a result, these organizations are discursively crowded spaces with their own implicit and explicit pedagogies: theories and practices of what, when, and how professionals should learn. Pedagogical tensions likely exist between university based CPD programs and workplace initiated change efforts implemented through CPD programs. These tensions must be understood, otherwise we risk CPD continuing to operate as separate from – and potentially irrelevant to – the larger aim of improving patient care.

Methods: We chose a single case study approach to explore pedagogical alignments and possible tensions between existing university based CPD and workplace initiated CPD. In this case study, we engaged in a discourse analysis of two educational programs operating within the same institution. The first was a formal CPD program developed by the affiliated university. This university based CPD program emphasized interprofessional collaboration and communication, with a declared aim of improving patient safety and the quality of patient care. The second was a formal workplace based curriculum implemented by an urban hospital network. This workplace based curriculum was one element of a large scale organizational change effort also with the declared aim of improving patient safety. We deployed a governmentality analytic (Dean, 2010) to examine the two curricula, paying particular attention to alignments and misalignments between the two.

Findings: The two curricula shared many declared principles: a commitment to team based learning, an emphasis on communication, and explicit valuing of interprofessionalism. However, there were nuanced pedagogical differences: there were different forms of knowledge were being deployed, different curricular foci/priorities, different techniques and technologies of learning, and different implied expectations of what it meant to be a good professional. Most notably, the analysis of the two curricula highlighted a potential disconnect between the university based CPD as "transformational adult learning" and the workplace based CPD as "human resource management".

Discussion and Conclusions: While both programs were considered examples of CPD to improve patient care, they displayed different assumptions about education and practices to drive learning. This is not to suggest that one

is inherently superior to the other. Either curriculum could be valorized or critiqued within its own domain. What is striking is the intersection between the two, particularly as they are acting under similar banners (improving patient care) within the same organizational space. However, the two programs implicitly displayed disparate ways of being a good professional. While both the university based and the work place based CPD programs aim to improve patient care, they compete for influence on professional identities. This analysis questions whether CPD programs and workplace based change efforts – even those with the same declared aims – are always benignly aligned (Fenwick, 2010). Explicit consideration of these tensions advances our understanding of workplace learning and provides guidance for educators that wish to align CPD more explicitly with clinical workplaces.

References: *Dean, M. (2010). Governmentality: Power and rule in modern society (2nd ed.). Los Angeles, CA: SAGE. Fenwick, T. (2010). Workplace 'learning' and adult education. Messy objects, blurry maps and making difference. European Journal for Research on the Education and Learning of Adults, 1(1-2), 79-95.*

10E5 (67)

A systematic review of theory in general practice vocational training research. What theory, in what way and to what purpose?

Authors

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Catherine Kirby, Eastern Victoria GP Training, Churchill, Australia
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Presenter: James Brown, Monash University Clayton, Australia

Abstract Text:
Introduction: Scholars call for more effective use of theory in educational research. Biesta et al identify that researchers require 'theoretical connoisseurship'(1). To gain theoretical connoisseurship they recommend that we first need to understand what and how theory is currently being used. While there is much written about how theory should be used, there is little investigation into how it is actually used. Our interest is in general practice (GP) vocational educational research, an area of medical education research that is particularly lacking in theoretical framing(2). Our systematic review answers the research questions: what theory is being used in GP vocational education research, in what way and to what purpose?
Methods: We used a thematic systematic review methodology following the PRISMA guidelines. We searched the Ovid MEDLINE, ERIC and PsycINFO data bases for a five-year period between 2013 and 2017. Our search parameters were variants of 'GP', 'Education', 'Post-graduate/Pre-fellowship' and 'Theory'. The collected articles were analysed from both a descriptive and an interpretative perspective for: context; theory used; the way theory was used; and the purpose for which theory was used. We built our analytic framework in an iterative way as we approached our data. The interpretative component of our analysis incorporated team discussion in order to draw on each team member's contrasting experiences and perspectives.
Results: Twenty three papers met our selection criteria. There was a spectrum of engagement with theory in GP vocational training research from gesturally to substantively. Theory was used for range of purposes. These included using theory as a justification for an intervention, as a sensitising frame, as an interpretive tool, and as a positioning manoeuver for credibility. Some authors used specific theories and others drew on constructs from multiple theories creating a theoretical 'hue'. Authors took different positions with regard to theory including theory as an expression of orthodoxy or the ideal, theory as a utility and theory as an object of examination itself. Theory and methodology sometimes aligned and sometimes did not. Theory could add depth to the research and sometimes it was an adjunct to the main narrative.
Discussion and Conclusion: There is a broad range of ways that researchers position and use theory in GP vocational educational research. The way theory is used changes both the fundamental design of the research and its rhetorical impact. By being aware of the ways theory can be positioned and used, researchers can make informed choices in their use of theory so that theory adds depth to the research and its use aligns with the intended rhetorical impact.
References: *1. Biesta G, Allan J, Edwards R. The theory question in research capacity building in education: Towards an agenda for research and practice. British Journal of Educational Studies. 2011;59(3):225-39.*
2. Webster F, Krueger P, MacDonald H, Archibald D, Telner D, Bytautas J, et al. A scoping review of medical education research in family medicine. BMC medical education. 2015;15(1):79.

10F: Doctoral Reports 3

Location: Helvetia 1, 1st Floor, Swissotel
Date: Wednesday 29th August
Time: 0830-1015 hrs

10F1 (33)
Co-productive learning health care practices

Authors
Karin Thörne, Linköping University, Linköping, Sweden

Presenter: Karin Thörne, Medical Faculty Linköping University, Linköping, Sweden

Introduction: Health care is characterized by increasing complexity with large amount of actors, technologies and calls for patients' involvements. A great deal of knowledge opportunities are however lost to patient and professional when they need it. There are urgent needs of reform in health care practices (Frenk). To better understand how everyday learning happens and can be developed in practice can contribute to such needs, physicians´ being important enabler.
Theoretical perspectives of professional practices include what a group of people do in a particular time and at a particular place as meaningful activities. The way a specific practice is arranged both socially and materially forms practitioners´ understandings and actions. These arrangements, unique in each practice, are defined as practice architectures (Kemmis). By applying practice architectures', we provide answers and can contribute to how to improve practices and learning.
The aim is to deepen understandings of learning and interaction in health care practices through (I) investigating health professionals' pedagogical processes in interaction with patients and (II) physicians´ own learning and support of the learning of others in daily work. Through focusing a specific health care practice, (III) investigate how social and material conditions influence interactions between participants and (IV) how junior physicians´ learn when they participate.
Method: The first study used individual interviews of three professions in several disciplines, focus groups in each profession and team interviews (I, II). In the second data was a changed model of ward round practice in a destined room with one patient at a time, aiming to improve patients' active participation and collaboration between professionals. It was interpreted through an inductive and theory driven interactive research approach with a field study design (II, IV).
Results: I. There was significant amount of pedagogical processes embedded in daily work with patients, usually not planed and summarized in the concept of "read (needs of learning) – guide (how to support learning)- learning support". II. During daily work physicians dynamically alternated between their own learning and the support of the learnings of patients´/staff/generations of physicians in individual patient processes and in interconnection with physicians versatile mobility across different contexts, with their participation in multiple communities of collaboration and through tensions between responsibilities. III. The practice architecture in

the changed ward rounds formed co-productive learning rounds in interplay between patients "double participation" (as people and as information on screens) and groups of professionals. IV. Specific socio-material interconnections caused junior physicians´ overly involvement in administrative work, distancing them from patients, and left them working in solitude from other professionals´. Observing other professionals' provision of medical care refined the junior physicians' theoretical knowledge, but their learning through their own actions providing medical care was limited.
Discussion & Conclusion: There are strong needs to reveal and increase awareness of learning and learning support as important parts of daily health care work, which to date are almost silent discourse. Contextualized health care practices have opportunities to change into co-productive learning practices being sources for continual improvements. Not taking junior physicians' learning in practices into consideration risks marginalization of their professional development. The theoretical lens of practice architecture helps us to understand relationships between practice, learning, and change. And also a concrete transformational resource for making practical judgements about what to be done at specific workplaces getting continuing learning the heart of the practices.
References: *Frenk, J., L. Chen, Z. A. Bhutta, J. Cohen, N. Crisp, T. Evans, H. Fineberg, et al. 2010. "Health professionals for a new century: transforming education to strengthen health systems in an interdependent world." Lancet 376 (9756):1923-58. doi: 10.1016/S0140-6736(10)61854-5.*

10F2 (35)
Influence of Different Scoring Algorithms for Multiple True-False Items on the Measurement Precision of Multiple Choice Exams

Authors
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Martin R. Fischer, University Hospital LMU Munich, Institute for Medical Education, Munich, Germany
Sören Huwendiek, University of Bern, Institute of Medical Education, Bern, Switzerland

Presenter: Felicitas-Maria Lahner, University of Bern, Institute of Medical Education, Bern, Switzerland

Introduction: High measurement precision in assessment is of main concern in medical education. It ensures competent candidates pass and incompetent candidates fail an exam, and not vice versa. Measurement precision can be estimated globally, as well as specifically at the cut score. Multiple True-False (MTF) items are a multiple-choice question format that prompts true/false decisions to all options to an item, enabling partial knowledge to be rewarded. Rewarding partial knowledge, in return, can

affect measurement precision. MTF items are either scored dichotomously by rewarding no partial knowledge (DS), to reward every bit of partial knowledge (PS1/n) or to reward partial knowledge, but with a threshold to suppress marginal knowledge and guessing (e.g. above 50% correct true/false decision to an item, PS50).

This PhD thesis analyzes the influence of different scoring algorithms for MTF items on the measurement precision of medical exams.

Methods: To investigate the influence of scoring algorithms, we performed three studies. First, we analyzed the effect of scoring on global reliability, i.e. Cronbach's alpha. In a second study, we analyzed how to calculate measurement precision at the cut score by introducing the concept of conditional reliability, using both Item Response Theory (IRT) and Classical Test Theory (CTT). In the third study, we analyzed the influence of scoring algorithms of MTF items on the measurement precision at the cut score by determining the conditional reliability and conditional Standard Error of Measurement (cSEM) at the cut score, and the number of candidates with ambiguous results.

Results: We could show that rewarding partial knowledge in MTF items indeed influences measurement precision, both at a global level as well as at the cut score. In the first study, we could show that crediting partial knowledge with a threshold (PS50) leads to high global reliability. In the second study, we introduced the concept of conditional reliability to analyze measurement precision at the cut score, showed that results are quite contrary in IRT and CTT and argued to use it in IRT. In the third study, we showed that scoring MTF items with PS50 leads to high conditional reliability and low cSEM at the cut score, as well as the lowest number of candidates with ambiguous results.

Discussion and Conclusion: With this PhD project, we comprehensively analyzed the influence of scoring for MTF items on the measurement precision in summative medical exams. By examining the effect of different scoring algorithms, we advanced the understanding regarding measurement precision introducing the concept of conditional reliability to assessment in medical education. Since rewarding partial knowledge above a certain level showed high global reliability, high conditional reliability and low cSEM at the cut score, as well as the lowest number of candidates with ambiguous results, we recommend using this scoring algorithm. To use real data, we simulated different scoring algorithms on existing items that were originally constructed for rewarding partial knowledge (PS50). It would be interesting to analyze whether these results hold true if items are constructed with another scoring algorithms in mind.

10F3 (40)
Quantifying Two Dimensional (2D) and Three Dimensional (3D) Anatomical Learning Using a Neuroeducational Approach

Authors
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Presenter: Sarah Anderson, University of Calgary, Canada

Background: Advances in computer visualization enabling both 2D and 3D representation have generated tools to aid perception of spatial relationships and provide a new forum for instructional design. To date, studies examining the effectiveness of these educational tools have been comparative, using performance measurement as proxy variables for learning. A key knowledge gap in the field of health professional education is the lack of understanding of how the brain processes and learns from spatially presented content. Direct monitoring of the neural processes as learners interact with 2D and 3D representations could provide an alternative quantitative measure to direct best practices in spatial teaching and learning. Event-related brain potential (ERP) measurement by electroencephalography (EEG) has been used to examine changes in signals associated with reinforcement learning during development of perceptual expertise (1). N250 is an ERP associated with visual object recognition and amplitude increases for familiarly perceived objects. Reward positivity is an ERP associated with positive feedback and scales like a prediction error- as a subject learns, there is a diminished amplitude in response to positive feedback. The objective of this study was to compare 2D and 3D spatial learning in anatomy using a reinforcement-based learning paradigm to determine whether differences in N250 and reward positivity ERP components track learning. Methods: Health sciences students (n = 61) learned to identify and localize anatomical structures through a feedback-dependent trial and error process. Participants learned either from 2D, 3D, or a combination of 2D and 3D neuroanatomical models as EEG and behavioural (accuracy) data was recorded. Mean ERP waveforms of N250 (measured at the O1 electrode site when a participant was shown an anatomical model) and reward positivity (measured at the FCz electrode site following feedback presentation) were compared across learning.

Results: Regardless of model type all participants successfully learned how to identify neuroanatomical structures and significantly improved on post task knowledge tests. N250 is significantly greater when participants view 3D versus 2D represented anatomical images. Behavioural learning curves and reward positivity did not significantly differ when learning from 2D compared to 3D models. However, interleaved training incorporating 2D and 3D model types provided an advantage in retention and transfer activities represented by a decreased reward positivity. Similar to a behavioural learning curve representation (2), reward positivity amplitude changes across learning are symbolic of learning phases can be graphically represented. Discussion and

Conclusions: This study demonstrates the application of neuroscientific research methodologies in an educational setting to better understand perception and learning in spatial anatomy. Despite the lack of differences in behavioural-based learning outcomes for 2D versus 3D models, neural evidence reveals new insights. Participants learning from 3D models had greater object recognition while interleaved training provided advantages for memory retention. In applied settings, educators should consider these findings in the design of learning interventions that employ stereoscopic anatomical models. Validation of quantitative neurophysiological variables that measure learning will enable a direct measure of knowledge acquisition that can be used to strategically assess and optimize new forms of teaching, learning, and evaluation.

References: *1. Krigolson, O.E., Pierce, L.J., Holroyd, C.B., and Tanaka, J.W. (2009). Learning to Become an Expert: Reinforcement Learning and the Acquisition of Perceptual Expertise. Journal of Cognitive Neuroscience 21(9), 1833-1840. 2. Pusic, M.V., Boutis, K, Hatala, R., Cook, D.A. (2015). Learning Curves in Health Professions Education. Academic Medicine 90(8), 1034-1042.*

1oF4   WITHDRAWN

10F5 (44)

The Influence of Peers on Medical Students' Learning of Psychomotor Skills Necessary for Physical Examination

Authors

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Presenter: Bernard Martineau, University of Sherbrooke, Canada

Introduction: Clerkship programs directors of and the students themselves are concerned about the insufficient mastery of the physical examination (PE) of the students upon their entry into clerkship, whereas the EP is an essential element of the diagnosis for the doctors. Most medical schools use small group learning activities to teach PE during undergraduate training. Little is known about the factors that affect the learning of PE in small-group environments, particularly with respect to the influence of peers in these activities.

Methods: This PhD thesis included a series of studies conducted with second-year medical students at Sherbrooke University to test whether peer observation, peer feedback and the order of practice influenced the acquisition of psychomotor skills needed to master PE.

Results: A first study showed that students with the opportunity to observe a peer performed better than those who did not have this opportunity (83.9% vs 75.9%, p .05). A second study has shown that the observation of a good peer performance influences positively the acquisition of PE (81.1% vs 68.3%, p > .002). Peer observation seems to help, by giving students a mental image of the performance to be learned that is closer to their ability to reproduce the gestures taught.

Peer feedback involves feedback on the performance of colleagues in small group training sessions. A third study showed that peer feedback contributed positively to the mastery of PE (89.5% vs. 86.2%, p = .02). Students receiving peer reviews learn more. However, this influence, studied in a subsequent study, remains complex. No characteristic of peer feedback, either quantity or specificity, seems to explain the positive effect of peer feedback when learning PE.

Discussion: Many students are generally reluctant to be the first to practise in a small group, so we checked in two other studies if the order of practice in a small group makes the difference. The data show that at the end of the training session, the students have a similar performance (regardless of the order they practise (p = .706) or the amount of feedback received (p = .096).

Conclusion: In conclusion, it appears that PE small group training is useful for students as learning is positively influenced by peer observation and feedback. The use of small groups to learn physical examination in health science training programs is a method of choice, not only for logistical reasons, but also for the contribution of peers to the mastery of PE of their colleagues.

References: *Ste-Marie DM, Law B, Rymal AM, Jenny O, Hall C, McCullagh P. Observation interventions for motor skill learning and performance: an applied model for the use of observation. Int Rev Sport Exerc Psychol. 2012; 1(1):1-32.*

10G: Short Communications: Adaptive Curriculum 2

Location: Helvetia 2, 1ˢᵗ Floor, Swissotel
Date: Wednesday 29ᵗʰ August
Time: 0830-1015 hrs

10G1 (1565)
The deliberate attainment of basic airway management skills via simulation and clinical exposure, demonstrates the value of focussed observation for medical students

Authors
Sarah Whereat
Anthony Mclean
Graham Hendry

Presenter: Sarah Whereat, University of Sydney, Australia

Background: In the Australian CCM (Critical Care Medicine) context, Residents (Junior Doctors) clinical experience and preparation was identified as insufficient. Inadequate knowledge of medical student learning and skill attainment along with an absence of clinical assessment during their Critical Care Medicine Rotation (CCMR) was thought to be a cause.
Method: A interpretative/constructive theoretical approach to the observation of student learning during the CCMR of the Sydney Medical School Program (SMP), used the deliberate assessment of basic airway skills, to identify both the effect of a specific assessment and the experience of the rotation on student learning.
Results: Declarative knowledge was confirmed as improved. The students' clinical management of patients' airways was equal, to their simulation capability maintaining both procedural and conditional knowledge. The assessments guided student learning. Analysis of focus group discussion identified four themes Goal setting, Observation and participation, peer learning and conflict.
Discussion: One of the core features of student learning were found to be observation and participation. 'Observation' included observing peers from across the continuum, their practice and reasoning process, with the definition of observation broader than currently identified in the literature. Participation in both simulation and clinical assessments assisted in student learning, the assessment providing structure to their learning. 'Conflict' for the students emerged, when curriculum requirements external to the clinical rotation, restricted student time to gain adequate clinical experience.
Conclusion: Skills teaching, utilizing the principles of deliberate practice, when continued into the clinical environment, guided student learning most effectively. More simulation, greater involvement with patient activities and directed learning were core to increasing experience and transfer of skill into clinical environment.
Take-home message: Deliberate assessment effectively guided students learning during the rotation. Students want to participate in more clinical activities than they currently do. Peers of all levels are vital to the success of student learning.

Broad curriculum requirements can impact on the degree of clinical immersion when specified clinical time not mandated.

10G2 (2293)
First Steps in Developing an Adaptive Curriculum

Authors
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William Behrns, American University of the Caribbean School of Medicine, Pembroke Pines, FL, USA
Mark Quirk, American University of the Caribbean School of Medicine, Pembroke Pines, FL, USA

Presenter: Mark Quirk, American University of the Caribbean, Pembroke Pines, FL, USA

Background: The Adaptive Curriculum is an idea gaining greater acceptance in the medical education community. The concept is a dynamic educational experience that adapts to the individual needs of the learner who strives to achieve defined competencies. It is the "Holy Grail" of many medical education programs yet, to date, implementing an adaptive learning and teaching system has largely been theoretical. Practical, scalable implementations of curricular components need to be tested and adopted.
Method: This presentation will describe a promising implementation of an Adaptive Curriculum component at one international medical school. Presenters will demonstrate a system that uses a unique combination of formative quizzes and exams to produce individualized feedback to improve learning outcomes. All students receive quizzes in each course each week with feedback and the opportunity to achieve 100%. After feedback, students can retake summative exams (different versions) and choose the best score. Through standardized spaced reporting of results, formative 'data' not only directs student studying but also faculty teaching and academic support efforts. The process represents assessment 'for' as well 'of' learning.
Results: Initial findings indicate a statistically significant improvement of scores on exams as a result of the adaptive system. Data on the correlation between formative quiz and exam data will also be shared. Additionally, consistent reporting of student assessment data facilitated robust, dynamic adjustments at the student, faculty and administrative levels. Struggling student issues were proactively addressed, improving student success. The system also helped facilitate synergy between the multiple institutional stakeholders.
Discussion & Conclusions: Assessment data, both formative and summative, is proving to be an essential 'adaptive' data source for our institution's growing adaptive curriculum. Though standardized assessments and consistent reporting, all institutional stakeholders consistently accessed student performance data and applied institutional resources accordingly.
Take-home message: Institutions seeking to implement adaptive curricula should start by transforming assessment systems to 'assessment for learning.' This

begins by identifying educational data sources that are consistent across the curriculum and easily consolidated for educational reporting.

10G3 (3006)
Medical students' achievement emotions and preferences for testing among supplemental study resources

Authors
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Alice Hudder, Lake Erie College of Osteopathic Medicine, Erie, USA
Matthew Lineberry, University of Kansas Medical Center, Kansas City, USA
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Presenter: Sean Tackett, Johns Hopkins Bayview Medical Center and Osmosis, Baltimore, USA

Background: Adaptive learning, believed to maximize learning efficiency and foster self-regulated lifelong learning, requires frequent and learner-driven self-assessment.
Achievement emotions may influence learner's engagement with self-assessment. For example, students with greater mastery goal orientation (i.e. learning for learning's sake) may be more likely to seek "desirable difficulties" for learning, such as testing oneself. Meanwhile, those with stronger performance avoidance orientations (i.e. avoiding looking incompetent) may prefer more passive strategies and avoid receiving the negative feedback that can follow assessment items.
The goal of this study was to investigate relationships between achievement emotions and selection and usage of supplemental study resources.
Method: After IRB approval, surveys were given to all first year medical students on Lake Erie College of Osteopathic Medicine's (LECOM's) Erie campus in September 2016. Students completed an achievement emotions inventory and reported to what extent they used 16 common supplemental study resources; responses were dichotomized as trying or using the resource vs never trying it. Survey data were merged with students' item response data from Osmosis, a web- and mobile app provided to first year LECOM students for free. Bivariate analyses were performed for the 5 curricular supplements with at least 15% students reporting they tried it, with Bonferroni correction applied to p values.
Results: A total of 172/268 (64%) students completed surveys. Most (72%) tried at least one supplemental resource. The resources with at least 15% of students trying them were Osmosis (32%), Anki (26%), Kaplan (25%), FirstAid (17%), and SketchyMicro (16%).
Mastery learning approach was strongly associated with students' reported use ($p<.002$) and number of items answered in Osmosis ($p<.002$). Performance avoidance orientation trended with fewer items answered in Osmosis ($p-=.054$). No statistically significant associations were found when comparing achievement goal orientations to use of the other 4 resources.

Discussion & Conclusions: Student use of supplementary resources is common, and the most popular ones offered self-assessment opportunities. Goal orientation may predict preferences for testing, which has been shown to make learning more efficient.
Take-home message: Shifting students toward mastery goal orientations might improve their engagement with self-assessment and adaptive learning.

10G4 (2781)
The Role of Student Moderators in an Adaptive Curriculum: Lecture Capture Review

Authors
Phillip Pearson, American University of the Caribbean, Dutch Lowlands, St Maarten, Netherlands Antilles
Mark Quirk, American University of the Caribbean, Dutch Lowlands, St Maarten, Netherlands Antilles

Presenter: Phillip Pearson, American University of the Caribbean, Dutch Lowlands, St Maarten, Netherlands Antilles

Background: The value of questioning in learning is becoming increasingly clear (HL Roediger et al. J Experimental Psychology Applied 17 (2011), 382-395 and MA McDaniel et al. J Educational Psychology 103 (2011), 399-414). Previously, we demonstrated that a question and answer (Q&A) function on a lecture capture platform increased quiz scores and subject matter comprehension by faculty answering asynchronously submitted student questions. This presentation reviews those findings plus additional results of a follow-up study that investigated the use of student moderator- led online discussions to solicit additional Q&A from students and increase student dialog to increase quiz scores and subject comprehension.
Method: Two hundred and four embryology students participated in the first part of this study. Students were incentivized to use Echo 360 Q&A by demonstrating its ease of use and its ability to increase quiz scores. In part two, nine student moderators replied to questions on the Q&A module and asked additional questions under faculty guidance to 112 embryology students. Statistical analyses focused on quiz performance linked to specific questions and overall performance was compared to performance of a previous cohort that did not have student moderators and/ or did not use the Q&A module. Authors also compared quality of students' questions and satisfaction of this type of learning with and without moderators.
Results: Use of Q&A was significantly related to better quiz performance ($p<0.05$). Use of student moderators increased the overall number of student responses online by 26%. A substantial increase (13%) in students responded to question threads by asking additional questions. The quiz scores also increased by 7% compared to this module use without moderators and 14% without Q&A. Comparing comprehensive exam scores to previous semesters also showed an increase of 6%. The quality of student questions and satisfaction with this type of learning also improved using moderators.
Discussion & Conclusions: The act of self-questioning has been linked to deep vs. surface learning and this has been

correlated to long-term knowledge retention. Student moderators working in 'the parallel curriculum' helped adapt student learning and improve outcomes.

10G5 (2900)
Crowd-sourcing for assessment items to support adaptive learning

Authors
Sean Tackett
Rishi Desai
Steven Haist
Shiv Gaglani
Amy Morales
Mark Raymond

Presenter: Mark Raymond

Background: Adaptive learning requires frequent and valid assessment for learners to track and accelerate progress against their own goals. While adaptive learning seeks to ensure self-regulated and lifelong learning, generating the many assessment items that this requires is challenging. The goal of this study was to determine if "crowd-sourcing" could generate items that meet the highest standards for valid assessment.

Method: In November 2015, all registered users of a web- and mobile app commonly used by medical students as a curricular supplement were given the opportunity to submit case-based multiple choice questions (MCQs). After determining who could effectively create MCQ items that adhered to National Board of Medical Examiners (NBME) question-writing guidelines, the best 11 writers (9 of whom were medical students) were asked to write 10 items each related to gastrointestinal and cardiovascular pathology targeted at second year medical students enrolled in graduate medical education programs. After review by 2 physician content experts, items were sent to the NBME who identified 5 internal medicine physicians who rated each item for relevance and accuracy. The best items were included on clinical subject exams completed by a U.S. national sample (approximately n = 235 students per item), and analyses were done to determine item performance.

Results: The 11 writers completed a total of 220 items. Of these, 78% met relevance and accuracy standards based on content review by the 5 internists. When included in exams, 50% met statistical standards for inclusion in national standardized exam question banks. Of those items not meeting statistical criteria, about one-half were too easy (p-value > 95% correct), while another half had low discrimination indices (r < .10).

Discussion & Conclusion: Quality ratings by experts and statistical performance on exams for items produced by a "crowd" of medical learners were similar to those produced by a traditional process that employs faculty item writers.

Take-home message: Crowd-sourcing efficiently produced high-quality assessment items. Similar models may be adopted by students and educators seeking to augment their own pool of assessment items to support adaptive learning and teaching.

10G6 (2916)
Best practices in student-led instruction

Authors
Jeffrey Gordon Seegmiller, University of Idaho Medical Education, Moscow, ID, USA

Presenter: Jeff Seegmiller, University of Idaho WWAMI Medical Education, Moscow, ID, USA

Background: Student-led instruction (SLI), also known as peer-led instruction or the 'flipped classroom,' increases student engagement, conceptual understanding, capacity for self-motivated problem solving, critical thinking skills, overall educational outcome measures, and long term retention of new knowledge. Adoption of SLI in medical education is often inconsistent with few, if any, guidelines for implementation.

Method: A global search of 14 databases at the University of Washington Health Sciences Library was conducted for this literature review. The search yielded 274 results and was limited to peer-reviewed articles published in English between 2012-2017 and available online with keywords of student-led instruction and medicine and excluding wellness, community, nursing, and interprofessional. Articles not directly related to the literature review focus of medical education and editorials were excluded, decreasing the total number of articles to 65.

Results: Various student-led instruction models have been used in medical education with success. The specific method generally varies depending on instructor willingness to try different instructional approaches, learning objectives, institutional support for curricular change, student and instructor comfort with modern student-centered instructional methods, and resources.

Discussion & Conclusion: Best practice in student-led instruction was not found to be a single method, but rather encompassed a variety of educational pedagogies including: case study presentations, neer-peer instruction, team-based learning, interactive lectures, role-playing, service learning, technology-mediated instruction, and student-led interest groups. Because active learning is more dynamic than lecture, curricula often must be adapted to accommodate changes in instructional design. Obstacles to implementation include faculty and/or student discomfort and inexperience with student-centered teaching pedagogy, insufficient teacher-facilitator training and support, physical space limitations such as auditorium style seating, increased cost, poor instructional design, student discomfort with social learning environment, lack of authority, and student anxiety about active role in teaching self and fellow students. Well-planned implementation minimizes obstacles and improves student satisfaction.

Take-home message: Student-led instruction can provide a rich learning experience when planned and implemented well. Examples of best practices in student-led instruction such as those presented provide a foundation for planning and adoption of these active learning methods.

10H: Short Communications: Continuing Professional Development: Revalidation and Assessment of Drs in Practice

Location: Kairo 1, Ground Floor, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

10H1 (2917)
UK Fitness to Practise inquiries: Which types of doctors are under investigation and why?

Authors
Paul Crampton, University College London, Research Department Medical Education (RDME), London, UK
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Leila Mehdizadeh, University College London, London, UK
Alison Sturrock, University College London, London, UK

Presenter: Paul Crampton, UCL, London, UK

Background: Each year doctors in the UK are referred for Fitness to Practise (FtP) investigations for a wide a range of issues. Whilst not all investigations lead to further action it is well documented that certain types of doctors are more likely to be sanctioned if they face FtP investigations. This study sought to understand which types of doctors were referred for FtP inquiries and whether they were complained against for particular reasons.
Method: A retrospective cohort analysis of complaints for performance in FtP from 2008 till 2017 was undertaken. We analysed sources of complaints and allegations types against the demographic characteristics of doctors. Allegation types included clinical care, teamwork and probity, amongst others. Enquiries were provided by other doctors, employers, public organisations and patients.
Results: Over half of all complaints (1844) were made against male doctors. Males were more likely than females to be complained about by patients and for issues linked to maintaining trust, while females were more often complained by their organisations and for safety issues. It is also noticed that other characteristics, such as doctors age, region of primary medical qualification, etc. are also important factors when analysing the differences in the enquiry and allegation type.
Discussion & Conclusion: The findings demonstrate the patterns within the data for FtP investigations. Certain groups were more likely to be reported than others by allegation type. Generally, males are more often subjected to FtP investigations and are more often referred for trust issues.
Take-home message: The findings inform policy makers, educationalists and practitioners about the most commonly identified characteristics of those who are reported for FtP issues. This information can be used to guide processes to help alleviate and tackle issues at an earlier stage.

10H2 (3414)
Unprofessional behaviour in doctors - is it a problem?

Authors
Pippa Watson, Manchester Medical School, Manchester, UK

Presenter: Pippa Watson, Manchester Medical School, Manchester, UK

Background: Most medical schools are now teaching professionalism to undergraduates. To what extent is unprofessional behaviour in practicing doctors an issue?
Method: A systematic literature review was performed to identify all relevant articles [full detail will be presented including search terms, databases searched and basis of article selection]. Out of 896 abstracts reviewed 73 were included in the analysis.
Results: The General Medical Council GMC describes professionalism as "behaviour which justifies the trust that patients and the public have in them"[1]. There are many reports of what might be considered unprofessional behaviour in doctors the literature ranging from disruptive behaviour (probably some 3-5% of doctors frequently display this)[2] to misrepresenting academic achievements, substance abuse (including alcohol), falsification of medical records, sexual misconduct and shirking responsibility. Other lapses of professionalism which might be viewed as more minor such as discussing personal things in hospital corridors or making fun of others appear to be even more frequent [3].
Discussion & Conclusion: Unprofessional behaviour amongst doctors is clearly an ongoing concern. This behaviour is important as it has been linked to poor teamwork ,reduced job satisfaction amongst healthcare professionals and impaired patient care. Many of these conclusions about the scope and extent of unprofessional behaviour are drawn from the American literature. Before considering how to change behaviours we need to understand the current position. An in depth international study to assess and categorise the extent of unprofessional behaviour would greatly enrich the literature.
Take-home message: Unprofessional behaviour in doctors is an on-going problem which is detrimental to healthcare services and needs to be addressed. Future work is needed to evaluate the scope of this and identify ways to reduce it.
[1] GMC link www.gmc-uk.org/education/undergraduate/26607.asp accessed 7th Feb 2018.
[2] Leape LL, Fromson JA. Problem doctors: is there a problem: a multicenter study. J Hosp Med. 7 (7):543-50.
[3] Reddy ST et al. Participation in unprofessional behaviours among hospitalists: a multicenter study. J Hosp Med. 7 (7):543-50.

10H3 (1274)
Box ticking and Olympic High Jumping – How do Physicians accept their national Physician Validation System?

Authors

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Presenter: Carolin Sehlbach, Maastricht University, Maastricht, Netherlands

Background: National physician validation systems aim to periodically appraise physicians' competence, and to ensure lifelong learning. These systems' effectiveness, however, is determined by physicians' perceptions about the system and resulting acceptance and commitment. We therefore aimed to explore physicians' perceptions and self-reported acceptance of different physician validation systems in Europe.
Method: Using a constructivist grounded-theory approach, we conducted semi-structured interviews with 32 respiratory specialists from countries with validation systems that differed with respect to requirements, procedures and consequences: mandatory revalidation (UK); mandatory, credit-based continuing professional development (Germany), and recommended annual dialogues (Denmark). We analysed interview data per country, focusing on factors influencing physicians' perceptions.
Results: Although our interviewees unanimously approved of having some validation system in place to stimulate continuing professional development and to evaluate competence, they challenged the practical implementation of these systems. Differences across countries resulted from an interaction between the individual, specific features of the system and the context. Factors influencing acceptance were assessment authenticity, and alignment of requirements with clinical practice. Other important aspects were physicians' beliefs about learning, perceived autonomy, coordinated and organisational support along with trust in the system.
Discussion & Conclusions: Acceptance levels determine any system's effectiveness. National physician validation systems therefore need to be carefully designed and integrated into clinical practice to effectively support lifelong learning and competence assessment. Findings resonate with assessment research, showing that assessment culture and assessment embedment in learning and work affect assessment acceptance and outcome.
Take-home message: National physician validation systems designed to foster continuing professional development and to assess performance for accountability purposes profit from offering activities which the individual can integrate into daily work. This can help to align individual goals with the system's intended goal to safeguard quality of care. Engaging physicians as key stakeholders to design more authentic physician validation systems might enhance their acceptance and commitment.

10H4 NOT PRESENTED

10H5 (428)
Care Under Pressure: a realist review of interventions to tackle doctors' mental ill-health

Authors

Karen Mattick
Daniele Carrieri
Simon Briscoe
Chrysanthi Papoutsi
Mark Pearson
Geoff Wong

Presenter: Karen Mattick, University of Exeter, UK

Background: Mental ill-health is prevalent across all groups of healthcare professionals and its high incidence is of great concern in the UK and elsewhere (1, 2). Doctors-in-training are affected both directly (e.g. by becoming ill themselves), and indirectly, by this problem (e.g. through colleagues becoming ill). Medical education is important because the 'culture of medicine' probably influences how all doctors deal with ill-health. The aim of this National Institute of Health Research-funded project is to improve our understanding of how, why and in what contexts mental health services and support interventions can be designed, to minimise the negative impacts of providing care on doctors' mental ill-health. Although there is a large literature on interventions that offer support, advice and/or treatment to medical students and sick doctors, the evidence has not been synthesised in a way that takes account of the complexity and heterogeneity of these interventions, and the many dimensions of the problem.
Method: This research is a realist review of interventions to tackle doctors' mental ill-health and its impacts on the clinical workforce and patient care, drawing on diverse literature sources. Stakeholder perspectives (e.g. doctors who have experienced mental ill-health, medical educators, representatives of patients and public, policy makers, charities) were incorporated through a stakeholder group.
Results: Our programme theory about why doctors develop mental ill-health, and why some strategies to reduce mental ill-health are more effective than others, will be presented. The focus will be on implications relevant to medical education and training.

Discussion & Conclusions: The insights gained through this research shed light into individual, organisational and socio-cultural aspects that contribute to the development of mental ill-health in doctors. Medical education and training is identified as a key component. The recommendations from this project support the tailoring, implementation, monitoring and evaluation of contextually-sensitive strategies to tackle mental ill-health and its impacts.

Take-home message: Realist review is particularly well suited to the exploration of complex problems such as the development of mental ill-health in doctors.
Medical education and training is an important aspect of the problem – and therefore also of the solution.

10H6 (530)
Do I know how my CPD might change practice? Development of a tool to code the behaviour change techniques in training courses

Authors
Jo Hart
Emma Pearson
Eleanor Bull
Lucie Byrne-Davis

Presenter: Jo Hart, University of Manchester, UK

Background: Health professional education is often an intervention to change practice, but the behaviour change content is rarely systematically studied. Educators report that behavioural science is inaccessible. There are over 50 theories of behaviour change and a recent taxonomy of techniques to change behaviour found 93 techniques in 16 domains. The breadth of theories and techniques may need adjustment if educators are to use them to study the content of training and impact on the learner and their practice. We aimed to develop and refine a tool, using the BCT taxonomy (v1), with relevant examples, which health professional educators could use to describe the content of their courses.
Method: Two psychologists observed three medical CPD courses over seven days. The BCT taxonomy (v1) was used to live-code BCTs i.e., observing and coding in real time; inter-rater reliability was assessed. A pilot e-tool contained observed BCTs with relevant examples. Six behaviour change consultants commented on its comprehensiveness and suggested revisions. Three psychologists then formally rated examples (20% were double-rated) regarding accuracy, clarity, distinctiveness from other BCTs and generalisability to other behaviours. The tool was subsequently refined.
Results: Live coding inter-rater agreement was high (Cohen's Kappa 0.75-0.89; PABAK 0.81-0.92). Forty-one BCTs were coded by at least one observer; behaviour change consultants suggested two more to enhance comprehensiveness. The pilot e-tool contained 43 BCTs with 86 examples. Thirty-seven examples were altered following recommendations; raters subsequently judged that 63/86 met all four example criteria (inter-rater agreement was 92%). The final e-tool contains 43 BCTs and 72 examples.

Discussion & Conclusions: A training version of the behaviour change technique taxonomy was systematically developed and refined to assist educators in understanding the behaviour change content of education. It had high inter-rater reliability when used by psychologists. The e-tool should now be piloted by non-psychologist health professional educators in a wider range of courses.
Take-home messages: CPD contains many techniques to change practice. These can be 'live-coded'. Coding the techniques allows them to be systematically varied and studied to understand how to optimise CPD to make practice change more likely.

10H7 (1043)
How does the education of health and social care staff lead to patient benefit: a realist synthesis?

Authors
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Madeline Carter
Amelia Kehoe
Hannah Hesselgreaves
Paul Crampton

Presenter: Jan Illing, Newcastle University, Newcastle upon Tyne, UK

Background: The aim of the research was to answer the question: How does education and training of health and social care staff lead to patient benefit? We explored this question using a realist synthesis approach which lends itself to explaining complex interventions.
Our theoretical approach was initially developed following the work of Kirwan and Birchall (2006) and Kirwan (2009).
Method: We conducted a systematic search of the literature to identify educational interventions with health and social care personnel and included the databases: Embase, Social Services Abstracts, PsycINFO, CINAHL, and Social Care Online. Search terms referred to three conceptual areas: education and training; patient outcomes; and health and social care occupations. Over 24000 articles involving education and patient outcomes were identified, after reading titles and abstracts this number reduced to 1149 and following full paper review to 465. The final model draws on 50 key papers that contained in depth process information. We identified the context (C), mechanisms (M) and outcome (O) variables in each paper and used Realist And Meta-narrative Evidence Syntheses: Evolving Standards (RAMESES) to guide the approach.
Results: Our model starts with when the organisation recognises the learning need and the intervention (focused on patients) is put in place. This is followed by individual motivation to learn before they attend the training and is followed by the educational intervention where the learner acquires knowledge and skills and ends with the learner both wanting to and being facilitated to transfer the learning to patients . The relationships between the contexts, mechanisms, and outcomes for each stage of the model was coded and tabulated for all

included papers and informed the model. Cases studies were used to fill any gaps in the model and revise and strengthen it.

Discussion & Conclusions: The programme theory presented illustrates how and why interventions lead to patient benefit (or fail to), enabling those implementing educational interventions to identify the key features required to support transfer of learning to patients.

Take-home message: A model has been developed and tested, and illustrates how education of the healthcare team can reach and benefit patients.

10I: Short Communications: Professionalism

Location: Rio, 2nd Floor, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

10I1 (317)
What Can We Learn from the Analysis of Top-cited Articles in Medical Professionalism?

Authors
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Presenter: Samy Azer, King Saud University, College of Medicine, Riyadh, Saudi Arabia

Background: Physicians are expected to demonstrate professional behavior in their day-to-day practice. Citation counts of articles have been used by universities and funding bodies to measure scientific outcomes and assess suitability for grant applications. With the rise of social media, altmetric scores could provide an alternative assessment tool. Considering these two measures, it was decided to assess the highly cited articles on medical professionalism.
Method: The Web of Science was searched for most cited articles on medical professionalism. The identified articles were searched for key characteristics. The altmetric database was searched to identify report for each article. A model to assess the relationship between the number of citations and each of key characteristics as well as altmetric scores were developed.
Results: No correlations were found between the number of citations and number of years since publication (p=0.192), number of institutes (p=0.081), number of authors (p=0.270), females in authorship (p=0.15), or number of grants (p=0.384). The altmetric scores varied from zero to 155, total= 806, median=5.0, (IQR=20). Twitter (54%) and Mendeley (62%) were the most popular altmetric resources. No correlation was found between the number of citations and the altmetric scores (p=0.661).
Discussion & Conclusions: The top topics covered were learning and teaching professionalism, curriculum issues, professional and unprofessional behavior, defining and measuring professionalism. Only the number of countries correlated with the number of citations (p= 0.001). Countries that contributed to these articles were mainly the USA, Canada, and the UK and the articles were mainly published in Academic Medicine, Journal of the American Medical Association, Journal of General Internal Medicine, and Annals of Internal Medicine. Future studies should investigate the specific features of highly cited articles that contributed significantly as a resource in medical curricula, research or postgraduate training.
Take-home message: Top-cited articles in professionalism offer a useful resource to students and teachers interested in this area.

10I2 (378)
Talking about professionalism, do we have the words? A qualitative study to explore internal medicine residents' and attending physicians' understanding of professionalism

Authors
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Janko Kaeser, IML, University of Bern, Switzerland
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Presenter: Marco Mancinetti, University and hospital of Fribourg, Switzerland

Background: Little attention has been given to the perspectives of practicing physicians on professionalism. We don't know what residents and attending physician in internal medicine understand about professionalism and if they can speak about it. The aim of this study is to explore their discourses about it.
Our research questions: how residents and attending physician define professionalism, what they recognize as unprofessional and how they teach it and learn it.
Method: The methodological framework was based on the principles of the discourse analysis. 7 Focus groups were conducted with a total of 35 residents and attending physicians from the department of internal medicine of 4 different tertiary hospitals in Switzerland. All three investigators independently reviewed transcripts and developed codes in an iterative process.
Results: Participants in our focus groups couldn't speak easily about the definition of professionalism, stating that the meaning of professionalism is blurred for them. When speaking about the flaws of professionalism the grey zones were difficult to determinate and lead to an unresolved agreement. Learning, teaching and assessing professionalism was an issue for the participants of the interviews.
Analysing the discourses using the frameworks described by Irby we found that the participants were expressing definitions proper to either a virtue-based professionalism, behavior-based professionalism or professional identity formation. Many aspects of unprofessional behavior were referring to the discourse of complexity as reported by Monroux. During the conversation about teaching and learning we observe that professionalism is forged more by an empirical approach (observation and imitation) rather than by lectures and handbooks.
Discussion & Conclusion: Our findings suggest that if practicing physicians don't have the basis to speak about professionalism they will then struggle to recognize what is unprofessional. This leads to an improvised approach to educational strategies which results in un-systematic ways of learning, teaching and assessing professionalism.
We must give the right words to the medical professionals to speak about professionalism, this would give them a consciousness of their professional values, helping them learn, teach and assess professionalism in their everyday work.

10I3 (253)
Sri Lankan and Taiwanese Students' Professionalism Dilemmas: Understanding Gender and Power Imbalances through Narratives

Authors
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Presenter: Lynn Monrouxe, Chang Gung Memorial Hospital, Linkou, Taiwan

Background: Social constructs such as status, gender inequality and religious stratification are reproduced in medical settings. Such values impact medical professionals' behaviours, ethical reasoning and sense of empathy: essentially their medical professionalism. As notions of medical professionalism are context-specific, this study considered Sri Lankan and Taiwanese medical students' experiences of professionalism dilemmas: situations in which they witnessed or participated in unprofessional practice.
Method: As part of a larger international research programme, this qualitative study comprised 26 focus groups (n=136 participants) at a Sri Lankan (n=71) and Taiwanese (n=64) medical school. Participants described professionalism dilemmas they had experienced during their clinical education. Audio-recorded data were anonymised, transcribed and thematically analysed to identify students' professionalism dilemmas.
Results: Students narrated diverse professionalism dilemmas including patient safety and dignitiy breaches, alternative medicine and family inteventions. Here, we focus on patient, healthcare professional (HCP) or student mistreatment. Narratives from Taiwan were embedded in notions of power imbalances. Those from Sri Lanka also included gender inequality. Mistreatment towards students and other HCPs was generally psychological. Mistreatment of patients also occasionally compromised patients' health. For example, prescribing pregnant women oxytocin to induce labour to adhere to doctors' schedules. Some narratives emphasized patients' mistreatment of students and HCPs, such as patients being rude to nurses but respectful toward doctors.
Discussion & Conclusion: Sri Lankan and Taiwanese students' narratives of professionalism dilemmas demonstrate how social constructs are reproduced in healthcare. In these societies women typically hold subordinate social positions, contrasting with the high social status of doctors. In Taiwan, low numbers of female medical professionals and students reflect this. The hierarchical nature of Sri Lankan and Taiwanese medical cultures further subordinate female students and other HCPs, such as nurses, exposing them to increased mistreatment and impacting the quality of patient care.

Take-home message: Experiencing gender- and power imbalance-related professionalism dilemmas impacts how medical students engage with their superiors and patients, whether they voice concerns or seek assistance and affects their emotional status. Future research might consider how such experiences impact on students' development as future doctors and on burnout.

10I4 (1811)
The struggle for professionalization – students´ experiences of emotionally challenging situations during medical school

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Presenter: Annalena Lönn, CLINTEC, Karolinska Institutet, Stockholm, Sweden

Background: The professionalization process is an important part of medical education. During clinical placements, students encounter situations that can be emotionally challenging, such as witnessing patents´suffering, death and a detached health culture. The aim of the study, was to investigate how medical students manage situations they perceive as being emotionally challenging and what they learn during the process.
Method: Qualitative data was collected from 86 students during their last semester. The students were asked to describe, in writing, situations they perceived as being emotionally challenging and also to describe if and how their ability to
manage these situations had changed during medical school. A constructivist grounded theory approach was used to analyze the data.
Results: Medical students´ main concern in situations they perceive as being emotionally challenging, is the struggle to achieve a professional approach. This includes being able to focus on the task in a demanding situation and to maintain the ability to show empathy. Active reflection and debriefing with peers and close relatives are important when reolving the main concern.Other strategies are to actively expose themselves to stressful situations and the search for good role models.In this process, students get insights about how they can relate to patients and medical staff, and learn about what their own needs are in order to cope.
Discussion & Conclusion: Medical students´experiences of emotionally challenging situations, evoke feelings that they have to manage in order to become a professional. Students take an active part in this process – being aware of the importance of resolving the negative feelings that emerge. The learning outcome in this process seems to be the insight about one´s own reactions, shortcomings and needs.

Take-home message: To experience and learn how to manage emotionally challenging situations is an important part in the struggle of becoming a professional physician. Increased knowledge about this process may help faculty and supervisors to better support students in this. challenge.

10I5 (648)
Remediation of unprofessional behaviour in the UK: the 'unknown unknown'

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Presenter: Susannah Brockbank, University of Liverpool, UK

Background: A link between unprofessional behaviour as a medical student and later misconduct post-qualification has been well described. This correlation has led to calls for robust remediation of lapses in professionalism at medical school, including a mandate from the UK medical regulator, the General Medical Council, to address this behaviour. Unfortunately, there is a dearth of evidence for how remediation can be successfully achieved. Furthermore, a North American study revealed that remediation practices vary across medical schools, so this study aimed to explore the remediation practices in UK (UK) medical schools.
Method: An online survey was sent to all UK medical schools in early 2017. This survey contained a combination of multiple choice questions and free text answers. Information about the medical school's demographics, as well as current methods of identification and remediation of professionalism lapses, was requested. Responses were subject to inductive qualitative analysis.
Results: 13/36 (36%) of UK medical schools responded to the questionnaire. These responses revealed a variation in practice in terms of identification of lapses, with a minority schools having formal systems in place. Participants also expressed uncertainty regarding how best to undertake remediation and, as well how to ensure its success.
Discussion & Conclusion: The response rate to this survey demonstrates a lack of engagement of UK medical schools with the debate about remediation of unprofessional behaviour, possibly symptomatic of the uncertainty expressed by our respondents. Furthermore, this uncertainty reflects the paucity of evidence, policy and procedure for remediation of unprofessionalism. This in turn stems from a lack of understanding of the determinants of unprofessional behaviour in medical students, which acts as a barrier to remediation.
Take-home message: Establishing evidence-based strategies for remediation of unprofessional behaviour should be a priority for medical schools. In order to remediate lapses in professionalism successfully, determinants of unprofessional behaviour must first be better understood. A framework for remediation can then be created in light of this understanding, from which a broader evidence base for remediation strategies can develop.

10I6 NOT PRESENTED

10I7 NOT PRESENTED

10J: Short Communications: Assessment: OSCE

Location: Shanghai 1, Ground Floor, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

10J1 (2094)
Managing your OSCE: Should candidates be quarantined?

Authors
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Presenter: Gillian Lever, University of Leeds, UK

Background: OSCEs are widely used assessment formats in healthcare education. Should we isolate or 'quarantine' candidates pre- and post-OSCE to deliver a 'fair assessment', even though quarantine may increase candidate anxiety? Or should we focus on a quarantine-free 'compassionate' assessment, which releases students to pursue their own potentially anxiety-mediating activities? To date literature is lacking surrounding the impact of quarantine on student wellbeing
Method: A questionnaire was disseminated to medical students undertaking OSCEs at a UK medical school, exploring activities undertaken and behaviours and habits displayed in the time surrounding the exam. This sensitized a series of candidate interviews to understand in greater detail whether activities and habits had any effect on OSCE-related anxiety
Results: Analysis highlighted that immediately proximate to the OSCE, candidates undertake highly personalised activities, often in private, to prepare for and relax after an OSCE. Compared to males, females were more likely to 'revise' in this period, through a need to occupy their mind rather than as a score booster. High performing students described anxiety whilst waiting for the assessment but felt able to relax in the interim period, linking this with long-term OSCE preparation. Relaxing between assessment days reduced anxiety and increased positivity for the second day.
Discussion: Institutions often employ quarantine to promote fair assessment but here we found candidates expressing anxiety when faced with this. A wide array of activities and habits were cited as anxiety-mediating and would not be possible if candidates were quarantined. Current literature in the main shows no advantage to quarantine and candidates in this study seem willing to trade off "fair" assessment with the opportunity to manage their anxiety. Long-term preparation and relaxation led to reduced OSCE-related anxiety and promoted a positive mindset to ultimately boost performance.
Conclusion: This work reveals important rites and rituals undertaken by candidates during the time surrounding and between days of an OSCE. By employing quarantine these behaviours are interrupted and can increase anxiety for a performance assessment. Quarantine could therefore be the difference between a pass and fail.

10J2 (2107)
ReCIPE for Success: The development and assessment of neonatal Resuscitation Competencies in InterProfessional education

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Presenter: Brian Simmons, Department of Newborn and Developmental Pediatrics, Sunnybrook Health Sciences Centre and Department of Pediatrics, Faculty of Medicine, University of Toronto, Canada

Background: Health care delivery driven by economic and public expectations requires a high level of effective collaboration between teams of health professionals. Neonatal resuscitation (NR) requires a group of dedicated health care professions with such expertise. The basis of this is rooted in the Neonatal Resuscitation Programme (NRP) which is been available as a tool for newborn resuscitation training since 1987. However, the emphasis on teamwork is only just being realized .The ability to assess performance in interprofessional teams is essential. This study will develop and validate an interprofessional competency framework for the assessment of NR teams using a low fidelity simulation model (OSCE)
Objectives:
• To develop NR team competencies using anonymous consensus- building(Delphi)
• To develop an innovative competency-based, low-fidelity tool (OSCE) for assessing NR team performance.
Method: Anonymous consensus building (two round modified Delphi) was used to determine interprofessional team competencies in NR. Representatives from four professions (medicine (staff/fellows), registered nurses, neonatal nurse practitioners and registered respiratory therapists) within NR teams across Canada were recruited to participate. A series of interprofessional objective structured clinical examinations (OSCE) were developed to validate the resuscitation competencies. Three scenarios were developed which reflected a range of NR team tasks. Competences were assessed using a 5 point global rating scale (GRS).
Results: Forty three participants provided the 177 NR team competences. Independent analysis by members of the research team determined 14 distinct competencies

through group consensus. Two competencies collaboration and expertise were mutually exclusive and removed. The remaining competencies became the basis of the NR GRS.

Discussion & Conclusion: OSCEs were conducted with neonatal intensive care unit (NICU) staff from two different hospitals. Competencies used in each scenario varied based on the task and their use within the NR. There was variability in competency performance depending on size, task and composition of the team. Results suggest the strengths of using a NR team competency framework extended beyond assessing the traditional NR knowledge and skills using a checklist.

Take-home message: The development of neonatal resuscitation team competencies as determined by anonymous consensus building appear to be reliable and valid as assessed with low fidelity simulation.

10J3 (2818)
Introducing Entrustment Scales in Objective Structured Clinical Examinations

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Background: The introduction of the Entrustable Professional Activity (EPA) concept in medical training is accompanied with the development of entrustment scales, designed both for post- and undergraduate medical training. Entrustment scales provide trainees with feedback on the level of supervision they need to perform an EPA in the workplace. This study set out to test the usability and added value of employing an entrustment scale in the context of Objective Structured Clinical Examinations (OSCE).

Method: In our institution, we introduced an entrustment scale as an addition to the regular assessment form used in the OSCE of the fifth year of a six year, competency-based undergraduate medical curriculum. The regular assessment form includes a checklist of items and a global rating scale. The added entrustment scale involved 6 levels aligned with the entrustment levels for undergraduate medical education. Assessors (faculty clinical teachers, n=54) rated under which level of supervision they would let the examinee perform the observed clinical tasks in the workplace. Assessors evaluated the usability of the entrustment scale.

Results: A total of 227 students were assessed in the OSCE consisting of various clinical tasks in six stations. The correlations of the entrustment ratings with the OSCE checklist results were in five stations between rs=.433 and rs=.674, in one station rs=.211. The correlations of the entrustment scale and the global rating were in four stations between rs=.518 and rs=.659, in one station rs=.374. All correlations were significant (p<.005). The

majority of the examiners rated the usability of the entrustment scale as high.

Discussion & Conclusion: The entrustment scale can provide a comprehensive and meaningful evaluation of the students' performance that adds to the results of the regular OSCE checklist and global ratings. Beyond the evaluation of how students perform a clinical task in a simulated setting, a link can be established to the potential performance in the workplace. Examiners perceived the entrustment scale as a valuable addition.

Take-home message: Introducing entrustability scales in OSCE needs not much extra effort and adds a meaningful evaluation of the students' performance to the assessment.

10J4 (934)
Pre-Clinical Clerkship Objective Structured Clinical Examination Scores Predict Placement in Japan Residency Matching Program (JRMP)

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Presenter: Shoko Horita, The Office for Clinical Practice and Medical Education, The Graduate School of Medicine, The University of Tokyo, Japan

Background: In Japan, the Pre-Clinical Clerkship Objective Structured Clinical Examinations (PCC-OSCE) is a nationally-organized assessment, measuring medical knowledge and clinical skills administered to medical students at the transition from preclinical to clinical training. However, no prior studies have analyzed the predictive relationship between PCC-OSCE scores and educational outcomes, including residency match status and National Board Examination scores. This study identifies factors that predict educational outcomes, as medical students transit between undergraduate and postgraduate training.

Method: Data were analyzed using 68 graduating medical students at The University of Tokyo. Students were invited to answer surveys asking their daily activities and study behaviors, such as meals, sleeping, self-studying hours, part-time job hours, and social activity hours. Survey responses were merged with performance on PCC-OSCE, computer-based test (CBT), clinical clerkships scores, and the results of Japan Residency Match Program (JRMP) and analyzed using the statistical software JMP(R).

Results: Performance on PCC-OSCE significantly predicted residency placement (Odds Ratio = 4.32, p < .05). Furthermore, performance on PCC-OSCE were significantly correlated with graduation competency examination (Post-Clinical Clerkship OSCE) scores, and clinical clerkship scores (correlation range: .40 – .43, p < .001). However, daily activities including meals, commuting time, sleep, social activities, and part-time-job-hours did not have significant relationship with these scores. Moreover, students who were promoted to medical school through a

separate screening process after admission, received higher scores and JRPM placement results than students who were directly admitted to medical school (p < .001).

Discussion & Conclusion: PCC-OSCE administered at the fourth-year of medical school was predictive of graduation competency examination scores, clinical clerkship scores, and JRPM results. Students who underwent after-admission selection may have acquired self-studying habits immediately following admission, likely resulting in higher examination scores, clerkship performance, and greater likelihood of residency placement through the JRPM. PCC-OSCE scores can predict the educational outcome of the medical students at the graduation and residency placement.

Take-home message: Medical educators should encourage students to acquire self-studying habits during the early preclinical phase of undergraduate medical training.

10J5 (650)
Objective Structured Examination (OSCE) in Physiotherapy: What is the difference between communication competence and therapeutic climate?

Authors
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Presenter: Beatrice Buss, University of Applied science, Bern, Switzerland

Background: The OSCE is an examination tool which is used to assess clinical skills. This study is in the area of evaluation of physiotherapy students` skills and applies data from Bern University of Applied Science. In the first semester, the OSCE consists of eight stations that each last eight minutes. The OSCE in the fifth semester consists of two short time stations (eight minutes each) and three long time stations (16 minutes each). Hodges and McIlroy (2003) concluded that global ratings are an important element of OSCE measurement and can have good psychometric properties. However, OSCE researchers should clearly describe the type of global ratings they use. Therefore, the aim of this study was to determine if there are differences in the rating between communication competence and therapeutic climate. These results would provide valid judgments about clinical competences of physiotherapy students.

Method: This study investigated two selected criteria of communication and therapeutic climate of every single station of the eight stations in the first semester and the five stations in the fifth semester of the OSCE circle at Bern University in 2015. It included 50 students from the 1th Semester and 49 students from the 5th semester. The criteria of communications were rated by the examiner and the criteria of therapeutic climate by a standardized patient. Data was analyzed by the means of t-test and the SPSS program (Version 2015).

Results: No differences were found in the ratings of the therapeutic climate and the communicative competences for physiotherapy students in the first semester on 8 stations (p=0.16 to p=.956) and in the 5th Semester (p=0.34 to p= 0.485).

Discussion & Conclusion: This study could not find differences in the ratings between therapeutic climate and communication. Therefore, the assessment criteria of communication and therapeutic climate could be used as valid judgments to determine clinical competencies of physiotherapy students. However, the study did not provide results on the difference between the short and long stations. We assume that in short stations the student cannot establish a good relationship with standardized patients. Further research is suggested to be focused on the data collected during the long stations.

10J6 (1041)
Sharing reliable and valid OSCE stations so as to improve cross-institutional assessment strategies: Are we equipped for it?

Authors
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Presenter: Thomas Kropmans, Qpercom Advanced Assessment Solutions, Galway, Ireland

Background: Transforming cross-institutional assessment strategies in terms of sharing quality assured assessment outcome and sharing proven reliable and valid assessment stations in an integrated way throughout Europe is sensible and rarely done.

Method: Written informed consent was thought between institutions using an electronic OSCE Management Information System (OMIS) in Europe having a mutual Non Disclosure Agreement (NDA) for OMIS in place. Institutions that embraced the idea of sharing formative quality assured assessment results of OSCE stations were included in this study. Those referring to their agreed NDA were respectfully excluded. Mixed Methods were used to compare quantitative and qualitative assessment outcome in terms of quality assurance outcome like pass mark/standard setting, internal consistency (Cronbach's Alpha), Generalizability coefficients and the Standard Error of Measurement and station goals/names.

Results: Ten out of twelve institutions participated sharing pre-final clinical skills assessment results. Student numbers varied from 50 to 250 within institutions with min and max pass marks varying from X (institution X) to Y (institution Y). Internal consistency (Cronbach Alpha) of exams varied from A (Institution A) to B (Institution B) and more modern G-Coefficient from C (Institution C) to D (Institution D). The Standard Error of Measurement around the Observed Scores varied from F (Institution F) to G (Institution G).

Discussion & Conclusion: Transparency is sensible but hopeful comparing EU clinical skills exams and opens the opportunity for sharing valid and reliable assessment stations within institutions. Quality assured formative assessment outcome varies within and across EU

institutions. More emphasis to transparent outcome (big data) analysis is required to transform EU clinical skills assessment strategies. We are equipped for it but are we ready for it?

10K: Short Communications: Transition

Location: Shanghai 2, Ground Floor, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

10K1 (2601)
Supporting nurses' transition using WhatsApp

Authors

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Christoph Pimmer, University of Applied Sciences and Arts, Northwestern, Switzerland
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Presenter: Felicity Daniels, University of the Western Cape, Capetown, South Africa

Background: Transitioning into practice can be exciting, but also challenging and traumatic. Despite the necessary training and assessment of student nurses, a period of additional support is considered essential to help these nurses settle into their new role and responsibilities. There is, however, no standardized, well-structured, evidence-based, and professionally focused education and social support program of transition in South Africa.
Method: This qualitative, exploratory comparative study focused on the experiences of new nurses about a WhatsApp support group. A total of 63 newly graduated nurses in community service were purposively selected. Divided into rural and urban groups, they participated in a three month structured group discussion based on identified needs. Thereafter in-depth interviews were conducted with 12 participants (6 rural and 6 urban). Data were analysed using content analysis. Trustworthiness was established and ethics approval was obtained from the university.
Results: Participants benefitted from collegial shared experiences and support received during the program. They developed resilience and confidence by being connected with colleagues from school and acknowledged that content of discussion was relevant to their personal and professional development. The challenges reported varied between urban and rural groups. They recommend that this group should be continuously used in supporting new nurses.
Discussion & Conclusion: The findings indicate the benefits of WhatsApp groups in supporting nurses in transition; however, there are a range of factors which are reported to affect the successful use. Rural participants need more support that their urban counterparts. The findings of this study will inform the development of an online transitioning program to further support new nurses during transition.
Take-home message: Online intervention which is real time, cost effective and evidenced based can be useful in supporting newly graduated nurses towards a successful transition.

10K2 (1862)
Support strategies during the transition to undergraduate clinical training: a scoping review

Authors

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Presenter: Anique Atherley, Maastricht University, Maastricht, Netherlands/Western Sydney University, Sydney, Australia

Background: The period of transition from an undergraduate pre-clinical to clinical student can be stressful. Research suggests that transitions are periods up to two months where students adapt to their new environment. Exploring how students are supported during this critical learning period could inform relevant, evidence-based support strategies.
Method/Results: We developed a protocol to examine the scope of research, identify gaps and summarise findings related to support strategies aimed at helping students transition to clinical training. Between October 2017-January 2018, we conducted a scoping review on English literature with no date limits. A systematic search in six databases yielded 1582 articles. Using a defined eligibility criteria and peer-review process, 36 articles were charted and thematically analysed. Reference list searching yielded a further 14 articles. We included papers that described or evaluated formal and informal support strategies or described students' experiences transitioning to clerkships. We used the latter to extract findings about informal support strategies — observation and learning by doing.
Students are supported as they adapt to the clinical environment by: 1) reducing the gap of skills and knowledge to gain in the new environment through transition courses and curriculum innovations 2) fostering transferable learning and reflection capabilities 3) fostering relationships with senior doctors and peers. Most evidence fell into the first category and most had no clear theoretical underpinning. Some studies measured student perceptions showing that students appreciate transition courses and felt more confident afterwards.
Discussion: This review of the existing literature highlights strengths and weaknesses in how students are supported during the transition to clinical training. Findings have implications for future research by guiding development of support strategies to enhance this transition.
Conclusion: Existing research focuses perceived effectiveness of interventions to reduce the gap between

pre-clinical and clinical training. It could be beneficial to conduct more studies with relevant, long-term outcomes and to focus on transferable learning and reflection capabilities and building relationships with others while being underpinned by theory.

Take-home message: This scoping review provided insight into documented formal and informal support strategies for optimizing the transition to undergraduate clinical training.

10K3 (1066)
Transitions in Medical Education: Final Year Medical Student to FIrst Year Family Medicine Resident - A Qualitative Study

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Presenter: Britta Laslo, Western University, London, Canada

Background: Transitions in medical education has been a renewed area of research given the well-documented negative emotions and experiences reported by learners across the medical continuum. This study aimed to explore the feelings and experiences of first year Family Medicine residents (FMRs) surrounding the transition to first year Family Medicine residency through a descriptive qualitative study.
Method: y transcribed and then reviewed by three investigators to identify emerging themes. The data analysis was both iterative and interpretative. Credibility of findings was enhanced through field notes, questioning of the data, individual and team coding, concurrent analysis of data with ongoing data collection and by employing reflexivity.
Results: FMRs described this transition as complex as they experienced evolving, and often competing, positive and negative feelings during this transition. FMRs articulated an important professional transition that occurs as a first year resident as well as personal, intrinsic attributes (ie: personality traits, attributes or habits) and a multitude of extrinsic factors (ie: geographical moves, residency rotation schedule, prior experiences with transition) that affect this transition. Importantly, FMRs consistently noted a perceived lack of connection to their FMR peers, Family Medicine clinical supervisors and the Family Medicine postgraduate program which contributed to a distinct feeling of disengagement.
Discussion & Conclusion: The findings increase our understanding of this complex transition in medical education. Negative feelings and experiences of disengagement with FMR peers, supervisors and the Family Medicine Program are experienced by first year FMRs during this transition. Feelings of disengagement can overshadow the positive feelings and experiences of this transition and may increase the risk of burnout and disengagement in this learner population. The findings

support recommendations to improve the transition from final year medical student to first year FMR through a training environment with increased connectivity to the Department of Family Medicine, Family Medicine peers, early Family Medicine rotations and fewer transitions between services.

10K4 (2854)
Supporting doctors when it counts: presenting a framework of doctors' transitions into practice

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Presenter: Lisi Gordon, School of Management, University of St Andrews, UK

Background: Doctors experience numerous career transitions that impact on well-being and may lead to burn out.(1) Transitions are also periods of learning and development.(2) To navigate transitions well, doctors must be resilient and organisations must provide support networks.(3) Context influences educational outcomes and plays a role in the development of professional identities; behaviours, attitudes and beliefs; career choices; and response to challenges.(4) Context thus shapes transition experiences.
Method: We asked: how does context influence transition experiences of senior trainees to consultants? Drawing on Multiple and Multidimensional Transitions (MMT) theory,(3) we undertook secondary analysis of 55 interviews undertaken as part of three separate projects exploring transition experiences of senior trainees from three countries: UK (n=21); Netherlands (n=14); and Canada (n=20).
Results: Our findings show the different trajectories resulting from the unique lived experience of doctors across varying contexts they inhabit. Irrespective of context, how participants experienced and dealt with changes involved four dimensions in line with MMT theory; psychological; cultural; physical; and social. We developed an explanatory framework depicting interactions between changes to role expectations, practice, home and learning during transitions.
Discussion & Conclusion: Context cannot be reduced to a single factor influencing transitions or a backdrop within which transitions happen. It has multiple dimensions and is shaped by individuals' developing roles in their communities of practice. We will introduce the transitions framework to delegates and discuss the impact of these new understandings of doctors' transitions on how medical educators and organisations can support doctors.
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perception: A structural equation modelling approach. Medical Teacher 2013;35:320-327.

2. GORDON et al. Multiple and multi-dimensional transitions from trainee to trained doctor: A qualitative longitudinal study in the UK . BMJ Open, DOI: 10.1136/bmjopen-2017-018583 2017

3. JINDAL SNAPE D, RIENTES B (Eds.) Multidimensional transitions of international students to Higher Education. New York: Routledge; 2016.

4. BATES J, ELLAWAY R. Mapping the dark matter of context: a conceptual scoping review. Medical Education 2016 50(8): 807-816

10K5 (3056)
Case study: How prepared are medical graduates in Saudi Arabia to begin their postgraduate training?

Authors
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Susan Jamieson
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Background: This study examined how prepared medical graduates were to begin their postgraduate training in Saudi Arabia and identified possible ways to improve their level of preparedness.

Method: This was an embedded single case study which had three units of analysis, and the study was divided into three phases, which respectively considered the perspectives of three different groups. Medical graduates, consultants (postgraduate faculty members), and national figures in positions of leadership within the medical education context in Saudi Arabia.

In the first phase, focus group interviews were carried out with medical graduates. In the second and third phases, one-to-one semi-structured interviews were carried out with faculty members and deans of medical schools. Thematic analysis was used in this study, and the data were analysed manually.

Results: All (80) first-year trainees in the training centre, from all different programmes, were invited to participate. Nineteen new doctors participated in four focus group sessions. The participants (female n=5, male n=14) graduated from 9 different Saudi medical schools. Seven faculty members responded and participated in individual face-to-face interviews, and three medical school deans participated (two face-to-face interviews, and one phone interview) in the third phase.

Discussion: There was lack of preparedness in general among the graduates at graduation, but they were confident about their level of preparedness at the time of data collection (one year into their postgraduate training). They reported that they were not prepared when they started their training programmes. A lack of proper clinical exposure and mentorship in medical schools was frequently reported by graduates. The clinical placement and internship and the quality of clinical exposure were linked to the variation in teaching hospitals. Although most of the graduates agreed that internship was a great opportunity for preparing them for practice, some argued that it was not sufficient due to different educational standards at the training hospitals.

Conclusion: There were no notable differences between graduates from the different types of school. However, faculty members, consistently mentioned that graduates from the old medical schools were more competent and confident in their knowledge and skills.

10K6 (618)
Preparedness for postgraduate practice: the point of view of junior residents and senior physicians of western Switzerland

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Background: Recent studies have shown that newly graduated doctors feel insufficiently prepared in some areas of competence to start their clinical activity. The aim of this study is to explore the perception of Lausanne Medical School's graduates on their level of preparedness for clinical activity at the beginning of the postgraduate training.

Method: Multicentric, cross-sectional mixed-method study, among junior residents and senior physicians of Swiss hospitals. The quantitative part consisted in a 27-items questionnaire exploring the perception of performance in five areas of competence (knowledge, skills, clinical reasoning, communication, collaboration) as well as personal aspects (time management, job satisfaction). The qualitative part consisted in semi-structured focus groups with PGY1 residents. An initial open discussion on self-perception of preparedness for practice was followed by a more structured discussion based on the CanMEDS roles. Two authors performed independently the analysis of the verbatim transcriptions inductively and deductively.

Results: 68 (50% response) junior doctors and 80 (31%) senior physicians returned the questionnaire. 54.0% of residents consider their studies to prepare them adequately for practice. 49% however consider the knowledge base to be incomplete. They feel least prepared in planning therapeutic strategies (49.2%), communicating with families (51.7%) and write a discharge letter (72.9%). Moreover, 50.8% of them feel overwhelmed from the workload. Interestingly senior physicians share the same vision on forces and difficulties. 19 residents agreed to participate to 6 focus groups. They confirmed to feel well prepared in terms of theoretical knowledge, but to have been insufficiently exposed to ''simple'' and frequent diseases. They also feel less prepared in the interprofessional collaboration, in critical thinking, in proposing diagnostic strategies, interpreting tests, performing procedural skills, coping with the administrative tasks and in time management.

Conclusion: The majority of young graduates feel globally well prepared for the postgraduate training. However,

several important competencies and aspects of the medical profession are not sufficiently mastered, with a possible negative impact on perceived workload, job satisfaction and perceived self-proficiency. Our study provide important information to program directors and educators, who are accountable for preparing competent physicians for the postgrade training.

10K7 (2633)
Perceived strain of undergraduate medical students during a simulated first day of residency

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Presenter: Sophie Fürstenberg, University Medical Center Hamburg-Eppendorf, Hamburg, Germany

Background: Residents have been found to perceive high levels of strain and show abnormal burnout scores. Medical students also reported a high degree of strain and even depressive tendencies when entering their clinical rotations. The aim of this study was to explore the perceived strain of medical students from different undergraduate curricula and at different stages of academic advancement during different phases of a formative assessment simulating a resident's first day in hospital.

Method: Sixty-seven undergraduate medial students participated in the following three phases of the assessment in the role of a resident: a consultation hour with five simulated patients, a management phase with interprofessional contact, and a patient handover with a colleague. They completed the validated Strain Perception Questionnaire (STRAIPER) after each phase. Students from different undergraduate curricula (VI: vertically integrated, N = 35 vs. non VI: not vertically integrated, N = 26) and different academic advancement (10th semester, N = 26 vs. final year, N = 41) were compared.

Results: All students showed the highest strain level after the management phase compared to the consultation hour and the handover. Medical students from a non-VI curriculum felt significantly more strain in the dimension of agitation ($p < .05$) after the consultation hour compared to students from a VI curriculum and compared to the management phase and the handover. No significant difference in perceived strain was found between students from semester 10 compared to final year students.

Discussion & Conclusion: During the consultation hour and the handover with a colleague medical students faced tasks, which are familiar to them from undergraduate education. Their higher strain levels during the management phase may occur because they are confronted with unfamiliar tasks and decisions. Feeling responsible for the right actions might have added to the strain students perceived during this phase. Hence, patient management should be emphasized more in any type of undergraduate medical curriculum.

Take-home message: Training patient management should be emphasized in undergraduate medical training to reduce strain in medical practice.

10L: Short Communications: Simulation

Location: Shanghai 3, Ground Floor, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

10L1 (312)
Ward round simulation in final year medical students: Does it promote students' learning?

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Presenter: Claudia Behrens, Universidad Catolica del Norte, Coquimbo, Chile

Background: Ward round skills are essential for doctors in a hospital setting. Literature reveals deficiencies in those skills among medical students and junior doctors. Simulation is increasingly emerging as a modality to train ward round based skills. However, exposing learners to ward round simulation at a too early stage may be associated with a high cognitive load and limited learning. This study aims to determine to what extent students experience a cognitive load and its interplay with performance and to explore factors that may promote and impair learning.
Method: Fifty-six final year medical students participated in a simulated ward round training exercise with three standardized patient scenarios. Both students' performance and cognitive load were measured to determine if there was any correlation. Interviews were carried out in order to provide a deeper understanding of factors that may support and impair learning.
Results: Performance scores revealed deficiencies in ward round skills. Students experienced some intrinsic but very low extraneous cognitive load, and both cognitive loads weakly correlated with performance. Qualitative findings provide important insights into simulated ward-based learning. On the one hand, well-designed clinical scenarios, prioritization tasks, teamwork and feedback may support students' learning process. On the other hand, distractions can impair their learning.
Conclusion: WRS seems to be a good teaching method to improve clinical skills at this stage of training, as the cognitive load associated to the exercises is not too high to impair learning. Moreover, the inclusion of relevant tasks in the simulation design can enhance the learning process.
Take-home message: WRS can offer meaningful learning opportunities for final year medical to improve not only technical and non technical skills but also clinical decision making skills that are more contextual particularly in emergency situations.

10L2 (2906)
Teaching procedural skills in simulation environment as a route to improve patients' safety

Authors
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Presenter: Katarzyna Naylor, Department of Didactics and Medical Simulation, Medical University of Lublin, Poland

Background: Technological advances provide educators with tools that can enhance and stimulate the teaching-learning process. Additionally, this can improve students learning experience and provide them with an immediate access to the necessary resources.
Method: We describe a modeling of the teaching-learning process by engaging the students through instructional methods in simulation environment at the undergraduate level of medical schools to teach protocols of basic procedural skills. First and second year undergraduate medical students participated in basic clinical skills training lead in the simulation environment. The first group training was enriched by Peyton's four-step approach for small group teaching, including role play with peer assisted learning and teaching with technology (simulation based training). After five sessions (15 h) participants of both courses were evaluated using Objective Structured Clinical Exam employing procedural checklists. Additionally, students completed a questionnaire concerning their confidence in performing those procedures and opinions on the course.
Results: Students in the course implementing the four step methods in the simulation environment outperformed students learning without Peyton's four step approach during the OSCE stations commencing the training (P < 0.05). Training improved significantly their performance in the most invasive procedures for the patients: peripheral vein cannulation (p=0.001) and catheterization (p=0.000).
Conclusion: The simulation course lead by implementing instructional methods based on Peyton's four-step approach significantly benefits participant's performance. The method promotes active participation through an intensive practice during labs aiming at adherence to safety protocols and improving patients' safety.
Take-home message: This study illustrates that simulation-based education can improve patient safety through training and protocols. Students receive the opportunity to practice procedural skills before entering the clinical setting.

10L3 (1477)
The power of simulation: a narrative analysis of learners' experiences

Authors
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Jennene Greenhill, Flinders University, Adelaide, Australia
Debra Nestel, Monash University/University of Melbourne, Melbourne Australia

Presenter: Margaret Bearman, Deakin University, Melbourne, Australia

Background: Simulation-based education (SBE) is now a ubiquitous part of health professional education. The current literature in SBE is extensive but does not explicitly investigate why SBE can be such a powerful learning experience. The National Health Education and Training in Simulation program (NHET-Sim) offers the opportunity to investigate this question. NHET-Sim has been providing Australia-based health professionals with the introductory skills and concepts necessary to facilitate SBE since 2011.
Method: This study investigates learners' narratives of powerful experiences in SBE. It seeks to identify the ways in which health professionals recount their learning through SBE, and through this to understand how SBE shapes learners' future practice. Drawing from the NHET-Sim learning management system, 2624 reflective responses were extracted (with consent) to the prompt "describe the most powerful learning experience you have had using simulation". 328 of these were deemed to be in narrative form and these were categorised into narrative types. Thematic analysis indicated features that spanned narrative types and factors that influenced learning.
Results: There were four categories: progression narratives, which describe development of skills (257/328 = 71%); practice narratives, which are reflections of clinical practice (36/328 = 11%); transformational narratives, which tell significant moments of professional development (29/328 =9%); and humiliation narratives, which describe distressing and harmful experiences (8/328 = 2%). Recurrent features across all categories were: formative early experiences; dramatic scenarios; an appreciation of simulation as a methodology; scenarios that 'go wrong'; emotional responses, most commonly negative in valence; and reflective practices. Factors that promoted learning were: verisimilitude (realism); feedback, debriefing and facilitation; observation of others: repetition of scenarios; and 'being the patient'.
Discussion & Conclusion: Analysing SBE narratives provides an understanding of how simulation induces powerful learning. The narrative data suggests that error and associated negative emotional valence prompted learning. In some instances, narratives were transformational, that is, they led to a profound and permanent shift in professional practice. On regular but infrequent occasions, learners described highly unpleasant experiences with no learning reward.
Take-home message: Making mistakes is a key feature of learning through simulation.

10L4 (329)
A Randomised Control Trial of simulation-based education for mechanical cardiopulmonary resuscitation training

Authors
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Anna Todd, Sydney Clinical Skills and Training Centre, Royal North Shore Hospita, Sydney, NSW, Australia
Kevin Ho, Westmead Hospital Department of Emergency Medicine, Sydney, NSW, Australia
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Presenter: Andrew Coggins, NSW Health, Sydney, Australia

Background: Mechanical cardiopulmonary resuscitation (M-CPR) is increasingly used in the management of cardiac arrest. There are no reported randomised studies investigating M-CPR training to date. This study of newly trained M-CPR providers hypothesised that a brief standardised simulation-based intervention at 4-months would improve performance at a 6-month assessment.
• Newly aquired resuscitation skills decline significantly from 3 months.
• The use of M-CPR is assoicated with interruptions to chest compressions, highlighting the importance of an evidence-based approach to teaching and consideration of the issue of attrition resusciation skills and knowledge that are only used occasionally.
Method: This study utilised a simulated Emergency Department (ED) 'in-situ' cardiac arrest model. The M-CPR device used was a proprietary LUCAS-3 machine (Physio Control, Redmond, WA, USA). Participants were trained and assessed in pairs. Standardised baseline training was provided to all participants. A baseline assessment was completed for time to M-CPR initiation (primary outcome) and the number of critical errors made. Participants were randomised to an intervention group (additional simulation at 4-months) or control group (no specific additional training). After 6-months the performance outcome measures were reassessed. Comparative statistical tests were performed using an intention to treat analysis.
Results: 112 providers were enrolled. The intervention group (n=60) and control group (n=52) had similar baseline demographic characteristics. At a 6-month assessment of performance, median time to M-CPR initiation was 27.1 seconds (IQR 22.0-31.0) in the intervention group and 31.0 seconds (IQR 25.6-46.0) in the control group (p=0.003). The intervention group demonstrated a significant reduction in errors compared to controls at 6-months (p=0.001)
What this study adds:

• In this study we observed a significant decline of measured performance in ALS providers that received no additional simulation training.

• A brief additional simulation with semi-structured feedback improved M-CPR performance in a simulated model at 6-months.

Conclusion: Significant skill attrition was observed in ALS providers receiving no additional training at 6-month follow-up. Therefore, to maintain performance of new resuscitation skills, provision of regular follow-up training with simulation is crucial.

Smith KK, Gilcreast D, PIerce K. Evaluation of staff's retention of ACLS and BLS skills. Resuscitation. 2008;78:59-65.

10L5 (2005)
The influences of fidelity toward students' perception on simulation and the effectiveness of simulation education

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Presenter: Tsuen-Chiuan Tsai, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung City, Taiwan

Background: Medical simulation incorporating with team skill training has long been recognized essential in medicine. The simulation "fidelity" had been previously considered parallel to the effectiveness of simulation training, while increasing cost and consumption of manpower. However, recent reports indicated the degree of fidelity is not necessarily related to training effectiveness. It is important to identify target functions of "fidelity", such as physiological signals, those may be related with the effectiveness of simulation education. This study is to explore students' perception on the focus of simulation fidelity shifting from mannequin to "physiological signals".

Method: This is a quasi-experimental design that used two kinds of simulators as teaching intervention: a "full-scale high-fidelity model" and a "physiological signal simulator". The physiological signal simulator, along with a "low-fidelity" mannequin or a standardized patient, can be used either in-situ or in a simulation room. There were 10 simulation trainings for each model, with 1-2 teachers and 5-6 trainees as a group. Questionnaire regarding students' perception on simulation and the effectiveness of simulation education were distributed at the end of simulations. The learning objectives, simulation design and the tasks for trainees were also studied.

Results: Students perceived there have been no significant difference on the quality of the simulation, in terms of case, equipment and process, between the two simulation models. They recognized the model of "physiological signal" being more friendly and cost-effective when compared with the full-scaled simulation. Students appreciated the training conducted in their work place with their regular team members. Both the simulations

with "high- or low-fidelity" are generally perceived as helpful on improving their clinical skills.

Conclusion: The degree of simulation fidelity did not parallel with effectiveness of learning. The keys for conducting simulation successfully are to align the simulation focus with the learning objectives, simulation design and the tasks for trainees. With the smart and widespread uses of simulation, patient safety and quality of healthcare can be greatly enhanced.

10L6 (101)
Hardened tendencies: Persistence of initial appraisals following simulation-based stress training

Authors
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Kari White, University of Toronto, Toronto, Canada
Vicki R LeBlanc, University of Ottawa, Ottawa, Canada

Presenter: Vicki R LeBlanc, DIME - University of Ottawa, Canada

Background: Stress impairs performance during simulated acute events. This study was conducted to investigate the effects of two training interventions on stress responses to simulated trauma scenarios.

Method: Twenty (20) Emergency Medicine residents were randomly assigned to the Crisis Resource Management (CRM) or Stress Inoculation Training (SIT). The CRM targeted non-technical skills required for effective teamwork. The SIT targeted skills related to cognitive reappraisal and relaxation training. Each group received a 3-hr training session: didactic teaching followed by multi-disciplinary simulation scenarios and debriefing with emphasis on either CRM or SIT. Participants served as team leaders in simulated trauma scenarios pre and post intervention. Stress levels and responses (peak minus baseline) were measured with the State Trait Anxiety Inventory (anxiety), cognitive appraisal (degree to which situation is interpreted as threat vs challenge) and salivary cortisol levels.

Results: Both CRM and SIT resulted in decreased overall cortisol and anxiety scores post interventions (mixed-design ANOVAs, significant = $p<.05$). However, the magnitude of the cortisol and anxiety responses did not decrease post interventions. Stepwise regression analyses showed that the only predictor of stress responses in the post-intervention scenarios was the residents' appraisal responses to that scenario (degree to which they interpreted it as a threat), explaining 21% and 28% of the variance in cortisol and anxiety responses respectively. In turn, appraisals of the post-intervention scenarios were predicted by the residents' appraisals of the pre-intervention scenario and gender, explaining 53% and 15% of the variance respectively. Men were more likely than women to appraise scenarios as threatening.

Conclusion: The stress regulation interventions led to reductions in stress levels, but with limited impact on responses. Those who appraised an initial scenario as more threatening were more likely to interpret a

subsequent scenario as threatening. In turn, they were more likely to have larger stress responses. Interventions that have been largely successful in other domains, namely CRM and SIT, had limited effects in overcoming initial appraisals of potentially stressful events.

Take-home message: Approaches to stressful events may represent hardened tendencies; significant training & practice is likely needed to overcome coping approaches developed over a lifetime.

10L7 (2661)
Simulation-based mastery learning improves totally implantable venous-access port care skills of interns

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Presenter: Young-Min Kim, The Catholic University of Korea Seoul St. Mary's Hospital and START Center for Medical Simulation, Seoul, South Korea

Background: Totally implantable venous-access ports (TIVAPs) are valuable device for long-term intravenous treatment of cancer patients but complications can be developed during implantation and care of the device. Inserting and removing the TIVAPs needle are one of the intern jobs in our hospital and were identified as a potential source in catheter-related bloodstream infection.

Method: We developed and implemented a simulation-based mastery learning (SBML) course for TIVAPs care to solve the problem. The course was developed according to the 7 principles that characterize SBML programs. One week before internal medicine internship, 12 interns studied pre-course self–learning materials and participated in the 2.5-hour SBML course. The course was comprised of baseline test, deliberate practice with feedback, post-training test, and repeated practice and retest. The assessment tools were developed by subject matter experts and validated by clinician educators. Based on the pilot testing data, the minimum passing standard (MPS) was set using the modified Angoff and Hofstee methods by an expert panel. We also evaluated self-assessed confidence and competence through questionnaires.

Results: A checklist with 20 items (2 points per item) for 10-minute skill test was developed and the raters were trained. The intraclass correlation coefficient and Kappa coefficient of the raters were 0.889 and 0.608-1.000, respectively. A total of 8 courses were implemented and 98 interns participated in the courses during 1-year internship. The mean baseline test score of the interns was 32.4±4.7 points and the score in the second half of the internship was significantly improved compared to the first half. Six (8%) interns did not pass the post-training test and were needed repeated practice and retest. Confidence and competence of the interns for the procedures were significantly improved before and after the course and they felt that many aseptic steps were difficult to master the procedures.

Conclusion: A SBML course improved interns' skills of TIVAPs needle insertion and removal in a simulated setting and confidence for the procedures.

Take-home message: SBML is an effective way for interns to learn and improve their TIVAPs care skills that is simple but require strict aseptic technique.

10M: Short Communications: The Clinical Teacher

Location: Boston 1, Ground Floor, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

10M1 (30)
Exploring Clinicians' Motivation to Teach: The Subjective-task Value Perspective

Authors
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Diane Robert, Université de Montréal, Quebec, Canada

Presenter: Nicolas Fernandez, Université de Montréal, Canada

Background: Because of increasing clinical demands on physicians, their availability to train future doctors is limited. Previous studies report that constraints forcing physicians to choose between providing care and supervising trainees tend to inhibit their motivation to teach and to engage in Faculty Development activities. We sought to investigate how physicians motivate themselves to teach.
Method: We selected the subjective task-value model of motivation based on social-cognitive theory. We measured the subjective task-value perceptions with regards to clinical teaching tasks, and tested their relationship to engagement and time devoted to teaching.
Data was collected by survey sent to 486 medical educators in teaching sites affiliated with a regional campus of a large medical school in Canada. The survey comprised four dimensions of the subjective task-value which are: 1) perceived importance; 2) interest for what is taught; 3) perceived cost of teaching relative to other tasks and; 4) perceived utility. As an independent variable, engagement indicators (persistence/tenacity and weekly time devoted to teaching activities) were included. Two linear regression equations were calculated to test the relationship of subjective-task value with engagement in teaching based on results from 85 medical educators (n=85).
Results: Medical educators engage in teaching predominantly because they deem it important to do it well. Linear regression equations indicate a significant relationship between subjective-task value and engagement in teaching task ($F_{(7,672)} = 1.83$; $p < .01$) and time devoted to teaching ($F_{(6,187)} = 1.83$; $p < .05$).
Conclusion: The subjective task-value model provides useful insights into what motivates medical educators to engage in teaching activities. Our results indicate how medical educators find motivation to persevere and devote some of their time to teaching. This leads us to suggest that what may motivate physicians to engage in teaching and in FD is to place greater emphasis on the complementarity between teaching practice and the maintenance of the quality standards for practice within the profession.

10M2 (2180)
Valuing Clinical Teachers: Understanding Perspectives of Clinical Faculty at the University of Toronto

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Arno Kumagai, University of Toronto, Toronto, Canada

Presenter: Alison Freeland, University of Toronto, Canada

Background: Clinician Teachers (CTs) constitute a large proportion of medical teaching faculty. With increasing dependance on busy clinicians to participate in teaching and faculty development, there is a need to ensure they feel supported and recognized for their contributions.
Method: Eleven focus groups of clinician teachers from academic and community health care settings across the Greater Toronto Area were conducted. Results were analyzed using a constructivist approach informed by Grounded Theory. Findings were validated with a faculty-wide survey of CTs which was analyzed using descriptive statistics. Open-ended survey questions were examined using a grounded theory approach.
Results: The 57 focus group participants identified intrinsic motivations, rewards, and challenges impacting their teaching roles. Survey results from 563 respondents validated these responses. In terms of intrinsic motivators and rewards, CTs described three themes: 1) desire to make connections with other faculty and students 2) professional interest and growth 3) work variety. Identified challenges included: 1) delays in obtaining student feedback, impacting ability to apply for awards/academic promotion 2) Inadequate financial remuneration 3) teaching is less valued than research 4) perceived lack of connection and communication between community hospitals and university 5) inadequate infrastructure and technology to support teaching.
Discussion & Conclusions: CTs feel intrinsically rewarded and motivated within their roles despite identified challenges. Opportunities to address challenges include developing standardized processes to routinely thank CTs for their contributions, to increase the number of teaching awards and to publically celebrate teaching achievements. Identifying and solving system barriers, such as evaluation and feedback systems, should be considered. Strategies to improve communication channels within and across teaching sites should be developed. Academic promotion processes should be reviewed to ensure CTs can realistically meet requirements. Using these results, U of T plans to institute a structured project plan to roll out and evaluate recommendations that will enhance the perceived value of CTs.
Take-home messages: 1) CTs feel undervalued compared to researchers.
2) Universities can develop strategies to meet the needs of CTs, including improved appreciation and acknowledgement, increasing opportunities for teaching awards, reviewing academic promotion requirements, and improving infrastructure and communication.

10M3 (1576)
Risk and vulnerability in clinical teaching: a qualitative study

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Boaz Shulruf, Office of Medical Education, Medicine, UNSW Sydney, Australia

Presenter: Arvin Damodaran, Prince of Wales Clinical School, Medicine, UNSW, Sydney, Australia

Background: Since entrustment is now a popular assessment strategy, it is important to understand risk and vulnerability, which drive trust decisions. The wider objective of this study was to explore clinical teacher's perceptions of trust, risk and vulnerability as relates to medical education. This paper addresses themes that emerged as hospital doctors considered their own vulnerabilities in the medical education context.
Method: This study adopted a constructivist, qualitative framework. Ethics approval was obtained from UNSW HREC. Doctors involved in teaching students and junior staff at a metropolitan teaching hospital were purposefully selected to vary age, gender and career stage. Semi-structured interviews were transcribed, iteratively coded and categorised utilising a general inductive approach.
Results: 20 doctors were interviewed with 9 females, 11 males, aged 25-59 (average 40). Career stage varied with 3 residents, 4 trainees and 13 specialists. Interviews ranged 21-54 (average 38.5) minutes.
Risks to clinical teachers could be categorised into:
1. Teaching, supervision and academic programs. Predictably, concerns raised included insufficient time, support and recognition. Topical risks, such as student wellbeing emerged:
"I don't want to have to reprimand someone because they've sworn at a nurse and then have them go home and do something stupid."
2. Self-perception, reputation and career. Participants reflected on the consequences of mistakes. Career was especially relevant to junior clinicians.
3. Patient care, clinical teams and workplaces. A prominent concern was "failure to fail":
"I am stunned by the number of people who have got references when none of us would let them look after our own relatives."
Discussion & Conclusion: In addition to recognised clinical teacher concerns, asking about risk and vulnerability drew attention to more personal dimensions of self-perception, reputation and career. Moreover, this study voiced doctor's concerns about risks of teaching and training to patient care. This may inform the current discussion contrasting the quality and safety agenda practiced in workplaces with traditional training programs.
Take-home messages: 1. Personal risks, including career and reputation, vary with career stage and influence engagement with teaching and supervision.

2. Doctors consider patient safety when making teaching and supervisory decisions. Education providers require similar sensitivity.

10M4 (166)
Are retired physicians suitable for the coaching of clerks?

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Presenter: Marjo Wijnen-Meijer, University Medical Center Utrecht, Netherlands

Background: Coaching during clerkships is not yet happening on a large scale in Netherlands or in most other countries. Discussions with clerks have shown that many of them would like to receive additional guidance. Furthermore, they are also not able to discuss other matters than the usual, mostly clinical topics, without having to worry about possible consequences for their assessment. Finally, enthusiastic coaches are usually either unavailable or and involved in the assessment of clerks. Would retired be an alternative solution for daily practice?
Method: We linked retired medical specialists as coaches to clerks. Both clerks and coaches were followed for 18 months. Consecutive clerks starting their first clerkship were randomised between having a coach (n=61) and not having a coach (n=59). Both clerks and coaches completed questionnaires. In addition, in-depth interviews with the coaches were conducted.
Results: Clerks who had a coach were happy to have one. During follow-up, there were no differences between both groups concerning free time, self-esteem, stress, or the number of conflict situations. Clerks with a coach indicated to have less stress as compared to the clerks without a coach. Different issues were discussed with the coaches, such as career issues, deceased patients, unacceptable behaviour of staff, or unpleasant fellow clerks. All coaches liked fulfilling the role of coach. Many found it an interesting way of doing something after their recent retirement from clinical practice. They mentioned that clerks needed them more during the first year of clerkship than later on.
Discussion & Conclusion: The findings of this study on mentoring clerks show that clerks sometimes need a coach and that they are happy to have one. Coaches may be selected amongst retired physicians with good communication and social skills. They are highly motivated for this task and have enough time for this task. This intervention might decrease stress in clerks.
Take-home message: Retired physicians can be used as coaches for clerks.

10M5 NO SHOW

10M6 (2391)
Identifying professional development needs for clinical teachers

Authors
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Presenter: Jayne Lysk, University of Melbourne, Melbourne, Australia

Background: Health professionals have diverse and challenging teaching roles undertaken alongside their clinical responsibilities. There is a body of research on student learning in the clinical environment compared to strategies needed to teach in the workplace. Currently, in Australian teachers employed by clinical schools attached to hospitals are not required to have any formal qualifications in education. This paper identifies specific perceived needs of clinical teachers and leaders to enhance the delivery of a University curriculum.
Method: This paper arose from an analysis of the professional development needs of tutors teaching into the Doctor of Medicine program at the University of Melbourne. Sources of data are derived from an online survey of directors and clinical teachers (n=68) of Medical Education and semi-structured interviews (n=8) with clinical teachers.
Results: Clinical teachers and leaders were able to identify many areas that would that would benefit from professional development. Amongst the top 5 frequently chosen areas for development, both groups chose teaching strategies, teaching with patients, feedback, and working with under-performing students. Notably, for the frequently selected items mentoring was in the top 5 items nominated by clinical teachers; but not by leaders who included questioning skills which clinical teachers did not.
Discussion & Conclusion: Clinical teachers and clinical leaders in clinical schools expressed a need to develop skills in specific areas to enhance their ability to deliver the curriculum in the workplace and to improve the student experience. The results of this study offer directions for education and training for specific areas of curriculum delivery in a clinical workplace environment.
Take-home messages: • Development should focus on the 4 areas of teaching strategies, teaching with patients, feedback, and working with under-performing students.
• Clinical teachers and leaders differ in the perceived needs of delivering mentoring and questioning skills to students.
• In planning profession development programs perspectives of all stakeholders need to be given consideration Including students.

10N: Short Communications: Selection, including SJTs

Location: Boston 2, Ground Floor, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

10N1 (1172)
Medical school selection as a learning experience

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Presenter: Marieke de Visser, Radboud University Medical Center, Nijmegen, Netherlands

Background: Research on selection for medical school does not explore selection as a learning experience, despite growing attention for the learning effects of assessment in general. Insight in the learning effects allows us to take advantage of selection as an inclusive part of medical students' learning process to become competent professionals. The aims of this study at Radboud University Medical Center, Netherlands, were: 1. to determine whether students have learning experiences in the selection process, and, if so, what experiences; 2. to understand what students need in order to utilize the learning effects of the selection process at the start of the formal curriculum.
Method: We used focus groups to interview 30 students admitted in 2016 about their learning experiences in the selection process. Thematic analysis was used to explore the outcomes of the interviews and to define relevant themes.
Results: In the selection process, students learned about the curriculum, themselves, their relation to others and the profession they had been selected to enter, although this was not explicitly perceived as learning. Students needed a connection between selection and the curriculum as well as feedback to be able to really use their learning experiences for their further development.
Discussion & Conclusion: Medical school selection qualifies as a learning experience and students as well as medical schools can take advantage of this. We think that, given the substantial resources utilized in selection, and the volume of information gained on the applicants, there is great value in finding a way to connect the two processes for enhancement of education.
Take-home message: A selection procedure is implicitly priming students for the curriculum. We recommend a careful design of the selection procedure, integrating relevant selection learning experiences into the formal curriculum, providing feedback and explicitly approaching the selection and the formal curriculum as interconnected contributors to students' development.

10N2 (3499)
Is selecting medical students based on face-to-face interviews more likely to identify those who will have better clinical performance?

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Background: Several different ways have been reported to identify the medical students who will respond to the needs of a society. We compared the clinical performance of post-graduate year one medical trainees (PGY-1) based on different admission criteria to medical schools, face-to-face interviews and only writing tests.
Method: We included the 2015~2016 and 2016~2017 PGY-1s in a university-affiliated medical center who graduated from the same medical school located at Northern Taiwan. The personal characteristics and the ways, writing test only (WTO group) and face-to-face interview (FFI group), they were admitted to the school were retrospectively reviewed and collected. Clinical performance was defined, in this study, as clinical skills, clinical reasoning, and procedural skills, which were measured using mini-Clinical Evaluation Exercise (mini-CEX), Case-based Discussion (CbD), and Direct Observation of Procedural Skills (DOPS), respectively. The clinical performance of each PGY-1 as indicated by mini-CEX, CbD, and DOPS examined during his/her clinical rotations were retrospectively collected. The association between clinical performance and ways of admitting to the medical school after controlling for personal characteristics was examined using multivariate linear regression analysis.
Results: 132 and 30 PGY-1s were admitted to the medical school by WTO and FFI, respectively. Before controlling for age, gender and academic performance upon medical school graduation, the PGY-1s in the FFI group have better academic performance upon medical school graduation than those in the WTO group with statistical significance (p<0.01). After controlling for other confounding variables, we found that none of clinical skills, clinical reasoning, and procedural skills were predicted by the ways of admitting to the medical school. In addition, we also found that PGY-1s' clinical skills as indicated by mini-CEX were significantly associated with their academic performance upon medical school graduation (p=0.02).
Discussion & Conclusions: It has been suggested that physicians with professional clinical performance are certainly expected by the society and fulfill the needs of the society. However, our study results weakened the suggestion that face-to-face interview is necessary for

admitting medical students to medical schools who will have good clinical performance. Some limitations of this study should be carefully deliberated.

10N3 (2936)
Assessing how cultural values impact responding on a Situational Judgment Test

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Naureen Bhatti
Rachel Driver

Presenter: Charlotte Flaxman, Work Psychology Group, Derby, UK

Background: Evidence from research suggests that cultural values, which serve as guiding principles, may act as drivers for behaviour in workplace contexts. There is debate around the extent to which cultural values may impact judgments about behaviours relating to professional attributes. The attributes pertinent to effective performance for general practitioners (GPs) are measured in assessments across selection and development in GP trainees. Investigating the impact of cultural values on performance on such assessments would provide insight into this relationship.
There is a drive to understand how individuals' cultural values may play a part in their interpretation of and performance on assessments of interpersonal competency areas such as communication, empathy, teamwork and resilience. This study seeks to answer the question 'How do cultural values impact GP trainees' and subject matter experts' performance on an assessment of professional attributes?'.
Method: A questionnaire was designed to measure personal values, ethnic group identity, performance on a situational judgment test (SJT) assessing professional attributes, and demographic background for groups of GP Trainees and subject matter experts (SMEs - trainers, educational supervisors). Additionally, SMEs rated the 'cultural loading' (i.e., the extent to which SJT items reflect cultural values such as traditionalism, security and universalism) of the SJT items.
Data collection is currently underway with an aim to present and discuss preliminary results and findings for the meeting date in August 2018.
Discussion & Conclusions: The results of this project will improve understanding of relationships between cultural values, decisions about behaviours and their impact on assessments for selection and development.
Take-home message: The implications of this study extend to broader challenges in GP education and training policy and practice, such as contributing to conversations about how such differences should be managed, in terms of selection and development.

10N4 (3036)
Situational judgment test helps medical staff reach consensus

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Presenter: Juliana Tze-Wah Kao, School of Medicine, Fu Jen Catholic University, New Taipei City, Taiwan

Background: Situational judgment test (SJT) is a psychological assessment which presents the test-taker with realistic, hypothetical scenarios and asks the individual to select or rank the responses he/she considers appropriate. Exploration of its application in medical school admissions has been undergone by some countries. This study aims to evaluate its use in medical education in Taiwan.
Method: SJT was first introduced by a lecture to the medical staff of a newly established hospital. The staff was then invited to take two tests for interns developed by Dr. Goss of Australia (distributed in AMEE 2015). One is a selective-style test evaluating professionalism. The other is a ranking-style test concerning patient safety and assertive communication. The answers to the tests were then compared with the standard answers. Advantages and disadvantages of SJT were also discussed.
Results: Twenty-one medical staff (9 males, 9 doctors) completed the tests. For the selection-style test, 16 staff (76.2%) chose the standard answer. For the ranking-style test, 13 staff (61.9%, 3 doctors) gave the same ranking as the standard answer. Eleven staff (52.4%, 10 females, 1 doctor) chose the standard answers of both tests. All thought that SJT is interesting and can be used to assess students of medical schools. However, some thought that the answers are subjective with limited items to choose.
Discussion: More than 75% staff chose the same answer for the selection-style test, indicating that it is probably easier to gain consensus over professionalism and/or selection-style test has a lower degree of test differentiation. There were more different answers to the ranking-style test, probably because there were more items to rank and thus had a higher degree of test differentiation. Only three doctors chose the standard answer of the ranking-style test, indicating that doctors might have different ways of thinking and consensus over assertive communication is needed.
Conclusion: SJT may be used to assess students of medical schools and help figure out conflicts of healthcare issues among medical staff.
Take-home message: SJT may help medical staff reach consensus. Ranking-style SJT probably has a higher degree of test differentiation than selection-style SJT.

10N5 (2707)
The ups and downs of using situational judgment tests for admission to medical school

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Presenter: Anja Schwibbe, University Medical Center Hamburg-Eppendorf, Hamburg, Germany

Background: With the intention to consider non-academic attributes and interpersonal skills in medical school admission procedures, situational judgment tests (SJTs) have become widespread in recent years. Some previous findings showed significant correlations to different study performance measures (Patterson et al., 2016). However, shortcomings regarding internal consistencies and validity evidence continue to be discussed.

Method: In the context of the admission procedure 2016 at the University Medical Center Hamburg-Eppendorf (UKE) we developed and piloted a contextualized SJT, which resulted in satisfactory internal consistencies (α=.62) and a significant correlation to our multiple mini-interview (MMI) (r=.22, p=.004). One year after admission we analyzed the predictive value of this SJT for supervisor ratings during an obligatory one-week teaching in a general practice. With the aim to further improve reliability and validity results, we modified and piloted a new version of the SJT in 2017 by adding scenarios and reducing the number of items per scenario.

Results: Correlations of the 2016 SJT to different aspects of supervisor ratings failed to reach significance. In addition, contrary to our expectations the internal consistency of the new 2017 SJT decreased (α=.52) and we found neither a significant relationship to the MMI overall score (r=-.052, p=.470) nor to the score of a single station, which was an oral version of an SJT-scenario (r=-.029, p=.684).

Discussion & Conclusions: The significant convergent validity to our MMI could not be replicated in 2017 and in our case the principle "the more items the better the reliability" did not prove true. SJT performance in 2016 and supervisor ratings one year later were not related. Our choice of a contextualized SJT rather than a construct-driven approach (Lievens, 2017) further complicates the interpretation of (non)significant relationships. Therefore we will attempt to address this problem by developing a new construct-driven SJT version, which should be piloted with applicants in 2019.

Take-home message: It seems to be a kind of lottery to attain satisfactory reliabilities and consistent validity

results for SJTs. Possible reasons as unclear construct validity have to be further investigated.

10N6 (314)
Influence of Language & Culture on International Medical Graduates' performance on Situational Judgment Tests

Authors
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Patrick Antonacci
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Presenter: Harold Reiter, McMaster University, Hamilton, Canada

Background: International medical graduates (IMGs) face challenges in familiarity with culture and language that domestic (Canadian) medical graduates (CMGs) do not (Triscott). As Situational judgment tests (SJT) use for Canadian resident selection increases, it is imperative to understand how an IMG's fluency in culture or language impact their scores.

Method: During Canadian postgraduate medical trainee selection in 2017, 816 IMGs and 1,172 CMGs wrote CASPer, an online, test-secure, video-stem, constructed-response SJT with validity evidence, measuring context non-specific personal competencies. Constructs are based upon CanMEDS 2015 intrinsic competencies; content, rater recruitment, and training are aligned with Canadian culture. The stems, instructions, and response scoring were all conducted in English. Mean IMG and CMG SJT scores were compared with large cohorts' CASPer score relationships with English as a Second Language (ESL) versus English as a First Language (EFL), spelling errors, and applicant writing grade level.

Results: Mean (standard deviation) of CASPer scores for IMGs and CMGs were 4.8 (1.1), and 5.9 (0.8), respectively (p<0.0001). This is consistent with similar differences between ESL (n=760) and EFL (n=3120) test-takers – 4.9(1.0) and 5.3(0.8), respectively (p<0.001). For score differentials specific to language fluency, there were negligible differences based upon number of spelling errors across 404,500 item responses (r=-0.04) and no difference for applicant writing grade level above grade six across 9,690 items (r=0.10).

Discussion: Significantly different SJT mean scores between IMGs and CMGs, and between ESLs and EFLs, may be due to differences in one of culture or language fluency or a combination. Research on metrics which apply to language fluency only demonstrate negligible differences in scores. However, SJT score dependence on national culture has been found elsewhere to be particularly critical, impacting both content development and scoring (Stegers-Jager).

Take-home messages: Differences in language fluency can be ruled out as contributing to CASPer results; differences in cultural fluency cannot. Assuming CASPer differentiates between applicants based upon level of acculturation, programs selecting IMG applicant with lower SJT scores

should be prepared to provide greater support to assist their incoming IMGs to adapt to their new culture.

10N7 (3383)
Graduate-Entry Medicine: Good for Widening Participation?

Authors
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Presenter: Emily Róisín Reid, University of Warwick, Coventry, UK

Background: A Bourdieusian exploratory 2017 research project investigated the impact of 'Graduate Entry Medicine' on 'Widening Participation': the goal of creating a medical workforce representative of the population it serves, particularly when accounting for disability, ethnicity and socio-economic backgrounds.
Method: The study consisted of two phases. Phase I gained benchmarking data via a quantitative survey with qualitative insight, which was completed by 46% of the student population (n=326). Phase II consisted of a series of in-depth semi-structured interviews (n=22) and focus groups (n=2). A 'Grounded Theory' approach to data collection, coding (open, axial and selective) and analysis was taken, recursively analysing data to ensure rigour and validity.
Results: The main findings, which will be published in due course, are an exposition of the barriers students from 'Widening Participation' backgrounds have faced throughout their journey into medicine. The data in full demonstrates that graduate-entry medicine enables students to enter the profession who otherwise would not have been able to.
Discussion & Conclusions: Analysis into the barriers faced by those students not only confirms factors already known in extant WP literature e.g. the impact of structural determinants on career choice (i.e. fees and bursaries), but also elucidates other interesting factors, such as the demonstrable role of 'media' (in particular, TV programmes) on career choice, 'luck', the acute impact of either being explicitly told that 'you are not good enough' or not being recognised as having the 'potential' to be 'good enough', which serves to demotivate and disengage otherwise 'bright enough' students. This paper calls for us to think more critically about: what is 'good enough' to be a doctor? Are we really trying to attract a pool of applicants from wider backgrounds, whilst maintaining the status-quo on selection methods? How should we widen our own reach to help others enter the profession? We propose acting as a 'surrogate medical family' to best support candidates not only on entry, but throughout their careers.
Take-home message: We each have responsibilities strive to make medical workforces truly representative, and only by really taking these on, will we make a difference. This paper calls for further investigation and development of innovative approaches.

1O: Short Communications: eLearning 2

Location: Boston 3, Ground Floor, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

1O1 (2760)
A quantitative analysis of use of mobile devices for learning by students at St George's from 2010 till present

Authors
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Presenter: Sheeta Kavia, St George's, University of London, UK

Background: Smartphones and tablet devices have become ubiquitous and continue to be the most accessible device across the world. These devices have become integral part of communication, learning, and collaboration. There is a limitless amount of activity rendered using mobile devices, however, the adaption and pace of these in favour of learning is still unclear, and to extract this, we have attempted to do a qualitative analysis using a series of surveys released amongst students at St George's from 2010 till present. We have also attempted to gather interesting trends available from the feedback within the surveys.
Method: The e-Learning unit released surveys specifically designed to analyse the use of mobile devices amongst students. The survey was to investigate the number of hours spent and types of resources used on mobile devices for learning. The survey was released 6 times during 2010 through 2017. Each year the feedback and trends were examined carefully to improve questions for subsequent years. The surveys were created using SurveyMonkey and were disseminated to students via student emails VLE and posters.
Results: The number of students who provided feedback on the survey varied from 2010 to now with the highest response rate (~ 860) was in 2012 and lowest in 2017. There has been an increase in the number of hours spent per week listening to audio files (podcasts) and accessed educational apps or websites. Trends of popular resources accessed via mobile devices has largely remained the same with little variants i.e. the most popular website accessed has been Wikipedia each year.
Discussion: The results of the survey show that students are using their mobile devices more regularly. This could be a result of more availability of resources and infrastructure changes making accessibility to such resources easier.
Conclusion: The current trend of learning with mobile devices has rapidly changed and it is no longer a novelty but part of their daily learning practice.

Take-home message: Technology and learning are evolving together and are mutually supportive of each other.

1O2 (1152)
Use of Group Learning, Scenarios and Reflective Writing to Enhance Undergraduate Medical Students' Understanding of the Professional Implications of Social Media

Authors
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Presenter: Isobel Braidman, University of Manchester Medical School, Manchester, UK

Background: Although social media is advantageous in medical education and practice, it has concerning aspects so that in the UK, the General Medical Council provides guidance (Doctor's Use of Social Media 2013). Nevertheless, it is unclear whether medical students' fully understand its implications, especially in a large Medical School such as ours (>2,200 students). Years 1 and 2 students are introduced to professional development (PD) through scheduled Group PD sessions of 20 – 24 students. Each focuses on a specific aspect of professionalism and is the basis of a reflective portfolio entry.
Method: For second year students (n=376), one PD session is devoted to Probity and Professional behaviour. It uses three scenarios, each with a specific dilemma, one involving students' use of social media. We therefore investigated students' understanding of social media through their reflective entries from this session. Students' material was analysed only with their approval and consent. One student was randomly selected from each group (two students refused consent and one did not attend the session) and relevant reflective entries were thematically analysed (n=29).
Results: Twenty three students (79%) included social media in their reflections and one focussed on it alone rather than the other scenarios. The remaining six students (21%) reflected only on the other scenarios. Our preliminary data indicated that there was high quality reflection and identified five main social media themes, which were used on 56 occasions: "Sharing Information"(38%), "Behaviour Online" (21%), "Understanding the Cyber Footprint" (19%) "Benefits of Social Media" (18%) "Requirement for further Information" (4%). We found that although some students were aware of issues arising from social media, others were unsure how to report unprofessional online behaviour.
Discussion & Conclusions: The Group PD sessions and the resulting reflective entries enabled students to explore issues arising from using social media. Of concern, however, was that few students identified the need for further learning about social media, although they were

unsure of how to deal with important issues like unprofessional behaviour online.

Take-home message: By analysing students' written reflection we identified a need to encourage their further learning about social media.

1O3 (2022)
Lessons learned from a decade on YouTube

Authors
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Presenter: David Topps, University of Calgary, Canada

Background: Back in 2007, we were one of the earliest groups to use YouTube for disseminating teaching videos. Now more than 300 hours of video are uploaded to YouTube every minute and most videos lose interest in days. Over a decade, our Clinisnips channel has seen sustained and vigorous uptake.

Method: Our Clinisnips videos have had over 5.7 million views, with a sustained rate over 2400 views/day. We examined the analytics and activity stream metrics, using various approaches. Some of these are simple and publicly available; some analytics have required a more in-depth approach, which will be shared. We explored what video sharing innovations have contributed to the lasting success of our channel, such as video mashup tools and widgets that facilitate video embedding into other curricular materials.

Discussion: Simply posting videos is not sufficient. It is important to assess what works and incorporate such feedback into ongoing developmental strategies. Detailed analytics allow you to explore how users engage with your materials, beyond simple click rates.

Take-home message: High quality base materials are an advantage but simple factors that allow other groups to easily incorporate your materials into their learning strategies make a big difference.

1O4 (3047)
Serious digital games using Twine open-source software, virtual patients, and digital chalk-talk videos: enhancing undergraduate and postgraduate medical education in diabetic acute care

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Presenter: Nathaniel Quail, University of Glasgow, UK

Background: The use of serious digital gaming, whereby clinical interactions are virtually played through by the user, is an evolving way of engaging healthcare professionals to learn in a safe environment. This study aimed to evaluate the use of virtual patient scenarios, made using easily accessible and programmable Twine open-source software, in enabling medical students and junior doctors to learn about diabetic acute care. Although 10-20% of hospital inpatients have diabetes, this is an area of low confidence among junior doctors.

Method: Three digital games with virtual patients were developed using Twine open-source software, Wacomb Intuous Pro, Camtasia Studio, Autodesk SketchBook, and simulated patient videos. These aimed to increase engagement, confidence, and knowledge in diabetic acute care among medical students and junior doctors. The scenarios address diabetic ketoacidosis, hyperosmolar hyperglycaemic state, and severe hypoglycaemia. Scenarios are played from presentation to resolution, with integrated chalk-talk explanations of important concepts. The scenarios reinforce themes of multi-professional care, multi-morbidity, poly-pharmacy, and safe insulin prescribing. These are frequently encountered by junior doctors but can form part of the hidden undergraduate curriculum. A prototype was piloted by a small cohort of senior medical students and junior doctors.

Results: Initial pilots with senior medical students and junior doctors have demonstrated high levels of engagement, acceptability, and overall satisfaction, as well as significant improvements in confidence and knowledge (p<0.05). Following this success, analysis using the Kirkpatrick model will subsequently be performed on a larger student cohort during our flipped classroom 'Diabetes Acute Care Day.'

Discussion & Conclusions: Our pilot testing suggests that this novel pedagogical approach is acceptable, encourages student engagement, and increases levels of confidence and knowledge in acute diabetes care. Virtual patient scenarios may be integrated into the undergraduate and postgraduate medical curriculum to create safe, engaging, and realistic learning opportunities. Virtual patient scenarios enable students and junior doctors to study subject-specific learning outcomes, while engaging with aspects of the hidden curriculum.

Take-home message: Open-source Twine software allows educators to easily develop virtual patient scenarios, which can be integrated into undergraduate and postgraduate teaching to enhance subject-specific and universal learning outcomes.

1O5 (609)
Evaluation of virtual case simulations considering the extraneous cognitive load and emotions of medical students

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Background: To establish clinical reasoning skills is one of the key goals of medical school. This study examined to what extent prior knowledge influences extraneous cognitive load(ECL) and how emotions influence the learning of clinical reasoning with virtual patients(VPs). Following research questions were asked:
RQ1:How does prior knowledge relate to ECL when learning with VPs?
RQ2:How do emotions relate to the learning process?
Method: N=142 Medical students were invited to a computer lab. The students answered a declarative and procedural knowledge test, and had to diagnose eight VPs in the learning environment CASUS.
Based on the declarative knowledge test a median split determined prior knowledge (low vs. high). After the pretest, after four VPs and after eight VPs the students' ECL was assessed, emotions before and after diagnosing the VPs. Medical students' required knowledge was limited to back pain and fever.
Data was analysed with SPSS Statistics and alpha error level was set to p<.05.
Results: 142 medical students participated in this study (72% female,M=24.41 years).
RQ1:A repeated measures ANOVA shows significant interaction for point of measurement and prior knowledge $(F(2;274)=8.04;p.eta2=.06)$. There is no significant difference at the pretest between low (M=7.61;SD=2.08) and high (M=7.98;SD=2.24) prior knowledge, after four VPs this difference (low:M=8.71,SD=2.64;high:M=7.73,SD=2.48) is significant, and so is the difference after eight VPs (low:M=8.84,SD=2.70;high:M=7.86,SD=2.52). Students with low prior knowledge experience significantly higher ECL.
RQ2:The correlation according to Pearson shows a negative linear relationship between success rate and the emotions anxiety (r=-.34), frustration (r=-.35) and confusion (r=-.26) after the pretest and anxiety (r=-.39), frustration (r=-.32) and confusion (r=-.20) after eight VPs. This indicates a significant negative relationship between success rate and anxiousness, frustration and confusion.
Discussion: Low prior knowledge students' higher ECL measurements may hint at how high prior knowledge influences the perception of VPs. When ECL rises, students might experience negative emotions which could lead to reduction in performance.
Conclusion: This study has shown that affective experience of CL and negative emotions might imply cognitive impairment.
Take-home message: Frustration and anxiety relate to the success rate when diagnosing VPs and low prior knowledge relates to higher ECL.

1oO6 (2312)

Current status and future directions of e-Learning in medical education: 10 years of experience from South Korea

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Presenter: Kyong-Jee Kim, Dongguk University School of Medicine, Goyang, South Korea

Background: We present the current status and future directions of e-learning in medical education from the experience of the e-learning consortium of medical schools in in South Korea for the past 10 years.
The consortium has offered an e-learning portal (www.mededu.or.kr), containing contents contributed by approximately 180 faculty members from medical schools nationwide since 2007. There are now over 1,600 multimedia learning resources of various types, including clinical cases, clinical vignettes, clinical images, and quizzes. This website currently has over 26,000 registered users from 36 medical schools out of 40 across the nation. The website gets over 30,000 hits per month. Clinical videos have received far greater hits than any other types of contents; approximately 30% of them are accessed from mobile devices.
Results: The consortium has provided e-learning that supports important developments in medical education in Korea. First, the clinical skills test was added to the national licensing examinations in 2009. Accordingly, we're offering video clips to support student learning of the clinical skills. Second, the Korean Association of Medical Colleges recently revised the learning outcomes for basic medical education based on a clinical presentations model. Consequently, we are mapping our contents with these new learning outcomes. Third, multimedia items will be added and delivered using tablets in the national licensing examinations in 2020 for more authentic assessment. In preparation for such new assessments, we are expanding our collection of resources to incorporate more multimedia contents, including audio clips and vignettes of clinical encounters.
Discussion & Conclusions: Our website has grown for the past 10 years and we made it sustainable by implementing strategies aligned with recent developments and future directions of medical education so that we can meet students' needs and support improvement of medical education in Korea. One of the key success factors was the collaboration of medical schools across the nation for development of the necessary infrastructure and contents.
Take-home message: Inter-medical school collaboration is an effective strategy for implementing e-learning in medical education.

10O7 (533)

TeachMePaediatrics: A New Socially Constructed Education Resource

Authors
Adam Bonfield, University of Leicester, Leicester, UK

Presenter: Adam Bonfield, University of Leicester, UK

Background: The "TeachMe" series started with "TeachMeAnatomy" and "TeachMeSurgery", websites to help medical students and trainees learn key subjects. To date, they have amassed over 40 million hits worldwide. We wanted to build on this strong foundation to launch "TeachMePaediatrics", a free website full of high-quality content, to aid trainees in learning about common and important paediatric conditions.

Method: A list of articles was created in line with the RCPCH curriculum and discussions with trainees.
The model of article development is unique to the TeachMe series. Trainees complete the first draft of articles which are then reviewed by senior experts in the field. In this way, articles are pitched at a suitable level, while also ensuring the quality of clinical content.
To further enrich the learning experience, multiple choice questions are given on the topic being studied. Clinical cases enable the learning to be situated in a scenario, allowing the learner to apply their knowledge to a clinical setting.

Results: More than 40 articles have been completed and are being used worldwide in student learning. In just 8 weeks the website has amassed over 12,000 individual hits. Qualitative feedback includes 'great layout', 'concise' and 'informative'. A strong interest on Twitter has resulted in collaborative learning with other disciplines such as paramedics and nursing staff.

Discussion & Conclusions: "TeachMePaediatrics" has started well with a number of articles already being used extensively by students and trainees to study. The way the articles are created and continually reviewed by those using the content builds on the concept of social constructivism. This 'social learning' is further emphasised by providing the Twitter community with questions and 'In-twitu simulation' cases.

There are many more articles in production as well as initiatives to expand the website into a free question bank, situate the learning into more case scenarios and produce virtual reality simulation videos. It is the the hope that the website becomes a place synonymous with high-quality, free paediatric education.

Take-home message: "TeachMePaediatrics" is a new, socially constructed, website based learning platform aimed at all healthcare professionals interested in paediatrics.

10P: Short Communications: Faculty Development 2

Location: Darwin, Ground Floor, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

10P1 (1601)
Developing health professional education faculty in the Pacific

Authors
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Sinead Kado
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Presenter: Louise Young, College of Medicine and Dentistry, James Cook University, Townsville, Australia

Background: Since 2006, students from Pacific island nations have been sent to Cuba to train as doctors in a health system that emphasizes community and primary health care. They are now returning as interns to their home country. It has been found that they are not well prepared for hospital work as interns, and their supervisors have had little experience supervising and educating interns. Faculty development for this role is required.
Method: This paper reports outcomes from a series of health professional faculty development workshops that have been undertaken in the Solomon Islands, Kirribati, Vanuatu, Palau and Fiji. These workshops aim to upskill clinical supervisors in contemporary knowledge, skills and attitudes related to learning and teaching in clinical settings.
Results: The presentation will describe the theoretical basis for the workshops, using action research cycles, as well as the topics and skills covered. Outcomes from the workshops, including participant feedback will be described. A main outcome was the increase in teaching confidence as well as the development of educator skills. Recommendations for faculty development in other low resource countries will be discussed.
Discussion & Conclusions: One week workshops are effective for developing faculty educator skills for clinical supervisors in Pacific Island nations. Core concepts such as learning as opposed to teaching and active rather than passive learning are readily adopted by participants. Whilst a week long workshop is not the optimum time. it works well in time and resource poor nations for developing a positive teaching culture and supervisor skills as educators.
Take-home message: Week long workshops are effective in increasing capacity in health professional education in low resource settings and where there is no previous teaching culture.

10P2 NOT PRESENTED

10P3 (2139)
Designing and Performing Personal Development Plan (PDP): A Practical Guide for Faculty Members' Educational Activities

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Presenter: Ideh Dadgaran, Medical Education Research Center, Education Development Center, Guilan University of Medical Sciences, Rasht, Iran

Background: Personal development plan is a written schedule to meet the professional needs of individuals in their development and promotion. The aim of this study was to increase the self-assessment culture, improve time management skills and promote the reflective thinking in faculty members.
Method: This is a cross-sectional study. First, the plan consisting of 9 steps including: determining and hierarchy of important objectives that faculty members expect to achieve them; determining the most important goal; devoted time to achieve the most important goal; identifying personal strength to achieve the goal based on priority; performing and stopping some activities to achieve the goal; identifying skills and knowledge need to achieve the goal; determining functional measures based on priorities; identifying proponents in order to achieving the goal faster; evaluating and analyzing percentage of progress.The PDP form distributed among 10 faculty members who selected by purposeful sampling. After each 3 months interview with faculty members have been done and the progress and self- evaluation have been assessed.
Results: Most teachers seriously were monitoring their activities, and tried to resolve the problems to achieve their goals. In relation to the promotion of teachers' time management skills, the study led to the majority of teachers planned and implemented their activities based on the sequence of time. It also played a significant role in determining the impact of teachers' reflective thinking on their own activities and abilities.
Discussion & Conclusions: PDP is not just for determining current situation of faculties professional progress but, as a practical guide for performing educational activities. It means that faculties by implementing plan, determine objectives and functional steps of personal plan to achieve the developmental goal and during deadline for time, and

they continuously analyze percentage of progress and self-thinking toward actions had been done in the past.

Take-home message: Personal Development Plan (PDP) can be used as a practical guide for the implementation of educational activities based on specific goals, time management and teachers reflection on his/her own activities.

10P4 (3378)
Evaluation of a train-the-trainer (TtT) program to improve patient centred communication (PCC) in treating patients with adherence problems in a rural hospital in Tanzania

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Presenter: Regina Ndaki, Ifakara Health Institute (IHI), Ifakara, Tanzania

Background: Communicable diseases pose a major health problem in SSA especially, when patients have problems to follow treatment recommendations: non-adherence increases the likelihood of resistance. Patient-centred communication encourages patients to talk about adherence problems (Erb et al.; 2017), it helps identify patients' concepts that jeopardise his/her willingness to adhere. We conducted two TtT workshops at the Centre for Infectious Diseases (CID) in Ifakara, Tansania.

Method: Two TtT workshops, two days each, were offered to 7 medical doctors, 10 registered nurses, 2 health counsellors and one nutrition advisor. During the workshop participants presented 'problem cases' from their clinical practice, principles of PCC were presented and applied to problem cases in role-play sessions. Before and after the workshop participants filled in two versions of a questionnaire presenting 5 case vignettes of patients with adherence problems (Basel Communication Inventory-HIV; Kiswahili version). Case descriptions end with patient utterances, professionals respond with free text in 3/5 and with multiple choice options in 2/5 cases. Cases have in common that patients' behaviour or emotion is unclear, rendering it problematic for professionals to move forward without any input from the patient. Instead, PCC is recommended inviting the patient's perspective. We report on the free text responses that were categorised using a variant of the Roter Interaction Analysis System (RIAS).

Results: Before the intervention participants wrote down lengthy statements, the most common communication strategies being giving information (N=52), giving advice (N=45), praising the patient for his opinion (N=8), and giving reassuring information (N=22; other=12). After the intervention responses were shorter, the most common strategies being mirroring (N= 38), giving information

(N=16), reassurance (N=7), and advice (N=12), echoing (N=8) and summarising (N=5; other=1).

Discussion & Conclusions: After a two day TtT workshop participants are less likely to give information or advice or to use reassurance statements in face of a patient with unclear adherence-problems. Instead, they prefer PCC strategies in line with the gist of patient-centred communication – inviting the patients' perspective.

Take-home message: Training local professionals from SSA in the use of PCC skills is feasible and successful after two days of training.

10P5 (2896)
Evaluation of the Train-The-Trainer Program for Basic Communication Skills in Context of a University Hospital

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Presenter: Ozlem Surel Karabilgin Ozturkcu, Ege University Faculty of Medicine, Department of Medical Education, Izmir, Turkey

Background: Train-The-Trainer Program for Basic Communication Skills-TTP-BCS was implemented with the aim to prepare new trainers for basic communication skills courses-BCSCs. The ultimate goal was, by means of those new trainers, dissemination of BCSCs throughout Ege University Medical Faculty Hospital-EUMFH.

Method: TTP-BCS consisted of two consecutive parts. The first part was combination of Train-The-Trainer Course-TTC and Basic Communication Skills Course-BCSC. The second part required participants to deliver BCSCs at EUMFH similar to BCSC delivered within the program.
TTP-BCS was implemented with volunteer participation of 44-EUMFH-staff. 18-participants continued the second part.
Evaluation of the TTP-BCS was guided by Kirkpatrick's- 4-Level-Model. Quantitative data collected with Session Evaluation Form-SEF, Training Program Evaluation Questionnaire-TPEQ were used 'reaction' evaluation; 'learning' was evaluated with PreTest-PostTest scores. Qualitative data from in-depth interviews with eight TTP-BCS participants were used for evaluation at 'behaviour'. SEF, TPEQ, PreTest-PostTest were also used during the second part as 360-degree feedback on 18 new trainers'performance to evaluate third level. Outputs of TTP-BCS were considered for 'results' evaluation.

Results: Participants were satisfied with TTC/BCSC sessions; they found the program valuable in their preparation for BCSC trainer.

Pretest-posttest results indicated that TTP-BCS participants' knowledge level increased within the program.

In-depth interviews showed that TTP-BCS was effective on transferring gained knowledge/skills into practice.

The satisfaction levels of participants who attended BCSCs were high for sessions and the entire course. Pretest-posttest scores showed an increase in knowledge of BCSCs participants.

26 of 44 participants quitted the program at second part. 18-BCSCs were run by 18-TTP-BCS participants; 190-EUMFH-staff had been trained by those new trainers.

Discussion & Conclusions: Evaluation study showed that TTP-BCS was effective on three levels of Kirkpatrick's model; program's expectations related to reaction, learning, and behaviour were fullfiled succesfully. However, effectiveness of TTP-BCS at fourth level was below institutional expectations in terms of the ultimate goal of the program. Conditions necessary for expected organizational results such as motivation mechanisms for taking role as a BCS trainer need to be explored through further research.

Take-home message: Kirkpatrick model is a workable instrument to evaluate the effectiveness of a train-the-trainer program for BCS.

10Q: Short Communications: Postgraduate Education 2

Location: Lima, Ground Floor, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

10Q1 (735)
Theories of teaching and learning and teaching methods used in postgraduate education in the health sciences: a scoping review

Authors
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Lionel Green-Thompson, University of the Witwatersrand, Johannesburg, South Africa

Presenter: Patricia McInerney, University of the Witwatersrand, Johannesburg, South Africa

Background: Postgraduate education has not received as much attention as undergraduate teaching in the literature in terms of methods used, innovative ideas and outcomes. Teaching at postgraduate level in the health science disciplines is a complex endeavour, as higher level knowledge, skill acquisition and decision making must be taught in a world which is seeing more complex health problems. This scoping review was prompted by the reviewers' personal experiences in faculty development and in response to the needs of postgraduate teachers. A scoping review, using the methodology described by the Joanna Briggs Institute, was undertaken. The review question was: Which theories of teaching and learning and/or models and / or methods of teaching are used in postgraduate teaching?
Method: Studies conducted in postgraduate health science disciplines, including but not limited to medicine, nursing, occupational therapy, physiotherapy, pharmacy and dentistry were considered. Both quasi-experimental study designs, analytical observational studies and analytical cross-sectional studies were considered for inclusion. Also considered were descriptive observational study designs and qualitative studies, text and opinion papers. Five databases were searched. A data extraction table was developed.
Results: A total of 5381 papers were identified. Sixty-one papers were included in the review, the majority of which were from the medical disciplines. Most of the studies were undertaken in the USA. Surveys were the most common research method used. Theories of teaching and learning seldom formed the basis for the innovation. The range of teaching methods used was wide. It is not altogether surprising to find that simulation and simulation exercises were the most commonly mentioned method (17; 27.8%). It is evident that the advent of competency-based education has led to greater emphasis on the teaching of aspects such as professionalism and leadership. While a number of innovative teaching methods were described, didactic teaching in the form of lectures was often included in the teaching of the programme.

Conclusion: Theories of teaching and learning are often only alluded to, with poor explanation of application of the theory to practice.
Take-home message: More rigorous research is needed in postgraduate education studies.

10Q2 (3240)
Organization of Postgraduate Medical Education (PGME) in different countries of Europe and America. The PGME-AMEE Study 2017

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Presenter: Jesús Morán-Barrios, Spanish Society for Postgraduate Medical Education, Bilbao, Spain

Background: We have the perception that there is a great variability in the PGME between different countries. It is important to know the policy and rules that regulate the process of specialized training and the quality control, to facilitated free circulation of specialists.
Method: To contrast the policy and organization of the PGME between countries, we sent to members of the PGME Committee of AMEE and other experts, a form with 78 questions grouped in 7 topics: regulation by national laws and selection to access, accreditation and audits, national planning of the number of specialists, programmes, supervision and assessment, labour regulation and recertification.
Results: 13 countries responded (Argentina, Chile, Perú, Paraguay, Brazil, Venezuela, Mexico, USA, UK, Denmark, France, Portugal and Spain). Main topics. 1) The PGME is regulated at national level except Argentina (regional) and Venezuela (regional medical colleges). All countries have a selection system to access the PGME. 2) By law, all have a health centres accreditation system to assurance the quality of PGME, except Venezuela and Portugal, but Portugal has periodical quality audits. 3) The national/regional authority in PGME plans the needs of specialists according to criteria based on health policies, except Chile, Brazil, Venezuela and USA. 4) Each specialty has a unified national program excepting Argentina, Chile, Peru, Venezuela and Paraguay. 5) The resident's supervision system is very variable and its regulation by law is not generalized. The observation is the most common assessment method. 6) The maximum hours of work per week is determined by law in all countries (from 35 to > 56 h.). 7) There is no official recertification process in Brazil, Portugal, Denmark, Venezuela, France and Spain.

Conclusion: We confirm the variability of the PGME systems. The absence of national programs for each specialty is a weakness in several countries as well as the recertification process. We suggest regulation by law of the supervision as it is linked to safety patient.

Take-home message: It is very important to know the organization and management of the PGME system in each country to enhance its quality through benchmarking.

10Q3 (2734)
Residency Admission Process in Argentina: Psychometric Analysis of written test of three main public districts and a private Hospital

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Presenter: Marcelo Garcia Dieguez, Buenos Aires Province Health Ministry, La Plata, Argentina

Background: Argentina residency admission process is manly based on a multiple-choice question test. Each district organizes its own process with candidates nominating to several of them simultaneously. This leads to heterogeneity in contents and quality differences.

Method: To study the admission test characteristics for 2015 in three main public districts and a private Hospital, analyzing similarities and differences of specification tables, quality of items, difficulty, psychometric characteristics and detect anomalous behavior indicative of cheating by statistical analysis.
The results of the test applied by the Unified examination (UE), Buenos Aires Province (BA), Autonomous City of Buenos Aires (CABA) and Hospital Italiano de Buenos Aires (HIBA) by 2015 were analyzed. The weighted proportion of subject areas and the difficulty categories were analyzed by Chi-square test; presence of clinical vignette and knowledge application by Galofré index, and score according to subject area were analyzed with ANOVA. Generalizability was analyzed using Edu G and the applicant's performance to various was compared with intraclass correlation. Possible cheating behaviors were determined by Acinonyx.

Results: Differences were identified among the four exams, in the proportion of items by subject area (p <0.01) and in the proportion of items by difficulty category (p <0.01). The percentages of items with vignette and knowledge application were: for UE 78% and 60%; for BA 38% and 35%, for CABA 84% and 80%; for HIBA 89% and 61%. Difficulty: UE 58%, BA 55%, CABA 56%, HIBA 62%. Only scoring differences were found between the different thematic areas in BA. The relative G coefficient: EU 0.84, BA 0.84, CABA 0.87 and HIBA 0.76. The correlation of the results were 0.77 for those who take three exams (n = 811)

and 0.60 for those who take four (n = 309). Cheating was insignificant.

Conclusion: The four exams showed differences in quality and importance given to each subject area. All had good reliability and an acceptable average level of difficulty.

Take-home message: To consolidate a national unified process the main characteristics of the existing process should be considered and strengths should be enhanced.

10Q4 (2574)
Time-Variable Medical Education, More Time Efficient, Higher Costs

Authors
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Presenter: Fedde Scheele, Maastricht University, Maastricht, Netherlands

Background: Costs of postgraduate medical education (PGME) is a continuing topic for debate. One of the models that may help to reduce educational costs is time-variable medical training (TVMT). TVMT build around individual needs of learners can result in an increased educational efficiency at individual level, while maintaining educational quality. TVMT can be a step to meet new demands in more resource efficient models of medical education. The objective of this short communication is to look at how, and to what extent, alterations in the length of a PGME program impact on the cost of PGME at hospital level.

Method: We made a cost analysis of time-variable PGME by identifying the costs and revenues of educational activities of the Dutch gynaecology program and comparing the costs and revenues of a traditional program (6-year) to a shortened time-variable program (5.54-year). We calculated the financial effects of two scenarios, both leading to a shortening of 0.46 year for a 6-year program.

Results: Shorter training programs lead to overall lower cost of employment and training, but also to lower revenues generated by activities during training. This ultimately results in a net increase of the costs price per resident per training program. Training costs are generated in all educational activities. Revenues, on the other hand, are only generated in patient-related activities. In these patient-related activities, the revenues are high when residents are able to work with limited supervision. Based on the two scenarios the cost increment of a shortening of 0,46 year for a 6-year program will lie between 8.471 and 75.778 Euros per resident.

Discussion & Conclusions: Shortening PGME programs appears to be possible using TVMT but is only safely possible when time can be gained at the expense of activities in which residents are competent and can provide patient-care under limited supervision. However,

these activities generate the highest revenues. We conclude that shorter education leads to overall higher costs at the hospital level.

Take-home message: TVMT in PGME not only has educational implications but also financial implications.

10Q5 (3200)
Assessing non-technical skills in Emergency Medicine training: A reliable tool launched nationally

Authors
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Amanda Farrow, Head of School of Emergency Medicine, Wales Deanery, UK

Presenter: Will Townend, Emergency Department, Hull, UK

Background: The contribution of Emergency Medicine (EM) clinicians' non-technical skills (NTS) in providing safe and high quality care in the emergency department is well known. The 2015 UK Royal College of Emergency Medicine (RCEM) curriculum update introduced explicit validated descriptors of non-technical skills (NTS) needed to function effectively in the ED. A new NTS assessment tool, the Extended Supervised Learning Event (ESLE), was introduced and mandated for use in training. The aim of this study was to evaluate its psychometric reliability in its first year of use.

Method: We analysed the data for all ESLEs recorded on the UK RCEM e-portfolio from August 2015 to August 2016 for trainees in years three to six of a six-year programme, using generalisability theory.

Results: 1522 ESLEs were recorded. We found that the majority (62%) of the variation in NTS scores was attributable to the trainee's ability. Consequently 3 single-observer ESLEs provided by 2 or more assessors, as currently recommended in the RCEM curriculum, provides an assessment with a reliability coefficient of 0.8.

Conclusion: The reliability of the ESLE for its target group compares very favourably with other assessment tools in current use. Experienced EM supervisors are able to provide reliable assessments of and feedback to trainees about their NTS in the workplace.

10Q6 (1445)
The bigger picture of direct observation in residency: general practice supervisors' views

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Presenter: Chris Rietmeijer, VU university medical center, Amsterdam, Netherlands

Background: Direct observation (DO) of residents' performance, despite the importance that is ascribed to it, is infrequent and the quality of observation may be poor. DO tends to be seen as just a means to gather information on the performance of residents for purposes of feedback and assessment. We explored the possible complexity of DO in workplace learning.

Research question: What are the manifestations, meanings and effects of DO in developing post-graduate training relationships?

Method: Constructivist grounded theory informed our data collection and analysis. Data collection involved focus group sessions with clinical supervisors in Dutch general practice. Prompt questions were on manifestations of DO, the supervisor's thoughts and feelings with regard to observing his or her resident, the assumed thoughts and feelings of residents with regard to being observed by a supervisor, the importance and benefits of DO, the initiative to observe, and the influence of the relationship between supervisor and resident on DO and vice versa. Theoretical sufficiency was achieved after 4 focus groups with a total of 28 participants being included. A theoretical framework was developed through a process of constant comparative analysis.

Results: Supervisors strongly connected DO to not observing directly (NOD). We found five patterns: initial planned direct DO sessions, NOD, resident-initiated ad hoc DO, supervisor-initiated ad hoc DO and prolonged planned DO sessions. Different patterns of DO/NOD related to a multiplicity of varying meanings and effects, all of them concerning the training relationship, patient safety and/or residents' learning.

Discussion & Conclusions: DO, to supervisors, meant much more than gathering information for purposes of feedback and assessment. Planned, mostly bi-directional, DO sessions were an important routine during the initiation phase of a training relationship. Continued planned bi-directional DO sessions, although infrequently practised, potentially combine most benefits with least side-effects of DO. Ad hoc DO, although much relied upon, was often hampered by internal tensions in supervisors, residents or both. Our findings help us understand why simply requiring more frequent DO for purposes of feedback and assessment can lead to tensions that hamper learning rather than promoting it.

10R: Round Table: Student Stress and Burnout

Location: Hong Kong, 2nd Floor, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

10R1 (3589)
Higher prevalence of psychiatric ill-health amongst medical students in Sweden: A survey-based study

Authors
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Christine Chidiac

Presenter: Luwam Zewenghiel, Swedish Medical Association for Students, Stockholm, Sweden

Background: One of the interests of the Swedish Medical Association for Students is the well-being of its constituents. In recent years there have been indications of a substantial increase in psychiatric ill-health in the mentioned population, why a survey-based study was performed amongst medical students in Sweden during the fall of 2017.
Method: A survey was sent out to all students at the seven medical institutions in Sweden, irrespective of affiliation to the Swedish Medical Association for Students. The survey was based on a national survey developed by the Swedish Public Health Authority. Questions regarding the work environment were included while sections regarding life-style and family situation were excluded to focus the study on factors involving education and its surroundings. Phone interviews were performed with randomly selected volunteering survey respondents.
Results: The survey reached a total response rate of 41.3% and the results show a higher prevalence of psychiatric ill-health among medical students in Sweden compared to the general population. A higher percentage was seen for both serious suicide thoughts and suicide attempts during the previous year, as it measured 7.7% and 0.77% for medical students and 3% and 0% for the general population, respectively.
Conclusion: There is a clear trend showing a higher prevalence of psychiatric ill-health and a higher percentage of serious suicide thoughts and attempts in the recent year amongst medical students in Sweden. The material gathered from the one-on-one phone interviews indicated high work load and pace and hostile environments in the clinics as possible factors for this observation.

10R2 NOT PRESENTED

10R3 (3643)
Anxiety and the different coping methods of medical students

Authors
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Ayla Barakat, Alfaisal University, Riyadh, Saudi Arabia

Presenter: Ayla Barakat, Alfaisal University, Riyadh, Saudi Arabia

Background: Medical students are exposed to different types of stress during their university time span. Consequently, stress may cause deteriorating effects on a student's mental and physical health status which can affect his academic performance. However, each medical student usually has a different coping method to help relieve his/her stress, and in order for institutions to help their students, we need to figure out what is the optimum coping method. Research have shown many coping methods like exercise, music, recreational drugs, or religion, but establishment of the most suitable coping method remains a burden. The aim of this research is to find the most prevalent coping method and its reflection on medical students.
Method: A cross-sectional questionnaire study design was conducted on 408 medical students. The questionnaire was adapted from GAD7 (Generalized Anxiety Disorder 7-item) scale as well as additional questions to know student's anxiety levels and their different forms of coping methods. We also wanted to investigate the effectiveness of their coping methods and whether they'll be willing to change to other coping methods.
Results & Discussion: Data has been collected but statistical analysis hasn't been finalized yet. After conducting the survey, we've noticed a relatively good number of students that consider exercise as a good coping methods. Therefore, we decided to integrate more activities and sports in the campus to help students alleviate their worries.
We also noticed a few who consider smoking and recreational drugs as favorable coping methods even though, they will cause disastrous consequences later on. Thus, finding an alternative method is crucial for their cessation. Ultimately, we can later establish support program in our university that can be directed toward promoting the most beneficial methods and stopping the harmful ones.
Conclusion: As medical students, we will always face all sorts of stress and we inevitably can't escape from them. Therefore, we need to find the ultimate coping method of relieving stress, so that students will feel more calm which will correlate to better academic performance and social intercourse.

10R4 (2542)
Psychological effects of internet addiction among undergraduates in a state university of Sri Lanka

Authors
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Madhawa Chandrathilake, Faculty of Medicine, University of Kelaniya, Ragama, Sri Lanka

Presenter: Nimna Senanayaka, Faculty of medicine, University of Kelaniya, Ragama, Sri Lanka

Background: Stress levels among medical students may be higher than their counterparts in other disciplines. Today, internet use is a common practice in tertiary education and the use of internet may be facilitative or detrimental to the psychological health of undergraduates. The aim of this project was to explore internet addiction and its possible psychological effects on medical students.
Method: 107 medical students and 277 students from non-healthcare disciplines in University of Kelaniya, Sri Lanka, participated. Internet addition (Young's internet addition scale), psychological distress (Kessler 10) and health well-being (Rand SF 36Questionnaire) of the participants were measured using validated tools. The responses of medical students were correlated between three constructs and they were compared with non-medical undergraduates.
Results: 98% of medical and non-medical students have access to internet at home and in the campus.57.2% of the study population browsed internet using mobile phones. Medial students were not in the 'high risk' category of internet addiction (38.86/100). Internet addiction among males (42.5/100) was significantly were higher than females (35.7/100). They surf internet for 2.5 hours/day and 21.5% of such surfers showed 'frequent problems in their lives' due to internet addiction. Mental health well-being (score) and psychological distress (score) of medical students were not alarming. A significant negative correlation was observed between internet addiction and mental health scores (-0.328, p=0.013). The correlation between psychological distress and internet addiction was moderate and significant (0.326, p=0.001). Although non-medical students showed similar patterns of internet use none of the groups showed similar correlations with psychological distress or mental health well-being.
Conclusion: Patterns of internet use, addiction and psychological well-being of medical and non-medical undergraduates are almost similar. Although medical students have high level of access their surfing time is short. Amidst various conducive factors they have not addicted to it. However, the findings suggest that, with increased use, medical students are more vulnerable to significant psychological adverse effects than others.
Take-home message: Increased use of internet can be a significant cause for psychological ill-health among medical students. They may be helped with counselling on limited internet surfing.

10R5 (2346)
Depression and suicide in medical schools: What can we learn from the black dog?

Authors
Daniel Fernandes Mello de Oliveira, Federal University of Rio Grande do Norte, Natal, Brazil
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Simone da Nóbrega Tomaz Moreira, Federal University of Rio Grande do Norte, Natal, Brazil

Presenter: Daniel De Oliveira, Federal University of Rio Grande do Norte, Natal, Brazil

Background: Medical education has grown steadily throughout the past years. We have been able to create new methods, improve our curricula and use sophisticated approaches to assess students and graduates along the continuum of their education. But there is one thing we keep failing at: preventing the increase of depression and suicide among medical schools. But even before we can blame ourselves for these painful statistic data, there is a world of subjects to understand: which factors are supposedly responsible for increasing one's risk of committing suicide along the medical career? How depression among medical students is linked to educational attributes? And how are we able to identify at-risk students, act upon them and reverse the dreadful reputation that medicine has been gaining? For there is no prescribed solution and a randomized clinical trial to inform us which best practices should avoid suicide in medical schools, a voice from a former medical students who has suffered from depression and has reached the edge of the cliff - and has been rescued by several unstructured elements of medical education - could humbly inform the new generation of medical educators not only which factors have been responsible for increasing our vulnerability to suicide, but also shed a new light on a topic which appears to be the future puzzle for medical education.
No answers are promised here, but the questions I propose will definitely prompt our minds to consider what needs to be changed in order to make medical schools become more welfare-friendly environments and acknowledge vulnerable students before it is too late.

10R6 (2212)
A Week for Well-being

Authors
Zoe Boulot
Camille Bac
Caroline Combes
Sophie Pelloux
Gilles Rode
Jerome Etienne

Presenter: Zoe Boulot, Faculté de Médecine Lyon-Est, Lyon, France

Background: Medical students are not doing very well, and students from Lyon-Est Faculty of Medicine are no exception. Recent international studies and local investigations have indeed shown that stress and anxiety are high among medical students. In 2016, with the Faculty's support, a group of students created a structure that could be contacted in difficult situations.
Before launching the structure, the creators built a solid support system thanks to a network of professionals, to provide the best help possible to their fellow students. Launching the structure enabled to reduce the lack of information on who to contact for help, and diminish the taboo that surrounds students' malaise. After a year of existence, students in charge of the structure decided it was necessary to steer projects towards promoting well-being. Thus, they organised a "Week for Well-being".
During four days, students were offered 18 workshops of various activities: yoga, sophrology, relaxation, hypnosis, knitting, movie, cooking, concerts and a few others.
Activities took place during lunch breaks and evenings to be compatible with students' timetables and not impinge on classes or internships. Thanks to a dozen volunteer students, Student Healthcare Centre and independent professionals over 250 students were able to take part in activities.
A survey has been sent to these participants to evaluate their satisfaction and demands concerning the reiteration of this project, and/or of the various activities. Results have not yet been fully analysed, but students' spontaneous reactions after the workshops were positive. Seeing this first edition, the aim is to develop the project with Student Healthcare Centre, in particular by extending it to other health students on campus.
Students' well-being should remain a priority. Paying attention to students' comfort is a pathway to more relaxed and human learners. Could this be a step towards more empathetic doctors?

10S: Workshop: Use of Generalizability Theory in Designing and Analyzing OSCEs and Performance-based Tests (102)

Location: Wettstein, 2nd Floor, Swissotel
Date: Wednesday 29th August
Time: 0830-1015 hrs

Presenter:
David B Swanson, American Board of Medical Specialties, Chicago, USA and University of Melbourne Medical School, Melbourne, Australia

Summary of theme and why it is important:
Performance-based testing methods (eg, OSCEs, MMIs, oral exams, workplace-based assessments) are commonly used in health professions education. Because these methods involve multiple sources of measurement error (eg, examiner stringency/agreement, station/case/task difficulty, content specificity), classical reliability theory does not furnish the conceptual and statistical tools needed to investigate their measurement characteristics. Generalizability theory (g-theory) provides the necessary tools for estimation of the reproducibility (reliability, precision) of scores and for evaluating the impact of alternate approaches to test design and administration on the reproducibility of scores.
Who should participate: The intended audience is health professions faculty and members of Royal Colleges and other groups involved in designing and implementing assessment procedures. The workshop does not assume any familiarity with g-theory or classical reliability theory; however, participants should be comfortable with analysis of variance.
What will they gain from participating? At the conclusion of this interactive, seminar-style workshop participants will be able to:
1. Identify advantages of g-theory over classical test theory
2. View OSCEs and performance-based assessment situations from a g-theory perspective
3. Identify procedures/software and reference material for conducting generalizability analyses
4. Interpret commonly used indices of reproducibility (generalizability coefficients and standard errors of measurement)
Level of workshop: Intermediate

10T: Workshop: Meeting the Challenges for Faculty in Global Surgical Education

Location: Helvetia 3, 1st Floor, Swissotel
Date: Wednesday 29th August
Time: 0830-1015 hrs

Presenters:
Wa'el S Taha, King Abdulaziz Medical City, Al-Madinah, Saudi Arabia
Miriam Uhlmann, AO Foundation - AO Education Institute, Switzerland

Background: Implementing best practices in professional education is often a difficult concept to faculty. Let's face it, your faculty are often the most renowned thought leaders in their field; they are endowed faculty from the country's leading organizations – chairs of residency and fellowship programs and they often comprise your organizations' educational leadership. How many of us would like them to know the answers to the following questions: "…tell me how adult learning principles will be incorporated into your global activities… how do you consider different cultural backgrounds in delivering your learning activities... what are your recommended measurement and evaluation strategies?"
Who should attend:
1. Leaders of medical education institutes/organization
2. Deans
3. Medical educators especially involved in faculty development
4. Curriculum developers/planners
Structure of workshop: The workshop will start off with discussing actual problems and challenges for teaching faculty in global surgical education, eg, cultural diversity of faculty and participants. Based on these identified problems performance gap areas are identified and through a backward planning process a faculty development program designed. After sharing the programs and getting feedback from peer participants and the presenters, implementations plans are designed, and roll-out challenges discussed. The presenters share best practices from their own experience.
Intended outcomes: At the end of this highly interactive and hands-on session, you will be able to:
- Identify their most urgent and complex problems in creating and implementing international (or national/regional/local) faculty development programs
- Implement best practices among your faculty in defining needs and outcomes, design, implementation, and measurement and evaluation
- Demonstrate to your faculty the connections and interactions between best practices in professional education and their application to their role in your education program
Level of workshop: Introductory, intermediate

10U: Workshop: "Of Course I can Teach…" - Using Entrustable Professional Activities to develop and assess surgical educators

Location: Helvetia 4, 1st Floor, Swissotel
Date: Wednesday 29th August
Time: 0830-1015 hrs

Presenters:
Craig McIlhenny, Faculty of Surgical Trainers, Royal College of Surgeons of Edinburgh, UK
Jennifer Cleland, University of Aberdeen, UK

Background: There is a worldwide move towards developing competency based programmes in all aspects of medical education, including surgical training. Entrustable Professional Activities (EPAs) have been developed to help operationalise competency based training programmes. EPAs describe units of work to be carried out by the trainee and should be independently executable, observable, and measurable. We have expanded this concept and developed an EPA for use with trainers or faculty members, that describes the tasks required for being an educational supervisor.
Who should attend: All those with an interest in surgical training, and those from other disciplines interested in developing a competency based approach to faculty development and assessment using EPAs.
Structure of workshop: This small group workshop will use the example of educational supervision in surgical training to demonstrate how Entrustable Professional Activities (EPAs) can be used in faculty development. Participants will draw on their own experience to develop an EPA that is relevant to their own discipline and formulate strategies for using this EPA in their own setting. The workshop will use a combination of small group work and interactive discussion.
Intended outcomes: This highly interactive workshop will-
- Discuss the key features of EPAs
- Provide participants with hands-on experience on how to develop an EPA for educators within their own discipline
- Create opportunities for participants to formulate strategies for using their EPA in developing and assessing medical educators

Level of workshop: Introductory

10V: Workshop: Global Mobility and Preparedness of Medical Graduates and Students for Clinical Transitions: the case for an international medical curriculum (2049)

Location: Helvetia 5, 1st Floor, Swissotel
Date: Wednesday 29th August
Time: 0830-1015 hrs

Presenters
Vishna Devi V Nadarajah, IMU, Kuala Lumpur, Malaysia
Richard Fuller, University of Leeds, UK
Wendy Hu, University of Western Sydney, Australia
Emmaline Brouwer, University of Maastricht, Netherlands
Sowmith Rangu, Memorial University, Newfoundland, Canada
Trudie Roberts, University of Leeds, UK

Background: The global mobility of doctors raises interesting questions about the design of the medical curriculum so that graduates are prepared and ready to transition into healthcare services and systems that are markedly different from their medical training. In the era of "internationalised" medical students and programs, the learning opportunities afforded when students transition to learning in clinical environments are even more complex in delivery models which require clinical learning in different countries. The challenges faced in international clinical transitions can have a significant impact on the individual, donor and recipient institutions, healthcare services and patient care. Identifying factors for preparedness and successful transition for both the medical graduate and student provide opportunities to address the need, relevance and development of an international medical curriculum. Perspectives offered in this workshop are from practitioners and educators with contextual experience in training and working with international medical graduates and students who transition across borders and nations for their learning and training. Challenges and enablers for preparedness and successful transition will be shared from the perspectives of an individual in transition, curriculum design, future technologies, faculty development, host and receiving institutions in transnational cross border collaborations.
Who should attend: Faculty members, clinicians, students, regulators, clinical administrators and educationists involved or interested in the design, delivery, assessment and learning environments of clinical transitions and international medical curriculum.
Structure of workshop: Case Studies developed from the perspectives of practitioners with contextual experience in international clinical transitions, will be shared with participants for analysis and reflection. These case studies will highlight concepts, enablers and challenges for global mobility, clinical preparedness and international curriculum. Participants will also have the opportunity to engage and share their own experiences with others.
Intended outcomes: Awareness of the challenges faced for clinical transitions from various stakeholder perspectives. Identify enablers for successful international

clinical transitions that can be contextualised to own settings and needs. Describe concepts that are necessary towards building a framework for international medical curriculum

10W: Workshop: Managing & Supporting the Educator in Trouble (3746)

Location: Helvetia 7, 1st Floor, Swissotel
Date: Wednesday 29th August
Time: 0830-1015 hrs

Presenter:
Linda Hacking, NACT, UK

Background: This workshop will explore the reasons why those involved in teaching and assessing medical students and trainees find themselves in trouble. It is often the most diligent and courageous educator who gets challenged by their learners and reported to senior faculty.
Intended Outcomes: Consider ways to provide support to the educators both in the hospital & centrally in the University / Deanery with consistency and collaboration, particularly when there have been concerns raised about the educator's performance.
Structure: The new NACT UK guidelines "Supporting the Educator 2016" will be shared and applied in small groups to some real scenarios, which have arisen from UK practice. It is hoped that these guidelines will be introduced into faculty development programmes.
Who should attend: This is relevant for all educational leaders, supervisors, educators and those involved in faculty development. The context will be postgraduate but the principles would be relevant to those involved in undergraduate education.

10X: Workshop: How to run a successful clinical school (1238)

Location: Osaka, 3rd Floor, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

Presenters:
Martin Veysey, Hull York Medical School, York, UK
Vijay Jayagopal, Hull York Medical School, York, UK
David Hepburn, Hull York Medical School, Hull, UK
Jo Brown, Hull York Medical School, Scunthorpe, UK
Amanda Dawson, University of Newcastle, Gosford, Australia

Background: Increasingly health professional education is being delivered in clinical environments, where there is an increasing tension between the priorities of service delivery and education. The Clinical School is one mode of delivery, which has been adopted globally. With early clinical exposure, this now extends across the continuum of undergraduate and postgraduate health professions education. Running a clinical school can be a challenging task and the aim of the workshop will be to equip

participants to develop and operate their own clinical schools optimally. The presenters have a range of experience across the UK and Australia in managing clinical schools and will bring this to the workshop to share with the participants.
Who should attend? Clinical Deans, Programme Directors, Phase Leads, academics involved in the delivery of curricula at clinical sites, professional staff involved in the delivery of health professional education.
Structure of workshop: Using an interactive workshop format, participants will be presented with possible priorities for running a successful clinical school and asked to explore in groups which of these they have used, what has worked and what had not been so successful. Examples of this will include clinician engagement, the nexus between undergraduate and postgraduate education, promoting student and trainee-led programs, management engagement and support, shelf-ready projects, managing finances, investing in simulation, identifying your niche, inter-professional education opportunities, managing expansion and change, development of staff, programs to assist mental wellbeing of staff and students, the virtual classroom and critical professional staff.
Having been presented with the options, participants will be asked to rank the priorities and develop a strategy for their own school based on the discussion.
Intended Outcomes: At the end of the workshop, participants will have benefited from the experience of the presenters, and their fellow attendees, and be able to take home key lessons to their respective clinical schools for implementation. They will have a set of strategic priorities that will assist them in optimizing the experience for students in their respective settings.
Level: Introductory/Intermediate

10Y: Workshop: Resources, Research, and Reality: Developing and applying Behavioural and Scenario based questions in your Interview process from MMI to Standardized interviews (2714)

Location: Samarkand, 3rd Floor, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

Presenters:
Kelly L Dore, McMaster University, Hamilton ON, Canada
Lyndal Parker-Newlyn, University of Wollongong, NSW, Australia

Background: This session will explore implications of resources and research and how to operationalize the most effective and efficient station/question format for selection interviews, screening and professionalism assessment. Participants will learn aspects of question development which influence the quality of the applicant information obtained. In addition, how these principles

relate to the measurement of professionalism and other intrinsic values in training will be highlighted. Through this interactive session, participants will develop an understanding of the research of situational judgement assessments and behavioural descriptor questions used in selection and training.

Issues for exploration:

• Applying frameworks to developing questions that assess personal professional qualities.

• Incorporating program specific missions, values and personal attributes in the process through the application of a selection blueprint

• Developing a program specific selection model with the understanding of the potential incremental value the different measures.

• Understand how the principles can be applied in programmatic assessmet in training in both medical school and speciality training.

Who should attend: This session is intended for health profession faculty and staff who are involved at all levels of learner's trajectory in selection or the measurement of personal/professional qualities whether they use interviews or MMIs or in training.

Structure of workshop: In an interactive small group style, the participants will workshop blueprinting methods, practice developing questions, discuss the evidence and share their experiences, while brainstorming solutions to potential barriers to implementation.

Intended Outcomes: By the end of this session participants will:

1. Understand the evidence regarding question format and various selection measures

2. Apply aspects of question format to develop more effective questions

3. Integrate the principles from selection across in-program assessments

4. Apply principles taught to develop their own selection blueprint

Level: Intermediate

10Z: Workshop: Medical Student Mistreatment - A Multi-Specialty Perspective (90)

Location: Guangzhou, 2nd Floor, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

Presenters:

Kevin O'Brien, University of South Florida Morsani College of Medicine, Tampa, Florida, USA
Alex Mechaber, University of Miami Miller School of Medicine, Miami, Florida, USA
Cynthia Ledford, The Ohio State University College of Medicine, Columbus, Ohio, USA

Background: Medical student mistreatment is often a symptom of burnout, depression, anxiety, or a manifestation of a prior event that happened to the perpetrator. Sadly, the culture that allows medical student mistreatment is handed down from one

generation to the next, and is a significant contributor to ongoing burnout, lack of empathy, substance misuse, and even suicide for those that have been mistreated. The culture that allows this cycle of degradation to continue will only be broken when the behavior is identified by those who witness it and/or use it, and we address the problem in a proactive rather than a reactive manner. The Medical Student Mistreatment Project is being conducted at 9 medical schools across the United States with over 1,000 participants. We presented our work with preliminary findings at the 2017 AAMC Meeting in Boston during the Arnold P. Gold Humanism Forum. The response to the session was inspiring.

An additional twenty-two additional institutions would like to join our project, including schools from Canada and Mexico. We would like to extend our work to an even more international audience. During our 90 minute session, we will show three to four illustrative 3- to 4-minute videos of potential mistreatment scenarios and then ask attendees to vote on them using audience response technology (similar to how we are actually conducting the study). Participants will be asked if the scenarios constitute mistreatment, rate their severity, and determine to whom the event should be reported. At the conclusion of the workshop, we will have a 30 minute question and answer session. The response at AAMC was overwhelming and humbling at the same time. Medical student mistreatment is an international problem, and AMEE would provide an opportune forum to address this prevalent player in the hidden curriculum seen at most, if not all, institutions across the globe.

Who should attend? Students, residents in training, faculty, and educational leaders will all find the session informative. We had 100-200 attendees at our session in Boston. The dialogue that occurred during the session was robust and highly informative.

10AA: Workshop: Determining a "fit" between your education work and publication venues - A Society of Directors of Research in Medical Education (SDRME) Workshop (656)

Location: Nairobi, 2nd Floor, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

Presenters:

Jorie Colbert-Getz, University of Utah School of Medicine, Salt Lake City, USA
Maria Blanco, Tufts University School of Medicine, Boston, USA
Carol Capello, Weill Cornell Medical College, New York City, USA
Anne McKee, King's College, London, UK
Kathryn Huggett, University of Vermont College of Medicine, Burlington, USA

Background: Medical education has been evolving to include new forms of scholarship, new research

methodologies, and more rigorous standards for reporting the evidence about teaching, learning and assessment. Thus medical education literature is a developing interdisciplinary field straddling positivist and interpretive paradigms. As a result, in the past decade journals have been accepting fewer manuscripts reporting descriptions, comparing curricular interventions to no intervention, or reporting just satisfaction data. Instead, authors and journals are applying quality standards such as Best Evidence Medical Education (BEME) reviews, the Medical Education Research Quality Instrument (MERSQI) criteria, and Standards for Reporting Qualitative Research (SRQR). This effort has improved the quality of research in journals, but left some clinician educators and students challenged with where to publish educational scholarship. The past decade has also seen an increase in types of venues for disseminating scholarship beyond the traditional peer-reviewed journal such as teaching resource repositories, YouTube, podcasts, open access journals etc. Yet, approximately 10,000 open-access journals are considered "predator" journals.1 Currently, no guidelines exist for faculty and trainees to determine a "fit" between their work and where to disseminate their work. The goal of this workshop is to "crowdsource" the experience and wisdom of participants to develop an algorithm for deciding when and where to disseminate different types of scholarship.

Who should attend: Research directors, attendees who disseminate scholarship in any venue

Structure of workshop: We will begin the workshop by briefly discussing types of educational scholarship and venues for dissemination. Participants will work in small groups to determine where to disseminate different scholarship types using scenarios and structured questions including, but not limited to:

What is the intended audience for your work?

How generalizable/transferable are the results and who do they generalize to?

Is the work novel/does it fill a gap in the literature?

Presenters will facilitate discussions with participants when disagreements arise regarding fit between a scholarship type and dissemination venue to understand factors that limit consensus.

Intended Outcomes: To develop an algorithm for when and where to publish educational scholarship. We propose to share this algorithm via future presentation and publication.

Level: Intermediate, Advanced

10BB: Workshop: Striving for Excellence: How to stretch and challenge the more able Student/Trainee (324)

Location: Mexico, 2nd Floor, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

Presenters:
Helen Goodyear, Health Education England (West Midlands), Birmingham, UK
Taruna Bindal, Worcestershire Acute Hospitals NHS Trust, Worcester, UK

Background: There tends to be a lot of focus on the student/doctor in difficulty. However the able trainee may pose an equal challenge. They may not be achieving their full potential which can lead to problems of lack of direction, discontentment and confusion regarding career direction and even if medicine is the correct choice. Student/trainees may also feel isolated, misunderstood and rejected by peers. E Portfolio in the UK is judged on minimum standards and there has been a focus on the minimum number of work place based assessments to pass the annual review of competence progression (ARCP). Often there can be ARCP checklists and rather than promoting excellence these encourage trainees to do only what is necessary to pass to the next year of training.

Who should attend: This workshop is designed for those working in undergraduate or postgraduate medical education who have responsibility for the supervision of students or doctors in training

Structure of workshop: A highly interactive workshop which looks at the experience of trainers in dealing with able students/trainees using small group work. Particular focus will include considering who is the able student/trainee and the challenges encountered when supporting them. Some common issues and pitfalls when working with able students/trainees will be discussed as will ways in which to support those who are excelling. The workshop will include case scenarios, including those encountered by participants.

Intended outcomes: At the end of the workshop participants will understand and appreciate that able students and trainees need support and guidance to ensure that they grow and develop to full potential and feel their careers are satisfying.

Level: Introductory

10CC: ePosters: Curriculum and Faculty Development - identifying & meeting educational needs

Location: Kairo 2, Ground Floor, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

10CC1 NOT PRESENTED

10CC2 NOT PRESENTED

10CC3
Panorama of medical education in Latin America

Authors
Germán Fajard-Dolci, ALAFEM-UNAM México
Javier SantaCruz Varela, ALAFEM-UNAM México
Marcelo Yorio Universidad de Córdoba, Argentina
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Guido Zambrana, Universidad Mayor de San Andrés, Bolivia
Freddy Meinard, UNAN, Nicaragua
Luis Pichs, Universidad de Ciencias Médicas, Cuba
Ramiro López, Universidad Central del Ecuador
Patricio Yepez, UDUAL, Ecuador
Ana Carolina Sepulveda, IMSS México

Presenter: Germán Fajard-Dolci, ALAFEM-UNAM, México

Background: Medical education is a social process necessary to achieve universal health coverage. In the Region of the Americas, there is a lack of studies that report on its characteristics and it is unknown if it meets its social function and the needs of the population.
Method: A cross-sectional and quantitative study was conducted in 105 medical schools in the Region of the Americas to know their characteristics and their relationship with the socioeconomic context, regional health objectives and health needs. The systemic approach of Von Bertalanffy was used as a theoretical framework and six dimensions and 24 variables were explored using a structured questionnaire with Likert type response options validated with Cronbach's Alpha. Descriptive analysis was done with frequencies, bivariate analysis with Chi square and a p equal or less than 0.05 was determined.
Results: 36% of schools think there are no national policies to train human resources in health and 63% report insufficient public funds. Only 31% of schools consider there are Mechanisms to Regulate Medical Education and 78% think there are insufficient regulatory instruments. In the Educational Structure, 81% of schools claim there are National Physical Infrastructure Standards, 85% believe these resources are sufficient, 80% refer sufficiency of teachers, but academic excellence is achieved in only 32% of them. 88% of schools plan admission of students but only 54% satisfy the demand of applicants. 88% in the terminal efficiency, 94% in the insertion to the labor market and 65% in the practice oriented to the PHC. In Social Impact, 96% of schools believe their graduates contribute to the control of prevalent morbidity and to health services access.

Conclusion: There are strengths and weaknesses of medical education in the Region of the Americas, as a example we have a shortage of public policies and public funds. Teacher training is insufficient as well as the orientation towards Primary Health Care. Terminal efficiency and the graduates insertion in the labor market are favorable but they must not be neglected.

10CC4 (2116)
An Integrated Clinical Apprenticeship: Identifying Central Tenets Needed in our Education Systems

Authors
Arabella L. Simpkin, Massachusetts General Hospital, Boston, USA
Andrew McKeown, Imperial College, London, UK
Ravi Parekh, Imperial College, London, UK
Sonia Kumar, Imperial College, London, UK
Gareth Tudor-Williams, Imperial College, London, UK

Presenter: Arabella Simpkin, Massachusetts General Hospital, Boston, USA

Background: The ability of healthcare systems to deliver world-class compassionate care depends on quality of training and education of staff. Matching student-centered learning with delivery of patient-centered care is the focus for much curricula reform. This study explores the effect a novel longitudinal curriculum had on medical students' attitudes and experiences regarding important aspects of their education as they prepare to be doctors of tomorrow.
Method/Results: A single-center, qualitative focus group study was conducted in 2017 of students in a longitudinally integrated clinical apprenticeship. Students were randomly assigned to one of two focus groups, near the end of their clerkship year. Each student described their journey through the system: for themselves, their patients, and their professional development. Questions explored understanding how learning in this way prepared them to become doctors of tomorrow – addressing barriers and challenges, and their unique position as students in the healthcare system. Four themes emerged from students' experiences: navigating the patient journey; navigating their professional development; navigating their learning journey; and navigating the healthcare system.
Discussion & Conclusion: Listening to the student voice lends new insights for educators to refine educational models to produce the doctors of tomorrow. Our pilot project has identified the educational value of students having an authentic role in helping patients longitudinally navigate the healthcare system and the benefits of consistent mentorship and greater autonomy. It is essential that students see the world of healthcare through different lenses, with patients as focus both in community and in hospital settings. Students benefit from seeing themselves as integral members of a healthcare team, able to form effective relationships with patients, and deliver high value care. The gulf between gaining skills as a future doctor and gaining skills to pass final exams calls into question our assessment methods.

Take-home message: As we move forwards through an age of educational challenge and transformation, we need to prioritize curiosity and rethink our principles. We advocate the need to develop educational models that prioritize student-centered education within patient-centered healthcare, embracing a symbiotic relationship between student and patient, which is where authentic, life-long learning will occur.

10CC5 NOT PRESENTED

10CC6 (212)
An overview of the first year Undergraduate Medical Students' Feedback on the Point of Care Ultrasound Curriculum

Authors
Vian Mohialdin
Ari Shali
Bruce Wainman

Presenter: Vian Mohialdin, McMaster University, Hamilton, Canada

Background: With the technological progress of portable Ultrasound machines, there is growing demand by all health care providers to perform bedside Ultrasonography. Also known as point of care Ultrasound (POCUS), this technique is becoming extremely useful as a part of Clinical Skills/Anatomy teaching in the Undergraduate Medical field Curriculum.
Method: The research we report in this manuscript is a preliminary qualitative study. It provides the template for future model for teaching a hand on ultrasound for all health care providers in different learning institutions. McMaster Undergraduate Medical school is a 3-year program where we introduced (POCUS) in the first year curriculum. Each tutorial group has 20 students, one ultrasound machine; students spend 90 minutes with their tutor. Students will have the chance to scan their peers at least one time during the session.
Results: Students valued their experience to see and or/scan each other and even asked for more scanning/teaching time to be added into their curriculum. All students agreed that this experience had increased their basic ultrasound and scanning knowledge and believed it is appropriate to integrate and complement their Anatomy/Clinical Skills learning.
Discussion: Incorporating bedside ultrasound into Undergraduate Medical Education Curriculum can complement their physical examination findings. This also adds more safety measurement to every diagnostic/therapeutic procedure done under ultrasound guide. This leads to a reduced hospital stay and better improvement in the patient's outcome.
Conclusion: A questionnaire was handed to medical students to evaluate their hands on ultrasound sessions experience. Answers were collected and data analyzed into multiple graphs (as illustrated on this poster). POCUS has shown to be an extremely important diagnostic and or/therapeutic tool for different medical specialities. The learning environment has become more interactive because the Medical students were able to practice scanning their peers as part of their experience.
Take-home message: Students have found that interpreting ultrasound images can be a very challenging task. The introduction of bedside ultrasound training into the first year Undergraduate medical school curriculum at McMaster University has been very successful. Students were strongly engaged and it has significantly impacted their sonogram and probe orientation knowledge.

10CC7 (2839)
Development of a National Neonatal-Perinatal Medicine Physiology Curriculum Pilot Based Upon a Flipped Classroom

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Presenter: Susan Izatt, Duke University Medical Center, Durham NC, USA

Background: Neonatal-Perinatal Medicine (NPM) training programs in the United States rely heavily on didactic teaching (DT) to cover physiology content specified by the American Board of Pediatrics (ABP). DT fosters knowledge acquisition through passive learning, but typically does not include active learner engagement. Recognizing the potential benefits of a standardized national physiology curriculum based on adult learning principles, we developed and piloted a new curriculum using a flipped classroom (FC) model.
Method: A prospective, observational pilot study was performed with NPM fellows (learners) and faculty educators at five institutions. Two FC educational programs were created based on ABP physiology content specifications. Programs included peer-reviewed online videos and case-based FC discussion guides. Videos were independently viewed by learners and educators prior to FC discussions which were facilitated by educators. After participation in FC sessions, learners completed surveys. Learners and educators shared their experiences in semi-structured focus groups which employed standardized interview guides with open-ended questions. Descriptive statistics were obtained. Focus group transcripts were coded using grounded theory and organized into themes and subthemes.
Results: 35 out of 48 fellows (73%) responded to the survey. Over 90% of respondents felt that the programs' relevance, quality of the FC discussions, and learner engagement were very good to excellent. 41 fellows (85%) and 6 educators (100%) participated in the focus groups, with thematic analysis reaching saturation. Six major themes emerged, including the role of FC programs in

decreasing the burden on educators, fostering knowledge acquisition and application, and creating a learning community. Fellows preferred the FC program over DT.

Conclusion: The pilot NPM physiology FC programs created an active learning environment which supported knowledge acquisition and application. The preference of FC learning over DT may be related to its foundation in adult learning theory and promotion of higher-level cognitive skills. The favorable responses of fellows and educators towards the FC modality supports further development and dissemination of a standardized NPM physiology national curriculum using this educational model.

Take-home message: Incorporation of FC programs into standardized curriculums fosters the development of learning communities that promote knowledge acquisition and application.

10CC8 NOT PRESENTED

10CC9 (3049)
Evaluation of Perceptions of Hand-off Communication Among Internal Medicine Residents

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Presenter: Rhea Chatterjea, National University Hospital, Singapore

Background: Multiple studies have identified miscommunications among healthcare staff as one of the leading causes of serious medical errors. The US Accreditation Council for Graduate Education (ACGME) requires monitoring of effective and structured hand-off processes. However, at present, no formal hand-off training is provided to our residents. This study aimed to evaluate the perceptions of Internal Medicine residents of day-team to on-call hand-offs in our institute.

Method: A survey was developed by a resident after a focus-group discussion and literature search on hand-off communication. It was then reviewed by a group of residents and a senior consultant for editing and approval. The survey included both multiple choice and open-ended questions that queried adequacy and structure of hand-offs among our Internal Medicine residents. Adequacy of hand-off was assessed using a Likert scoring system and important hand-off components with multiple choice questioning. Key categories that were considered were those mentioned by >50% of residents. Demographics were also recorded.

Results: Of 100 Internal Medicine residents, 65 responded to the online survey. Of all responders, 23 (35.4%) deemed their own Hand-offs as very /extremely adequate whereas only 11 (16.9%) deemed that the Hand-offs they received were very/extremely adequate. Only 19 (29.2%) reported to follow a structured hand-off format. Of 49 residents who

deem Hand-off training as necessary, only 16 (24.6%) had received hand-off training before. 5 (10.2%) felt that 81-100% of vital information essential to patient care on-call but not handed over was available on Electronic Health Records(EHR). Components deemed important by residents in their hand-offs were Patient identifiers (76.9%), Illness Severity (81.5%), Active Medical Issues (81.5%), Contingency Planning (81.%) and Outstanding tasks and action plan (73.8%).

Conclusion: There is a mismatch between proportion of residents who deem hand-off training as necessary and proportion of residents who have received hand-off training. Further studies on barriers to effective hand-off communication and interventions to develop a structured hand-off education program based on the above components are required.

Take-home message: Formal residency training and assessment are necessary to ensure hand-off competency in residents for continuity of care and patient safety.

10CC10 NOT PRESENTED

10CC11 NOT PRESENTED

10CC12 NOT PRESENTED

10CC13 (1055)
Missing in action: teaching triage of outpatient referrals

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Background: Triaging outpatient referrals is a critical skill in independent medical practice. Effective triage ensures patient safety and appropriate resource allocation. Principles of triage are well described in emergency and inpatient contexts, but little is known of triage in outpatient settings.

Method: We distributed an online needs assessment to all internal medicine (IM) and paediatrics residents at our institution to gauge awareness of and experience performing outpatient triage. We also surveyed IM and paediatrics faculty about their own triage practices and experiences teaching triage to learners.

Results: Forty-nine residents (47% IM, 53% paediatrics) responded: 29% had triaged referrals, 86% had no process for triage and 96% felt triage should be taught during training. While 20% had "not thought about it", 35% expected to triage in practice, and 25% were worried they would not be equipped to do so. Residents desired to

learn triage through didactic sessions and experiential learning with supervision.

Fifty-eight faculty (43% paediatrics, 57% IM) responded: 72% reported no formal teaching on managing outpatient referrals and 64% first triaged upon starting independent practice. Faculty learned this skill primarily "on the job"; through trial and error, adjusting practice to patient outcomes; and, from colleagues. Most (86%) felt triage should be formally taught, suggesting intentional role-modelling and workshops as potential strategies. In clinical practice, over half (53%) of faculty did not involve learners in triage.

Discussion: The majority of faculty reporting no exposure to outpatient triage before entering practice, along with low numbers of residents exposed to triage during training, highlights a gap in postgraduate medical training. Many respondents recognized the importance of this skill, and identified lost opportunities to involve learners in triage. Implementing educational interventions to teach triage may impart a practical skill while raising awareness around patient safety and resource allocation in ambulatory care.

Conclusion: Development of skills to effectively triage outpatient referrals is a significant gap within current residency education. Making this skill an entrustable professional activity for transition to practice in competency-based programs may prompt incorporation of educational activities to ensure graduates are appropriately prepared for this task.

10CC14 (3733)
360° Feedback: Developing an assessment and faculty development culture in Venezuela

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Presenter: Tatiana Giusti, Universidad Central de Venezuela, Caracas, Venezuela

Background: In a traditional medical school, where teachers are not used to give and receive feedback, we developed a methodology to introduce a 360° teacher feedback system in order to develop self-reflection on teaching and improve teacher performance in Luis Razetti school of medicine.

The philosophy of the work was centered on developing an automated, anonymous and confidential system that students, teacher and superiors could feed continuously, to generate an anual report for each teacher, as well as an institutional overview of the strengths and weaknesses of the faculty, so that an evidence based Faculty

Development Program can be developed and really impact on teacher performance.

Method: A feasibility study was developed prior to curriculum transformation. Motivation to work on teacher performance was generated on Faculty. The project was presented and approved by university authorities. A working team for 360° feedback was formed. Reliable instruments, based on google forms, were developed and statistically validated. A pilot study was developed looking for applicability of the system for students and teachers. Generation of automatic reports and emails was programmed on google drive. A general meeting with stakeholders was conducted to present "Razetti 360° System".

Results: Acceptable psychometric properties of the questionnaires were statistically proved with Lawshe test. 24 individuals participated in the pilot study. 90% thought the instrument to be useful to give teacher feedback. 98% found it easy to compliment the instrument. 64% would respond the instrument for all teachers.

Discussion & Conclusion: Teaching performance was found to be a cornerstone in curriculum transformation in "Luis Razetti" School of Medicine, on the feasibility study that was driven. As university authorities understood the crucial role of teachers, enough motivation was generated to work on this institutional project. Content and face validity of the instruments was achieved by consensus of a panel of experts. High acceptance and feasibility was demonstrated in the pilot study as well as in the general meeting with stakeholders.

Take-home message: Accepting drawbacks and analyzing in high resolution, has become the most important step to start working on them and improve Luis Razetti School of Medicine.

10CC15 (1250)
Validation of the Questionnaire MEDUC-PG-14 to Evaluate Teaching Performance in Medical Residency Programs

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Presenter: Ana Olascoaga, Universidad Peruana Cayetano Heredia, Lima, Peru

Background: There are few tools to evaluate teaching performance in medical postgraduate school in Spanish language.

We intend to determine the validity and reliability of MEDUCPG-14 instrument to evaluate the performance of teachers in medical residency programs.

Method: MEDUCPG-14 instrument consists of 14 questions. We added an open question on the positive aspects that characterize a good teacher. A pilot test of the instrument was made in fifteen residents to explore the

comprehensibility of the questions. Subsequently, the survey was applied by email to residents of the Department of Medical Clinics, Faculty of Medicine, Universidad Peruana Cayetano Heredia, Lima. The reliability of the instrument was measured by Cronbach's alpha. The construct validity was assessed using factorial analysis, and the validity of content by a qualitative analysis of the answers to question 15.

Results: Seventy residents answered the survey. Forty-six teachers were evaluated. Each resident assessed one teacher. Factorial analysis showed that there were two factors or dimensions: "Teaching" Factor, of 11 items, and "Conduct" Factor, of 3 items.

The global Cronbach's alpha was 0.9718, Teaching Factor was 0.9714 and Conduct Factor was 0.9575. Qualitative analysis of responses to item N° 15 rescued the concept of "professional competence as a specialist of medicine". The instrument reliability (internal consistency) was very high, which means that all items in the instrument pointed to measure the same concept that is to be a good teacher. We found two constructs inside the instrument that we have denominated "Teaching", that is education methodology and "Conduct", which refers to the empathetic and respectful treatment of the teacher.

Discussion: The qualitative analysis rescued a concept not included in the original instrument, which is the concept of professional competence, and we think it is important to incorporate it because a teacher should be an expert.

Conclusion: MEDUCPG-14 was a useful and easy to use instrument to evaluate postgraduate teaching performance and we recommend to use it in programs of medical residency in Spanish speaking countries, however it is suggested to include a fifteenth item concerning the professional competence of the teacher.

10CC16 (605)
Medical students' attitudes toward a Good Death in North Eastern part of Thailand

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Presenter: Panita Limpawattana, Khon Kaen University, Khon Kaen, Thailand

Background: Caring for older patients with terminal illnesses requires a comprehensive medical education, including knowledge, skills and attitudes. Medical students are the future healthcare providers. Understanding their attitudes toward wishes of those patients is one of the important key to improve medical education. The objectives of this study were to explore medical students' attitudes regarding a Good Death in older adults and to demonstrate factors associated with decision of not prolonged suffering in view of medical students toward older adults' wishes.

Method: A sample of the first-to sixth-year medical students of Khon Kaen University, Thailand were recruited and was provided with electronic questionnaires regarding the opinion of older patients concerning circumstances around end-of-life period. The survey was conducted from September 1st, 2017 to January 31st, 2018. These questionnaires were distributed to all medical students.

Results: A total of 442 out of 913 questionnaires were returned (48.4%). The median age of participants was 21 years. The majority of them was Buddhism (96.2%). From their prospective toward the end-of-life of older adults' wishes, having families around when needed was the most important thing (26.2%), followed by completing unfinished business, be prepared to die (13.6%) and being respected, not being treated only for diseases but having spiritual needs (12.7%). Factors associated with opinion regarding older patients' wishes not to receive treatments to prolong life when having low chance of surviving were age (adjusted odds ratio (AOD) of 0.48, female (AOD 1.59), 3rd to 6th year medical students (AOD 11.2, 17.14, 40.42, 78.45, respectively), and prior experience of watching someone dying (AOD 1.98).

Discussion: Thai medical students' prospective regarding wishes toward the end-of-life of older adults were mainly in the domains of a good relationship with family, having planned arrangements, being respected and spiritual comfort whereas autonomy and self-dependency were less concern. Age, years of medical student, and prior experience of watching someone dying were associated with being unwilling to prolong suffering.

Conclusion: Thai medical students recognized aspects of palliative care concepts. However, developing concepts for improved care in medical curriculum is recommended particularly in the domain of autonomy and self-dependency.

10DD: Posters: Postgraduate Training: Early years

Location: Hall 4.1, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

10DD1 (2060)
Excellence through Engagement: a Foundation experience

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Presenter: Jennifer Simpson, Medical Education Directorate, NHS Lothian, Edinburgh, UK

Background: Providing an excellent clinical and developmental experience for all foundation trainees can be a challenge. Recent General Medical Council survey data highlighted areas for improvement. To explore ways of improving our Foundation experience (FE), we invited all staff involved in the support and delivery of the FE to an engagement event with the Medical Education Directorate (MED).
Method: The MED team designed a half-day session for clinicians who work with, organise or deliver teaching to Foundation Doctors within NHS Lothian (LEP), alongside non-clinical managers responsible for the hosting services. Attendees had the opportunity to discuss the challenges of delivering high quality teaching in a busy clinical environment and consider ideas for change to improve training quality and experience. Speakers discussed various components of the foundation programme including the Foundation Simulation Programme and Foundation Curriculum development(1). After each session, attendees discussed ways to develop these components within their clinical unit. Feedback was collated using an "offers" (we can do) and "wants" (we need help with) structure. Common themes were identified and disseminated to all attendees and the wider educational team.
Results: During the session, the MED team realised that many attendees were unaware of the wide range of educational activities supported centrally and in specific clinical departments. Attendees (including Foundation Doctors) commented that they wanted to know more about the current programmes and how to access and benefit from these learning experiences.
Discussion & Conclusions: Peter Senge described the five components of a learning system(2): one of these being shared vision where people excel and learn because they want to. Using this excellence workshop model has helped to create a shared purpose and promote intrinsic motivation for learner and educator in Lothian.

Take-home message: Engaging healthcare professionals to create a shared vision will promote team learning and support a collective approach to delivering the FE.
1. UK Foundation Programme:http://www.foundationprogramme.nhs.uk/pages/curriculum-eportfolio(2018).
2. Senge PM.(1990)The Fifth Discipline: the art and practice of the learning organisation. London: Random House, cited in Al-Abri RK.& Al-Hashmi IS. The Learning Organisation and Health Care Education. Sultan Qaboos University Medical Journal. 2007 Dec;7(3):207–214-PMCID:PMC3074888.

10DD2 (2699)
How should we be preparing students for out of hours work as junior doctors?

Authors
Cathryn Mainwaring

Presenter: Cathryn Mainwaring, Guy's and St Thomas' NHS Trust, London, UK

Background: Graduates feel under-prepared for out of hours (OOH) work. During OOH work (nights, evenings, weekends) junior doctors move from the heavily supervised ward environment to one where they must practice more autonomously with less readily available senior support. They must put classroom knowledge into practice, integrating both technical and non-technical skills. Shadowing has been proposed as a beneficial teaching method; indeed it is now a mandatory part of induction. Other teaching modalities to prepare students for OOH work such as simulation have also been described. Overall, what are the features of these approaches that help to prepare students for out of hours work?
Method: King's College Hospital NHS Foundation Trust is a large trust in South East London. In 2016 they employed 88 Foundation Year 1 doctors. A mixed methods study using questionnaires and semi-structured interviews was designed to establish trainees' experiences of training for OOH work. The UCL Research Ethics Committee deemed this project service evaluation.
Results: The questionnaire response rate was 17% (n=15). Simulation, induction and shadowing were the most common methods of preparation for OOH work. Some had also experienced lectures and small group teaching. Simulation and shadowing were felt to be the most useful. 23% (n=5) felt they had no training to prepare them for OOH work. 3 interviews were conducted. Generally it was felt difficult to fully prepare students for OOH work. Preparation for OOH work was felt to be useful when;
- Students were encouraged to actively participate and make independent clinical decisions.
- Opportunities were repeated to facilitate increasing participation and breadth of exposure to clinical cases.
- Students were closely supervised and received feedback
- There was opportunity to share "Tips and Tricks of the Trade" with near-peers.
Discussion: Preparation for OOH work should be in a real or simulated environment and promote supervised active

participation that increases learner's responsibility and accountability over time.

Take-home messages: Interventions to prepare students for OOH work should encourage graded, repetitive practice.

Near- peer facilitators should be used to give feedback and share "insider" knowledge.

10DD3 (691)
Senior House Officer (SHO) Satisfaction with the Taranaki Base Hospital (TBH) Emergency Medicine education program from 2011-2017

Authors
Susie Flink

Presenter: Susie Flink, Taranaki District Health Board, New Plymouth, New Zealand

Background: Most training programs must have a structured education program to complement the practical learning that occurs at the bedside. There are only a handful of studies that assess SHO satisfaction with certain aspects of the education program; none in their entirety.

Method: A four question survey was sent via email to the 77 SHOs who came through the TBH education program from 2011-2017. Forty-eight SHOs (62%) responded to the survey. Each question could be answered with strongly agree, agree, neutral, disagree or strongly disagree.

Results: Percentage of SHOs who agreed and strongly agreed with the following statements:
Question asked:

2011	2012	2013	2014	2015	2016	2017

I learned a lot from the education program

67%	67%	67%	100%	100%	50%	100%

Teaching was well organized

56%	0%	44%	100%	86%	75%	86%

I received feedback on how to improve my performance

33%	33%	33%	100%	86%	100%	100%

I felt encouraged and supported in my future career aspirations

44%	33%	44%	25%	71%	100%	86%

Overall there is an improving trend over the 7 years. This improved perception of the TBH education program is likely multifactorial. The changes that occured can be divided into 3 groups: motivation of staff, improved feedback and curricular changes.

Motivation of staff: one colleague stepped forward to be our education champion and others have pursued courses in medical education.

Improved feedback: feedback forms were introduced for teaching sessions, feedback was provided to each SHO at the end of their rotation, and confidential peer-to-peer feedback was introduced.

Curricular changes: flipped classroom ultrasound teaching and other alternative teaching formats were introduced.

Conclusions: The help of colleagues was important in implementing these changes and other minor improvements. It gives great satisfaction to know that we are delivering an improved program and better meeting the needs of the future generations of doctors.

Take-home message: Take small steps and enlist the help of others to address the educational needs in your teaching environment.

10DD4 (3234)
Perception of histopathology amongst junior doctors

Authors
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Presenter: Lorelle Brownlee, The Maidstone Hospital, Maidstone, UK

Background: Histopathology is not a visible front-line speciality but it does inform front-line decisions. The role of the histopathologist is becoming more pivotal within the clinical landscape as the molecular age of medicine arrives vis-à-vis personalised treatments. Due to the relative invisibility of histopathology, an apparent air of mystery seems to surround the speciality, and what is understood regarding the nature of pathology, beyond the media's portrayal of post-mortems, is unclear. With reduced exposure in medical school, interaction with pathologists limited to request forms and multi-disciplinary-meetings, it is perhaps not surprising there is a shortage of histopathologists. A survey was thus conducted to investigate the perception of histopathology amongst junior doctors.

Method: A SurveyMonkey was distributed to junior doctors across four hospital sites in Kent. The questions focused on various aspects of the histopathologist's job, including post-mortem examinations, specimen handling, report generation and training requirements. Results were collated and analysed.

Results: 40 responses were received. On average, the respondents underestimated the percentage of histopathologists who perform post-mortem examinations. 87% correctly identified the specimen processing pathway, and 64% knew the role of immunohistochemistry. 86% recognised clinical history was important for accurate histological diagnosis with the remainder unaware that more information, other than clinical site, was required. 43% had experienced difficulty completing histology request forms. The commonest reason given was being unsure of what information was required. 41% did not know the purpose of a frozen section, and a further 15% gave incorrect explanations for the use of frozen sections.5% were unaware a medical degree was a pre-requisite for histopathology training.

Discussion & Conclusions: Junior doctors demonstrate some understanding of histopathology, however, this snapshot study has revealed substantive knowledge gaps. It is crucial that a better understanding of histopathology is encouraged amongst clinicians in order to promote clinical effectiveness as part of an interdisciplinary team and optimise patient management.

Take-home message: Junior doctors would benefit from having more exposure to histopathology at an early stage in training.

10DD5 (1800)
Belief Vs. Reality: A discourse analysis of "Junior Doctors: your life in their hands"

Authors
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Esther Murray, Barts and the London University, Whitechapel, UK

Presenter: Tania Rajendran, Barts and the London University, Whitechapel, UK

Background: Data collected in 2014 suggests that around 38% of people in F1 posts feel unprepared for their job as a doctor [GMC, 2011]. Why is this the case? Certainly, becoming a doctor is more than the acquisition of scientific knowledge. To what degree is it the responsibility of the medical school to prepare students for the realities of life as an F1? Some students graduate from medical school, without grasping the full idea of what their life is going to be like as a doctor. This is despite the fact that they have been on wards and may have been exposed to television shows, blogs and other media about working as a doctor. This research explores some of the discourses in the public realm surrounding life as an F1 doctor.
Method: A discourse analysis of the documentary series 'Junior Doctors: Your Life in Their Hands' was undertaken. This documentary follows the journey of newly graduated doctors exploring the similarities and differences between their expectations and the realities of the job.
Results: Preliminary analysis shows a variety of discourses that arise within the programme. One being the burden of administrative work, which threatened their desire to carry on in the job. Another recurrent discourse was 'the emotional roll-coaster' of the working day from happiness due to success of a task, such as cannulation of a vein, to the distresses of dealing with the death of a patient and the newfound responsibility over a person's life.
Discussion & Conclusions: A discourse analysis allowed for some of the issues and misconstrued views to be explored. This could contribute to the development of interventions to better prepare students for the realities of working life as a doctor.
Take-home messages: The medical school has some responsibility to support their students by preparing them for the demands and the realities of the job rather than allowing the individuals to fend for themselves after graduation; but the extent to which this issue is implemented within the curriculum is to be determined.

10DD6 (327)
Perceptions of a night float system for post-graduate year one junior doctors (interns) in an Internal Medicine program – an Asian perspective

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Presenter: Zi Yun Chang, Internal Medicine Residency Program, National University Health System, Singapore

Background: Long night duty hours and sleep deprivation have been associated with medical errors, adverse events and physician "burn-out". An innovative night float system (NFS) has been implemented in our institution's internal medicine program to negate the effects of long duty hours associated with conventional full-call systems. However, concerns remain if the NFS would result in inadequate training, especially for post-graduate year one (intern) doctors.
Method: We examined perceptions of our NFS in this cohort of interns. We developed a structured questionnaire to assess our junior doctors' perceptions of the NFS compared to full-call system, in areas of patient safety, medical training and well-being.
Results: 97/137 (71%) of junior doctors participated in this study. Of these, 44 (45%) had experienced both the NFS and full-call system (in another rotation) during their intern year. 91 (94%) doctors felt the NFS was superior to the full-call system, and 83 (86%) felt that presence of a NFS would influence their choice of training institution. Majority felt that NFS was beneficial for patient safety compared to full-call (94% vs 2%, p<0.001) and reduced medical errors (94% vs 2%, p<0.001). The NFS was perceived to reduce physician "burn-out" compared to full-call (95% vs 5%, p<0.001). Only 5 (5%) doctors felt the NFS was less adequate in producing competent trainees. Subgroup analysis of 44 participants who had experienced both NFS and full-call system in their intern year showed that all but one (n=43, 98%) favoured the NFS. In fact, 39 (88%) felt they were more likely to make mistakes after a full-call, and only 7 (16%) felt confident to function safely.
Discussion & Conclusions: Beyond being a practical solution to duty-hour restrictions, there was a significant perceived benefit of the NFS compared to the full-call system in improving patient safety, reducing medical errors and physician "burn-out". Most felt that education and training were not compromised with NFS.
Take-home message: NFS is perceived by junior doctors to be a superior call system in intern year. Longitudinal studies to evaluate patient safety outcomes and assess

interns' competency in these 2 distinct systems are warranted.

10DD7 (3439)
A Survey-Based Investigation on the Research Activity and Incentives for Increasing Research Activity Among Junior Physicians at the Sahlgrenska University Hospital

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Presenter: Li Jin Yang, Sahlgrenska University Hospital, Gothenburg, Sweden

Background: Physicians with academic training has been long considered a crucial resource as a link between research and good clinical practice. However, national statistics in Sweden show that during the past decade the number of clinically active M.D. Ph.D. physicians have decreased in number. To encourage an increase in research activity early in junior physician careers, the Sahlgrenska University Hospital (SU) provides academic track foundation training positions for junior physicians with six months of funded research time in addition to the obligatory Swedish foundation training period (21 months at SU).
Method: We aim to investigate the current level of research activity as well as long term plans among junior physicians in foundation training at SU and additionally survey opinions on the present policy for conducting research during foundation training and collect suggestions for improvements. All active foundation-level junior physicians (n=96) at SU were surveyed during May 2017 using a 15-question form created through Google Forms, a free online survey-creation tool.
Results: A total of 69 junior physicians responded to the survey (72%). A clear majority of respondents answered that they are currently active in research (n=55, 80%). Among the respondents not currently active in research, half had previous experience of research. Respondents also answered questions pertaining to current time spent on research, career plans after completing foundation training and suggestions to improve conditions for conducting research during foundation training.
Discussion & Conclusions: Within the framework of our current investigation we were able to demonstrate that a large majority of junior physicians at SU are currently active in research and that a significant portion has plans to continue with a career in academics after completion of foundation training. We also learned what junior physicians at SU want to see as improvements and incentives for conducting research during foundation training.
Take-home message: A survey-based study was used to analyze the research activity among junior physicians at the Sahlgrenska University Hospital. This method can be used to investigate aspects of the current research

financial support system and local clinic scheduling policies in search of further areas for improvement.

10DD8 (593)
An Annual Urology Tutorial for Junior Doctors: Results of UK Based Multi-Centre Study

Authors
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Presenter: Lina Yow, UK

Background: Our AMEE 2016 and 2017 posters reflected a well-received response amongst foundation doctors for the inclusion of a single urology tutorial into the postgraduate foundation training. The participants felt the knowledge and skills gained will improve their confidence in managing urological conditions. To validate our results, we introduced the similar urology tutorial to 4 other teaching hospitals.
Method: A multi-centre study was carried out among foundation doctors and core surgical trainees across 4 hospitals. With the aid of questionnaires, our study aims to observe any improvement in junior doctor's perceived confidence level in management of urological condition after the inclusion of a urology teaching session in the postgraduate programme.
Results: 68 junior doctors took part in an interactive tutorial. 62% (n=42) were foundation year 1 doctors, 31% (n=21) were foundation year 2 doctors while 7% (n=5) were core surgical trainee. 80% (n=54) of the cohort had no previous urology job. 4% (n=3) of the cohort reported to have received adequate urology teaching previously. Only 1 person felt confident to competently manage all urological problems while 34% (n=23) felt capable to manage most urological presentations. All participants were keen on extra urology teaching, with 97% (n=66) wanted the teaching to focus on emergency urology conditions. 62% (n=42) felt the tutorial would help to improve patient care and aid their future training jobs. Positive feedbacks were received after the teaching, with 93% (n=63) finding it very useful and 97% (n=66) reported an increased in confidence level.
Discussion & Conclusions: Our multi-centre study provided supporting evidence that junior doctors do not feel adequately prepared to manage urological conditions in the acute setting. We observed positive feedback from the participating junior doctors, indicating the inclusion of urology supplementation has helped to increase their level of confidence in managing such presentations. We propose the inclusion of urology teaching in the foundation programme teaching curriculum.
Take-home messages: We recognize the benefits of providing urological teaching sessions to junior doctors and would recommend implementing this programme in more deaneries across the UK to better support our junior doctors in providing good care for our patients.

10DD9 (110)

Do foundation year doctors perceive large group teaching as an effective method of learning for their stage in training?

Authors
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Background: Foundation doctors in the UK currently must receive generic foundation teaching on a regular basis. Most of this teaching is delivered within a large group, didactic setting. There are currently no published studies which examine teaching delivered to foundation doctors within a large group setting, and whether these doctors perceive this as an effective method of learning.
Method: All foundation year doctors working at a single NHS trust had the opportunity to take part in a questionnaire study. All of these doctors are exposed to fortnightly large group didactic teaching as a part of their generic foundation teaching. This amounted to 99 doctors. The questionnaire was distributed by the postgraduate department via e-mail and via a private facebook page specifically for foundation doctors at the trust. The questionnaire yielded an 18% response rate. Likert scales were analysed and reviewed with percentage responses and free text answers were coded for thematic analysis.
Results: 50% of participants found large group teaching an effective method of learning for foundation year teaching. 67% found it effective as a method of acquiring new information, however only 11% found it an effective way of improving clinical skills.
Discussion & Conclusions: Themes that emerged included that the format of teaching was important, and that this could be improved with 'question and answer' sessions and case examples. A further theme was that the content of teaching must be aimed at the correct level, and that this is a particularly good way of delivering information about protocols and referral pathways. Final theme was around the skill of the tutor being key, with good qualities being 'enthusiastic,' 'engaging,' and 'knowledgable'.
In this cohort of foundation year doctors there was differing opinion about whether large group didactic teaching is effective. Limitations of this study include that it included a relatively small sample size and that it was a single-centre study.
Take-home messages: This study highlights a number of important factors for education departments when they are designing teaching for foundation doctors; teaching should hold relevant content; have engaged and enthusiastic teachers; and have an interactive component throughout.

10DD10 (3477)

Diversity of Education in Foundation Year 2 Teaching

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Background: The Foundation Year 2 (FY2) curriculum provides guidance for educational delivery of teaching programmes at a local level. This includes hospital teaching, as well as regional denary education. The FY2 programme delivered by most institutions reflects common specialties encountered by foundation trainees, as well as the resources available for education and the need to maintain service provision.
There is good evidence that diversity of educational modalities improves educational outcomes, irrespective of perceived learning style preference. However, despite the educational benefit of integrating diverse teaching methodologies within a programme, there are no specific requirements within the FY2 curriculum to deliver this.
Context: At Southmead Hospital, North Bristol NHS Trust, the FY2 programme has traditionally been a weekly lecture-based structure led by a senior clinician. This quality improvement project integrated a range of teaching modalities within the established programme to diversify the educational methods.
Innovation: Lecture based educational sessions have been reduced in frequency and peer-to-peer group sessions introduced into the programme. These sessions run alternately every fortnight. The lecture based topics are defined by the previous FY2 year's feedback. The peep to peer teaching subject matter is instigated by the present FY2 cohort, provided it meets curriculum requirements. The simulation programme has also been expanded to include sessions every 1-2 weeks to allow improved access.
FY2 feedback for the different educational formats has identified that FY2 doctors were successfully able to access the new programme despite ongoing service provision pressures. The feedback also underlined the individual variation in personal preferences for different educational formats. Simulation was reported to provide the biggest learning opportunity, followed by peer to peer teaching and then lecture based sessions.
Implications: The diversification of the FY2 educational programme demonstrated positive engagement with all the modalities introduced. FY2 doctors recorded a preference for the new programme over the previously established lecture format. Although not directly assessed, the integration of a number of educational modalities has the theoretical benefit of improving overall learning.

10DD11 (603)
How the youngest doctors perceive a national formal advisory program: A SWOT-analysis

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Background: In Denmark a national formal advisory program (NFAP) was introduced in 1998. According to this, all doctors in each rotation of postgraduate medical education must be appointed an advisor, who must conduct at least three appraisal meetings and ensure the preparation of a personal learning plan. This study investigates the implementation of the NFAP and areas of improvement.
Method: In March 2017 a survey was conducted among all 129 doctors, who were employed in their first 6-month rotation in Central Denmark Region. Items matched the rules set out by the Danish Health Authority.Mean score and standard deviation were calculated, and through driver-performance analysis strengths, weaknesses, opportunities and threats (SWOT) were appointed.
The response rate was 67%, and the questionnaire showed good reliability and discriminant validity.
Results: Almost all respondents had the recommended appraisal meetings and a personal learning plan, both of which - in contrast to the NFAP's coherence to everyday clinical practice - showed to be of great influence to the overall value of the NFAP. Strengths found were, that appraisal meetings and learning plans support development of clinical competencies, the latter identifying learning objectives and how to achieve them. Threats found were, that learning plans are not prepared early enough and not regularly adjusted. Also learning plans do not describe, when each learning objective shall be achieved, nor when, by whom, or how assessment will take place.
Discussion & Conclusions: Appraisal meetings and learning plans seem well implemented, have great influence on the overall value of the NFAP, and support the development of clinical competencies. Suggested improvements would be to ensure earlier preparation, inclusion of plans for assessment, and regular adjustments of the learning plans. Further investigation is needed to clarify, why the coherence between the NFAP and everyday clinical practice showed to be less influential.
Take-home messages: Appraisal meetings and personal learning plans support the development of clinical competencies. Learning plans must be prepared early in each rotation and adjusted regularly. Also they must identify learning objectives, and how and when to achieve them as well as plans for assessment.

10DD12 (2126)
The Model for Improvement is a useful tool for junior doctors when implementing sustainably educational initiatives in the clinical setting

Authors
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Presenter: Trine Silkjaer, Aarhus University Hospital, Aarhus, Denmark

Background: Implementing new educational initiatives in the clinical setting can be troublesome due to busy clinical activities and production demands. The Model for Improvement is a model developed by Langley et al. from the Institute for Healthcare Improvement in Boston to be used in healthcare quality work. We presented the model for young medical doctors and motivated them to apply the model to develop a sustainably and applicable form for having short conferences in a busy hematological admission ward. Medical doctors often work alone, and this can compromise the medical education they can get from daily clinical work. A conference in the admission ward would have the aim to increase the supervision and the post graduate medical education.
Method: Young doctors at the Department of Haematology, Aarhus University Hospital used the Model for Improvement to find a sustainably and optimal form and time for a short conference at the haematology admission ward. They found that the Model for Improvement creates a sustainably improvement and can be applied when new initiatives are planned in the setting of postgraduate medical education in the daily clinic.
Results: The young doctors found a sustainably and optimal form for how and when the short conferences could take place at the admission ward. They used the Model for Improvement to try several forms, e.g. choice of conference responsibly doctor and timing, by using the plan-do-study-act (PDSA) cycles. In this way we finally implemented a conference that was sustainable, before implementing it.
Discussion: In a busy clinical setting it can be difficult to implement new initiatives that are sustainable. Often new initiatives are implemented without knowledge about the applicability and without confirming that the change is an improvement.
Conclusion: The Model for Improvement is a useful and meaningful method to apply in the postgraduate medical education when new initiatives are launched.
Take-home message: The Model for Improvement can help new initiatives in postgraduate medical education to become sustainably and applicable.

10DD13 (782)
Factors that affect junior doctor attendances during teaching sessions

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Presenter: Maulik Patel, Barts and The London, London, UK

Background: Medical education continues beyond university. The Royal London Hospital (RLH) offers at 5 different methods of teaching; Ad-hoc (AH), Grand Round (GR), Hot Cases (HC), Didactic Teaching (DT) and Journal Clubs (JC). Previous studies have critiqued these methods and assessed the factors that influence their attendances. However, these have not been evaluated from the junior doctor's perspective.
Method: This study explored junior doctors' perceptions of different teaching methods through semi-structured interviews, questionnaires and teaching session attendance records. Phase 1 involved interviews that were carried out with 5 junior doctors, recorded, transcribed and analysed. Phase 2 involved a questionnaire that was produced based on the thematic analysis of the interviews and released to all junior doctors in the hospital. Phase 3 involved analysing teaching attendance records. Data from interviews, questionnaires and attendance records were compared to explore which teaching method juniors find most beneficial and why.
Results: Interviews highlighted many advantages and disadvantages that junior doctors recognised for each teaching method. Questionnaires returned (n=47) provided generalised information on attendance rates, perceptions and rankings of the most to least beneficial teaching method for their roles. Attendance records showed that juniors had the lowest attendance per session in Grand Round and highest in Didactic Teaching.
Discussion & Conclusions: This study supported previously known factors that increase attendances such as the clinical relevance, the interaction that exists between the teacher and learner and the presence of free lunch. Similarly, known negative factors were reported such as the balance between clinical, educational and personal commitments and the intimidating environment created due to the presence of senior professionals in the audience. Additional information uncovered in this study showed that juniors would rather prefer teaching sessions that are clinically relevant independent of the teaching quality and that juniors would like to have some control over topics that are taught locally.
Take-home message: Educational planners must be aware of the factors that affect attendances and should take these into consideration when organising teaching sessions. A list of recommendations to improve attendances has been produced based on the results of this study.

10DD14 (3678)
Engineering the Educational Experience (E3): Creating a Genuine Clinical Experience for Trainee Learning and Assessment

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Background: Providing genuine clinical experiences that allow trainees to learn in a safe and secure environment is a task that continues to daunt medical educators. Creating opportunities for the assessment of the impact of these experiences for trainees and the health care team further complicates their development.
Method: Recently the opportunity to develop an outpatient, ambulatory care clinic to offer genuine experiences to a variety of trainees arose. To ensure that the experiences maximized quality and value to the trainees while allowing for opportunities for assessment in a variety of formats, we created an engineered educational experience (E3).
Results: To date, 75 medical trainees have experienced the educational opportunities offered by the E3 clinic. In addition to providing unique clinical experiences to trainees, the clinic has provided the opportunity to develop a 360-degree assessment protocol. This protocol includes feedback from trainees, patients, staff physicians and support staff.
Discussion & Conclusions: Implementing the E3 curriculum has led to greater clinical exposure for medical trainees. To date, feedback from those involved in the clinic has been positive. Additionally, with the move to competency based medical education, E3 has provided numerous opportunities for assessment of skills that were not previously accessible.
The E3 design has been successful at our hospital. It has provided learning and assessment opportunities that were not previously available. E3 has also allowed trainees to further understand the interactions of the health care team for patient care. Moving forward the E3 design will be implemented in additional clinics.
Take-home messages: In order for trainees to have genuine learning experiences during their clinical rotations, attention must be given to the development and assessment of the curriculum. The successful implementation of the E3 curriculum design demonstrates that it is possible to create such learning and assessment experiences in ambulatory clinical settings. Additionally, the creation of the E3 clinic has provided clinical experiences beyond those normally available to medical trainees.

10DD15 (1141)

Participation in question-writing revision sessions for medical students supports continued professional development for postgraduate medical trainees

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Presenter: Alex Riding, Cambridge University School of Clinical Medicine, Cambridge, UK

Background: Assessment drives learning in learners but whether it drives learning in creators of assessment is less well explored. Quantitative studies suggest question-writing improves examination performance in authors, but there is relatively little qualitative research exploring its impact on learning.

With the introduction of the UK Medical Licensing Assessment (UKMLA) expected in 2022, it is imperative to create a robust bank of excellent single best answer (SBA) questions, requiring several highly skilled authors. Postgraduate medical trainees are well placed to meet this need.

Many postgraduate trainees take time out of clinical practice for research, education fellowships and maternity leave. With ever-evolving changes in medicine, trainees need innovative ways of remaining up-to-date with evidence-based practice.

Method: We developed a trainee-led SBA authoring group to write formative SBAs for undergraduate medical students. Questions were reviewed by experienced assessment leads. Authors received feedback on their question-writing and presented them to students in an interactive revision session. A questionnaire was sent to authors exploring the benefits of writing SBAs (83% response rate).

Results: Thematic analysis of free-text comments was performed. Participants felt question-writing identified knowledge gaps, motivating them to seek learning resources to improve patient care. Typical feedback for changing clinical practice included, "Encouraging me to stay current with knowledge in areas not in my usual specialty". Furthermore, the sessions enabled deeper reflection and improved understanding of challenging clinical cases. Sixty-seven percent felt more confident teaching students, encouraging most (80%) to volunteer for more teaching activities. For those approaching postgraduate exams, question-writing brought increased confidence (44%).

Students gave extremely positive feedback after the interactive trainee-led sessions and felt they addressed misconceptions with clinical scenarios.

Discussion & Conclusions: Formative, interactive, trainee-led SBA sessions benefit students by demystifying assessment and providing a useful revision tool.

Participating in SBA writing is an effective way to enable continued professional development for trainees and maintain current knowledge (especially those outwith clinical programmes). For trainees approaching postgraduate examinations, it enables clarity of reasoning and increased confidence mastering examination technique.

Take-home message: Question-writing can drive self-regulated learning in authors, promoting self-confidence and maintenance of clinical knowledge.

10DD16 (1622)

Understanding role modelling in Palliative Medicine: A Thematic Review of Role Modelling in Postgraduate Internal Medicine between 2000-2015

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Presenter: Yaazhini Renganathan, Yong Loo Lin School of Medicine, Singapore

Background: Role modelling is an integral component of training in Palliative Medicine, providing guidance for trainees on the art and science of Palliative Medicine, which includes bereavement counselling, professionalism and empathy. Despite its importance, role modelling in Palliative Medicine is poorly understood and frequently conflated with mentoring and supervision. To address the subsequent lack of data, this review will study role modelling in the closely related domain of training in postgraduate Internal Medicine on the premise that the lessons learnt can be effectively extrapolated to the Palliative Medicine context.

Method: Three reviewers carried out independent literature searches of PubMed, ERIC, Cochrane Database of Systematic Reviews and Scopus for articles on role modelling published between 1 January 2000 and 31 December 2015 in Internal Medicine.

Results: 2950 abstracts were retrieved; 75 full text articles were independently evaluated by the 3 authors. 28 articles were included. Thematic analysis using Braun and Clarke's (2006) approach revealed 6 themes. These include definitions of role-modelling, the role modelling environment, the process of role modelling, characteristics of the role models, obstacles to role modelling and negative role modelling.

Discussion & Conclusions: This thematic review reiterates the importance of role modelling in Palliative Medicine, especially given its multidisciplinary nature. In addition, this review forwards the first evidence-based definition of role modelling. It also explicates the complex process of role modelling comprising of conscious observing, reflecting, experimenting, assembling and assimilating on the part of the trainee and conscious adoption of role

modelling stances on the part of the trainer. In addition, this thematic review highlights that role modelling may occur in any setting and at any time emphasize the importance of training all staff for this role. This review also signposts the direction of further research and faculty development programs to facilitate the recognition and development of role modeling as an effective teaching and learning strategy.

Take-home messages: 1. Role modelling involves conscious observing, reflecting, experimenting, assembling and assimilating on the part of the learner

2. Role modelling requires the conscious adoption of role modelling stances on the part of the trainer

10DD17 (1269)
Evaluate the teamwork in Taiwanese junior healthcare practitioners - a pilot study

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Background: The stakeholder and educators devoted into inter-professional education (IPE) since 2012 in Hualien Tzu-Chi Medical Center. Post-graduate curriculum designers from physicians, nurses, nutritionists, pharmacists, radiologists and medical technologists were enrolled and implanted IPE curriculum into existing programs since then. Formatively assessment was adopted to evaluate the training program.

Method: The objective of this project is to establish a valid and reliable assessment tool for practitioners during PGY. This project was approved by institutional review board in Tzu-Chi Medical Center (IRB106-52-B). Based on literature review, collaborative practice assessment tool (CPAT), developed from the Queen's University, was adopted since November, 2017. Taiwan version of the CPAT(T-CPAT) was validated. Data was analyzed with SPSS version 22 and Microsoft Excel.

Results: We excluded one item after expert validation (CVI> 0.78). Pilot test was performed. (n=40) Reliability of the T-CPAT (7-point scale) is analyzed with the Cronbach's Alpha. (8 domains, all domains between 0.57 and 0.95). Satisfaction survey about the T-CPAT (5-point scale) was collected (N=37) and analyzed. The average scored 4.4(± 0.66, SD) in specific statement; 3.6 (± 0.87) in time-spending; 4.3(± 0.66) in correlation to purpose; 4.4(± 0.66) in related to their clinical practice; 4.4(± 0.70) in appropriate instructions; 4.3(± 0.64) in design of the 7-point scale; 3.0(± 0.83) in easy to answer. Subjects stated the T-CPAT was clarified the details about inter-professional collaborative practice (IPCP). Subjects

expressed abundant opinions to point out the difficulties about communication between physicians and non-physicians. The vague orders, tight schedule, medical terminology in English and emotional conflict obstacle the team interaction and function.

Discussion & Conclusions: Junior healthcare practitioners approved the T-CPAT to assess their performance about IPCP. Based on Cronbach's Alpha is > 0.9 in four domains and < 0.7 in one domain. Further validation process, through delphi method and confirmation factor analysis of 55 items and 3 open questions about the perceptive effectiveness is proceeding.

Take-home messages: Due to few clinical experience of healthcare practitioners in PGY. As for culture difference and instructional design are quite different from English-speaking population, the T-CPAT is thoroughly viewed and studied.

10DD18 (2108)
Implementation of KPI to stimulate the quality of practical training at the level of internship and residency

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Background: One of the goals of the national project for the medical education modernization (implemented by the Ministry of Health of Kazakhstan since 2016) is to improve the quality of practical training, including at the level of residency. The complex of activities implemented within the framework of the project includes the introduction of mentoring interns and residents by doctors of clinical bases, the introduction of rotation of residents in organizations of various levels of health care (regional, city and republican level).

Method: 8 medical universities were included in this project. Evaluation of the project effectiveness was carried out in accordance with KPI including - ratio «doctor-mentor : intern», ratio «doctor-mentor : resident», «share of residency programs with the rotation of residents in organizations of different levels» (regional, city and republican). We also assessed the correlation of these indicators with the average value of the final assessment of knowledge and skills of interns and residents conducted by the national center for the evaluation of knowledge and skills.

Results: During the project implementation period, medical universities provided training mentors for interns

and residents, conditions for rotation of residents. At the same time, the ratio «doctor-mentor : intern» was 1:7,6, the ratio «doctor-mentor : resident» - 1:4,5, the share of residency programs with the rotation of residents in organizations of various levels was 24.7%. At the same time, we found a direct correlation between the average value of the final assessment of the knowledge and skills of residents in the university with the share of residency programs with the rotation of residents in health organizations of various levels and the inverse correlation with the number of residents assigned to 1 mentor

Discussion & Conclusions: The introduction of mentoring interns and residents by doctors at clinical bases and the rotation of residents in health organizations at various levels have a direct impact on the quality of training of doctors at the medical university..

Take-home message: The introduction of KPIs concerning mentoring and rotation of residents contributes to stimulating the quality of practical training at the level of internship and residency

10EE: Posters: Teaching and Learning Approaches

Location: Hall 4.1, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

10EE1 (3319)
Committee for Students and Course Evaluation (CAEC) – Report of the experience of the first four years of a medical school in implementation

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Presenter: Elisangela Mattos e Silva, Faculdades Pequeno Príncipe, Curitiba, Brazil

Background: The learning process evaluation of Medical students is considered a great challenge, especially in courses that are based on syllabus integration and the use of Active Methodologies. The Medical School at "Faculdade Pequeno Príncipe" in the city of Curitiba, Brazil, is being implemented and, since its beginning, it was clear that a Committee for the Students and Course Evaluation (CAEC) needed to be created.
Aim: To report the experience by CAEC in the first four years of a medical course in implementation.
Method: The challenge of the faculty was to enhance the knowledge on methods of evaluation, to implement them, and to evaluate the results obtained by the students in order to improve the elaboration of evaluation tools. For these tools to reliably reflect the teaching-learning process, weekly meetings were held along the four years, with the study and discussion of articles, the exchange of experiences among teachers, the analysis of the objectives that were expected and reached by students in the multiple choice test (Angoff), as well as the elaboration and constant revision of the practice classes evaluation tools, and the OSCE-like evaluations. CAEC sees the evaluation as a continuous learning process, the ultimate objective of which is to understand the quality of the student's performance and the need for intervention.
Results: CAEC meetings allowed the improvement of the quality of multiple-choice tests, the preparation of a checklist for the teachers reviewing the questions, and the analysis of Angoff results. The meetings allowed the preparation and review of the checklist for evaluating students and tutors during the Tutorial Moments, of the OSCE-specific evaluation tools, teamwork and practical activities.

Discussion & Conclusions: The experience during the CAEC meetings allowed the improvement of the methods for evaluating learning that was already evidenced in the first four years of the course, emphasizing the importance of permanent education and regular faculty meetings for this purpose. It is believed that teachers are moving forward in terms of sedimentation of concepts related to the evaluation process, evidenced in the daily pedagogical practice that supports the innovative curriculum.

10EE2 (1555)
Study guide encouraging medical students to achieve learning objectives

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Presenter: Sudarat Wijitsetthakul, Medical Education Center, Ratchaburi Hospital, Ratchaburi, Thailand

Background: Because of medical information overload, curriculum change, complexity of spiral curriculum, increased work-based learning and variety of learning sites and contexts, therefore study guide (SG) is an essential tool to assist students in educational process to achieve learning objectives. This study aims to evaluate the effectiveness of the SG.
Method: This retrospective quasi-experimental study was conducted for total of 65 fourth-year medical students in 2016 (33 students) and 2017 (32 students) at Family Medicine (FM) department, Medical Education Center, Ratchaburi Hospital, Thailand. The SG was implemented particularly for fourth-year students in 2017. Students in 2016 and 2017 were similar baseline characteristics in age, gender and grade point average. FM grade point was determined as achievement to learning objectives. Learning outcomes regarding to knowledge (examination and medical report) and skills (home visit and teamwork) were assessed by subgroup analysis. Reliability of assessment tools including medical report, home visit skills and teamwork skills were 0.889, 0.876 and 0.912, respectively.
Results: FM grade point of students with SG was significantly better than students without SG (3.5±0.3 vs 3.2±0.5; p=0.003). Subgroup analysis for (i) examination, (ii) medical report and (iii) home visit skills were presented outcomes of students with SG better than outcomes of students without SG in percent-scores of (i) 78.2±6.0 vs 70.5±6.0; p<0.001, (ii) 86.8±10.6 vs 78.5±15.2; p=0.013, and (iii) 97.0±3.4 vs 92.9±4.5; p<0.001, respectively. On the contrary, teamwork skills of students without SG was better than another (94.7±1.2 vs 92.0±7.1; p=0.036).
Discussion & Conclusions: The SG encouraged medical students to improve FM knowledge. Also, it developed the skills of home visit which was individual skills, but it reversed the result of teamwork skills.
Take-home message: A well-written SG encouraged medical students to achieve learning objectives that depended on the purpose of SG.
The composition of a SG depends on its purpose by triangle model which are (i) provision of content

information, (ii) management of learning and (iii) student activities.

10EE3 (702)
The effects of retrieval practice and feedback on the kinds of diagnostic errors made by medical students

Authors

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Background: Understanding diagnostic competence and how it can be fostered is a major challenge in medical education research. Although different strategies to improve diagnostic accuracy have been investigated, little is known about the influence of interventions on diagnostic error distribution. The aim of this study was to measure effects of retrieval practice and feedback on the nature and frequency of diagnostic errors made by medical students.

Method: 148 advanced medical students worked on 15 clinical cases (5 learning cases, 5 assessment cases immediately afterwards and 5 assessment cases one week later) in an electronic learning environment (CASUS). Their reasoning process was analyzed in a controlled study. Students were randomly assigned to one of five groups (representation scaffold with or without feedback, structured reflection with or without feedback, control group). After each case, they had to state their presumed diagnosis and had to explain their diagnostic conclusion.

Results: The diagnostic accuracy did not differ significantly between groups in the two assessment phases (p = .078, respectively p = .266). Medical students make diverse diagnostic errors (814 errors in 2080 reasoning processes), that can be subdivided into 8 categories: inadequate knowledge, inadequate diagnostic skills (e.g. interpretation of electrocardiograms), faulty context generation, faulty triggering, premature closure, over- and underestimating, misidentification and cluelessness. The most common cause for errors in the representation and reflection group with additional feedback was premature closure (42 errors in both assessments, respectively). In the groups without feedback, a lack of skills was the main-reason for errors (42/37 errors in the assessment). The control group misdiagnosed mostly due to a lack of knowledge and due to premature closure.

Discussion & Conclusions: Retrieval practice did not improve diagnostic accuracy of medical students compared to a control group without any intervention. However, feedback in the learning phase may have caused an increase of premature closure in the assessment.

Take-home messages: Measuring diagnostic errors is a promising means of assessment to better understand diagnostic competence of medical students. However, dichotomous assessment of the final diagnosis seems to be of low validity as an outcome parameter of diagnostic competence.

10EE4 (854)
Intolerance to uncertainty after an educational intervention: A pre-post study in medical students

Authors

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Background: Uncertainty is a complex construct that requires attention in undergraduate medical education, due to its effects in medical decision making and patient communication. Intolerance to uncertainty (IU) has psychological and educational implications, and this construct can be measured with appropriate tools. There is a scarcity of data about uncertainty in medical students in developing countries. The goal of the study was to compare IU in medical students, before and after an educational intervention.

Method: A one-group pre-test post-test quasiexperimental research design was used. The study was done in second year medical students at the National Autonomous University of Mexico (UNAM) Faculty of Medicine in Mexico City. The intervention was a Biomedical Informatics (BMI) one-semester course that explicitly included medical uncertainty in its curricular content, as well as educational activities related to coping with uncertainty. IU was measured with IUS (Intolerance to Uncertainty Scale), an instrument with evidence of validity that has been translated and used in Spanish-speaking populations. The instrument was applied in three moments: before the BMI course, at the end (immediate post-test), and six months later (delayed post-test).

Results: There were 1,132 students in the course. 673 Students (59.5%) completed the three applications of the instrument. 58.5% women and 41.5% men. The measures had a Cronbach's alpha above 0.90. The IUS scale pretest was 50.6, the immediate post-test 48.7 and the six-month posttest was 48.3 (p<0.05). The effect size was 0.15. Four factors were identified with principal component factor

analysis in the three measures. The percentage of explained variance with the four factors ranged from 55.9% to 59.9%.

Discussion & Conclusions: The IU measurements were similar to other studies in developed countries, demonstrating evidence of validity of the use of the instrument in our setting. The slight decrease in IU after the intervention could be due to the educational impact of the course, although there are threats to internal validity.

Take-home message: Educational interventions that make uncertainty visible and explicit, can prepare future physicians for self-regulation and help them to cope effectively with this pervasive construct.

10EE5 (1368)
Understanding Coaching in Palliative Medicine through a thematic review of coaching in Internal Medicine between 2000 and 2015

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Background: Coaching provides opportunity for trainees in to master specific clinical, communication and 'soft' skills. Despite coaching's enormous promise within medical training, literature on coaching in medicine remain lacking, particularly in specialties requiring multi-professional team approach. Diverse understanding of coaching and conflation with mentoring, supervision and role modelling inhibit coaching's effective employ. A shortage of coaches, increasing demand for personalized education support and concerns about the quality of training has stoked a sense of urgency in advancing understanding of this educational role.

Method: The authors carried out a literature search for articles on coaching in Internal Medicine using ERIC, Scopus, PubMed, Cochrane Database of Systematic Reviews databases for publications between 2000-2016. Thematic analysis was used to circumnavigate coaching's context-specific, goal-sensitive, coach-, trainee-, organization- and relationship dependent nature.

Results: A total of 2168 abstracts were retrieved, 65 full text articles were independently reviewed and 24 articles were included. Six themes were identified including definition of coaching, the coaching relationship, the coaching process, the coaching environment, obstacles to effective coaching and the role of the host organization.

Discussion & Conclusions: This review provides the first evidenced-based definition of coaching and forwards a deeper understanding of the coaching process. Coaching has explicitly determined goals that guide the coaching process. Coaching involves a cycle of deliberate teaching, practice under the observation of a coach and through individualized feedback until mastery is achieved. To sustain improvements the trainee is taught to self-monitor their practice.

Coaching in should be formally introduced as part of medical training, with strong institutional support to ensure sustainability of the program, oversight of the coaching process and consistent training of coaches. This review also signposts the direction of further research and faculty development programs to enhance coaching in medicine.

Take-home messages: 1. Coaching provides opportunity for trainees in to master specific clinical, communication and 'soft' skills.
2. Coaching involves a cycle of deliberate teaching, practice under the observation of a coach and through individualized feedback until mastery is achieved.

10EE6 (690)
Which learning method can prolong the retention of knowledge in medical students?

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Background: Team-based learning (TBL) is an active learning method that we described initial use since 2014 at Udonthani medical education center. The study was conducted to compare the learning outcome and the retention of knowledge in TBL with lecture-based learning (LBL).

Method: TBL and LBL were used in two topics for 4th and 5th-year medical students. About 2 weeks before attended, all students had pretest and then received a study guide. In TBL group, after completed pretest, the students were assigned to self-study from website. At the TBL class session, the students were tested and then divided into groups. They re-examined the same test and made the consensus of the answer. The teacher immediately feedbacks and summarized core concepts. The last step, all groups received case-based scenario to get the discussion. After cessation of class, 3 months and 6 months later, all students had posttest and completed the questionnaires to evaluate the satisfaction.

Results: 56 students were enrolled: 29 students in LBL group and 27 students in TBL group. The pretest scores were not different between groups. The learning outcomes were significantly improved in both groups but TBL group had higher posttest scores at after class session, 3rd month and 6th month than LBL group. The levels of satisfaction were higher in TBL group included encourage self-learning before attending class, increase student engagement, promote teamwork, improve problem-solving skill and retention of knowledge.

Conclusion: TBL can enhance the learning outcomes and student's memory by the students stimulate each other's thought process by working within small groups and create brainstorm of ideas

Take-home message: Team-based learning is effective active learning method to improve learning outcome and maintain the retention of knowledge.

10EE7 (665)
An Application of Three Educational Models to Develop a Focused Cardiac Ultrasound Educational Program

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Background: Focused cardiac ultrasound (FOCUS) allows rapid integration of clinical exam findings with real-time imaging at the bedside. Many pediatric critical care (PCC) providers attend FOCUS workshops and yet only a small percentage use FOCUS regularly for patient care. When surveyed, providers who previously attended a workshop rarely felt confident in their ability to interpret FOCUS images and cited a self-perceived lack of competence as a primary barrier to its implementation.

Method: A team of cardiology, PCC and point-of-care ultrasound experts was formed to develop a five-unit FOCUS program that is structured according to Fitts and Posner's (F&P) Three-Stage Model of Skill Acquisition. We determined that a key unit in this program would be for developing competence in image interpretation. Based on a targeted needs assessment, we used Mastery Learning (ML) as a construct and Deliberate Practice (DP) as an instructional method.

Results: The unit comprised of two online lectures for asynchronous learning and 90 questions of cardiac images with pericardial effusions and varying degrees of ventricular systolic function. The questions were organized into increasing levels of difficulty. Learners answer questions in sets of 10 and repeat an additional set of questions in the same difficulty if they do not achieve a pre-defined mastery. A pilot with end-users confirmed the ML structure based on percent correct and time spent on each level of difficulty.

Discussion & Conclusions: This image interpretation unit aims to address gaps in the "cognitive" phase of F&P model. The module allows an error-focused repetition of image interpretation with immediate, specific feedback aligning with DP principles. This competency is a crucial step to entering "associative" and "autonomous" phases in subsequent units, and achieving FOCUS mastery
We integrated three educational models to guide the development of a Web-based FOCUS image interpretation unit.

Take-home message: An explicit application of educational models can facilitate identification of learning needs, instructional approaches and development of a novel educational program.

10EE8 (2488)
Core Mechanics for Learning are not Enough: Designing with Engagement in Mind

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Background: Modern theories in education emphasize that integration and elaboration of knowledge can be enhanced by two processes: retrieval practice effect and contextualization. Focusing on these, we developed an online curriculum for anesthesiology CA-1s, Learnly. It combines an algorithm based on Ebinghaus' forgetting curve for spaced-repetition, and clinical cases for active learning. Our objective is to analyze learners' behavior on this platform.

Method: We analyzed 2017-2018 weekly activity reports for the students using Learnly, including the number of read topics, reviewed flashcards (suggested based on the forgetting curve for each topic) and completed cases, the student's average confidence for each reviewed topic, and the percentage of correct cases. This analysis helped us identify gaps in the platform use and design future interventions to correct them.

Results: 1150 anesthesia CA-1 students from 45 US residency programs have connected at least once to Learnly since August 2017, for a total of 529883 activities. The median number of topics marked per student increased from a median of 33 (IQR:[16-33]) to 120 (IQR:[103-120]). However, half of the students are not using the innovative learning tools (flashcards and cases). The students who engage (49% of the population) continue to use these regularly (419 students using flashcards on week 1 to 558 currently, completing on average 10 flashcards every week). The average confidence and percentage of correct cases are stable across time (medians 3.6/5 and 58%).

Discussion & Conclusions: Students report re-reading is one of their preferred learning methods, although being highly ineffective. Implementing modern educational concepts on e-learning platforms is a first step to promote efficient learning, but we need to help students to engage with them. It is therefore critical that we design platforms with engagement in mind ; our next step is to unveil the triggers that can increase it, and design two types of interventions to test them, one for "non-hooked" students, one for "hooked" students.

Take-home messages: Implementing modern tools in medical education is critical to increase learning but not enough; we also need to understand the triggers of students' engagement and activate them.

10EE9 (3325)
Comparing three modes of learning-teaching in the acute coronary syndrome (ACS) topic for the fourth-year medical students at Lampang Hospital, Thailand

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Background: The most common learning-teaching mode is a teacher-centered one with one-way communication between the teacher and medical students. However, interactive learning by teacher-coaching with group discussion is self-directed learning, with self-planned thinking and two-way communication between the teacher and students. This study aimed to evaluate the efficacy of the different modes of learning-teaching in the acute coronary syndrome (ACS) topic at Lampang Hospital.

Method: We assigned three different modes of learning in the ACS topic to three groups of fourth-year medical students, who were studying in internal medicine. The students in group A were assigned a lecture-based teaching-learning mode (teacher-centered). The students in group B were assigned a guideline-based topic presentation with group discussion learning (student self-directed learning). The students in group C were assigned an electrocardiogram (ECG)-based learning mode with interactive discussion (student- and teacher-centered). The efficacy of the learning-teaching modes was evaluated by assessment questionnaires which consisted of three topics including knowledge, the attitude towards learning, and application in real-life practice.

Results: Among 33 students evaluated, 10 students were in each of groups A and B and 13 students were in group C. Sixty percent were female. The students were aged between 21 and 23 years old. The mean scores for the knowledge in groups A, B and C were 17.8 ± 2.3, 17.3 ± 1.7 and 17.3 ± 2.2, respectively ($P = 0.480$). The mean scores for the attitude towards learning in groups A, B and C were 16.9 ± 1.6, 17.7 ± 1.5, and 18.0 ± 3.7, respectively ($P = 0.900$). The mean scores for the application in real-life practice in groups A, B and C were 17.3 ± 1.8, 18.5 ± 1.4, and 18.5 ± 2.7, respectively ($P = 0.294$).

Discussion & Conclusions: There was no difference in the knowledge, attitude and application in practice between the three learning-teaching modes of the ACS topic. The ECG-based learning with interactive discussion may be the most suitable for learning-teaching in the fourth-year medical students with the ACS topic.

Take-home message: An interactive learning mode using teacher coaching with group discussion seems to be the most appropriate for teaching a medical topic.

10EE10 (694)
How are medical students actually thinking of questioning in teaching class? Medical teachers must know

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Background: Questioning helps the students leading to learning outcome, active-learning and high-ordered critical thinking. The aim of study is to evaluate the perspectives of questioning in the medical students.

Method: We conducted questionnaire: the qualitative evaluation of perspective in questioning and an interview of question number, timing of question occurrence, and desired question type.

Results: 87 students completed the questionnaire. 74.7% liked student-generated question. 89.6% thought questioning helps them achievement in learning objective. 49.4% felt anxious during questioning and 40% has good feeling if no any question. 73% experienced a class without any question. 87.5% is not bored on questioning but 73% felt shy. 81% dislike an impolite question. 70.1% thought enthusiasm helps questioning in class. 74.7% liked to question after a class finished. The mean question number per hour was 5.02. The waiting time for response was 36.97 seconds. The most students preferred the open question.

Discussion: Although most students have a positive thinking of the questioning, there are so many involved factors on questioning such as the question characteristic, class environment and enthusiasm. Despite the questioning helping learner, it still has a negative feeling such as anxiety and bashfulness. A lack of confidence and asian culture could be reasons. So, the medical teachers need to understand what the student think of questioning and directly and indirectly facilitate the student generated-question because of questioning promoting much more deep learning and long run self-active learning. No study has been reported what proper question number should be, while waiting time at least 10 seconds is a proper time for answer.

Conclusion: The questioning in medical student leads them to learning outcome and develops critical thinking. Although multiple factors effect on questioning in the medical students, the medical teacher should strengthen their confidence on questioning in class.

Take-home message: The medical students have a positive thinking of the question which is the another crucial way to accomplish learning outcomes. The medical teacher should promote and facilitate the student generated-question, because they might enhance learning in depth and self-active learning.

10EE11 (1900)

Differentiating the Learning Needs and Style in High-school Direct Entry versus Non-direct Entry Medical Students: Use of VARK and Quantitative Survey

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Background: Currently, many medical schools, especially in Hong Kong and UK, have a growing trend of admitting mature students with a first-degree or working experience into Bachelor of Medicine programs. These students of more mature age and background mark significant contrast to the rest of their classmates. Their presence constitutes important diversity to a medical school, yet there is hardly any research on better understanding mature students' learning needs.

Method: Our study describes unprecedented work that reveals insights on the learning needs and style of these non-direct entry preclinical MBChB students, in comparison to high-school direct entry students. A standardized VARK Questionnaire and a 16-item learning preference survey on Likert scale were administered to preclinical-year medical students. Results were analyzed using SPSS ver. 24.0.

Results: Comparing mature students (n=22, mean age: 23) and high school-direct-entry students (n=47, mean age: 18), major differences include non-direct-entry students appreciating certain teaching methods more: flipped classroom (p=0.01), recorded lectures as opposed to traditional classroom setting (p=0.01). Each VARK modality (visual, auditory, read/write, kinesthetic, multi-modal), irrespective of admission stream, prefers different learning channels: kinesthetics enjoy practical labs (p=0.02), visuals prefer lectures (p=0.003).

Discussion & Conclusions: Mature students tend to enjoy unconventional teaching methods at their own pace, in their own home setting. Distribution of VARK modality is of similar pattern in both groups, but individual learning modalities do have different learning preferences. We postulate that mature students, because of previous tertiary education and work experience, prefer flexible learning more.

By conducting similar quantitative evaluation and qualitative analysis, medical schools, especially those composed of students from a wide spectrum, can better understand their students' education needs. Faculty education policies can hence adjust to be student-centered and maximize all students' learning capability and effectiveness.

Take-home message: Research on learning needs remains a cornerstone of medical education improvement, particularly with future vision of personalized learning. This niche of non-direct-entry students will likely continue to grow in number, especially in countries where MD programs are uncommon or unavailable. It is imperative to pay careful attention to different subgroups of students and obtain continuous feedback.

10EE12 (2583)

Dynamics of students' learning approaches throughout medical training: relationships with students' personal characteristics

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Background: Students' approaches to learning are central to the process of learning. The educational context can influence students' use of learning approaches. Previous research has shown that stimulating deep approaches seemed much more difficult than expected, even in student-activating learning environments. In addition, the educational context might act differently on individual students depending on their initial profile.

Method: We used growth curve modeling and multi-trajectory analysis to test and trace trajectories of deep (DLA) and surface (SLA) learning approaches over time in a sample of 189 medical students along a 5-year PBL-based and clinically-oriented curriculum. Longitudinal measures included learning approaches (Revised-Study-Process-Questionnaire), perception of educational environment (Dundee-Ready-Educational-Environment-Measure) and level of motivation for studying medicine (administered in year 2, 3, and 5). Cross-sectional measures included Personality (NEO-Inventory administered in year 1) and reasoning ability (Raven-Test administered in year 2).

Results: Two longitudinal trajectory groups of learning approaches were found. Group 1 (n=113, 60%) and Group 2 (n=76, 40%) differed by their initial level of DLA (31.4±4.4 vs 38.6±3.5; p<0.001) and SLA (23.3±4.6 vs 18.2±4.0; p<0.001) and by their evolution along the curriculum (decreasing DLA-increasing SLA vs stable DLA-SLA). Both groups showed differences in the personality traits conscientiousness (32.9±6.9 vs 38.7±5.2; p<0.001) and extraversion (29.5±5.1 vs 32.5± 5.6; p<0.001) but not in reasoning ability. Both groups' level of motivation and perception of educational environment were good but regularly decreased along the curriculum.

Discussion & Conclusions: Our analysis suggests the existence of multiple longitudinal learning profiles among students. This implies that individual students although confronted to the same educational context might or not modulate their learning approaches. More precisely, it suggests that students using preferably SLA tend to reinforce this strategy, whereas those using preferably DLA stay stable. In addition these learning profiles are

associated with differences in students' personality, motivation and perception of the educational context.
Take-home message: Influencing students' use of learning approaches is a complex process, depending not only on the educational context, but also on the initial profile of individual students.

10EE13 (3041)
Learner Traits and Voluntary Attendance in Pre-Clinical Medical Courses

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Background: Historical data from the pre-Internet era demonstrated that classroom attendance was positively associated with better learning outcomes. In recent years we have noticed a marked decline in classroom attendance within medical school as lectures are recorded and other learning materials are available online. The trend of lower attendance appears to be accelerating. Perhaps this is in part due to the intense focus US students have on the USA Medical Licensing Examination (USMLE) Step 1, allied to the emergence of several commercial learning resources.
Method: The goals of this study are to describe classroom attendance patterns and determine learner traits associated with voluntary attendance using self-regulated learning theory as a theoretical framework. The study observed second-year medical students throughout a 6-week course covering gastrointestinal and renal pathology. Following an IRB-approved protocol, classroom attendance was monitored using an electronic system (TealPass) and students voluntarily completed the Motivated Strategies for Learning Questionnaire (MSLQ). Spearman's rho correlation coefficients were calculated to assess the relationships between percentage of classes attended and each of the 15 subscales for motivation and learning strategies measured by the MSLQ.
Results: Of 114 students who completed the course, 78 consented for attendance tracking, of which 48 completed the MLSQ. High levels of self-efficacy ($r = -.311$, $p = .032$) and the ability to self-regulate effort ($r = -.333$, $p = .021$) was predictive of low attendance. Attendance was positively predicted by an orientation towards peer-learning ($r = .314$, $p = .030$) and help-seeking ($r = .474$, $p = .001$). Additionally, 95% of the sample reported using the external Board review resources: UWorld, Pathoma and First Aid.
Discussion & Conclusions: We conclude that different facets of self-regulated learning predict attendance, with highly confident students being the least likely to attend.
Take-home message: Low attendance and competition between formal and informal curricula raises concern about the learning environment and calls for a reexamination of attendance policies and the role of faculty.

10EE14 (2885)
Medical Students' familiarity with learning processes and their effect on academic performance

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Background: There is no defined perfect study technique for any student. Different students undertake different means of studying, with varying habits and outcomes. The purpose of this study is to look at many different studying habits of medical students, how many of them implement effective strategies, and to see if there are any correlations between those familiar with such strategies and the students' academic performance.
Method: An online, anonymous survey was distributed to 201 medical students of all years. Apart from disclosing their GPA and gender, students answered questions on several study strategies and habits (12 items), average daily time spent studying, including both weekdays and weekends, exam preparation skills, preferences between study sources, and many more. Students were also required to provide their TOEFL and IELTS scores; a mandatory exam for all medical students at the University, as a basis to know their English proficiency.
Results: Students studying more than 4 hours daily (26% of students) do not have a statistically significant higher GPA compared to those studying 2-4 hours (40% of students) a day. Multiple regression involving the 12 strategies together with gender and year of study showed that Summarizing ($p < .001$) and starting by memorizing ($p = .021$) were negatively predictive of GPA and Mapping ($p = .041$) was weakly positively predictive. Level of English was not correlated with GPA performance ($p = .805$). Several other correlations have been looked at and identified.
Discussion: Many students studying more than 4 hours a day do not seem to do better than those studying just 2-4 hours a day. This may be because those studying 2-4 hours are able to identify relevant information and use their time efficiently and effectively, ridding of the myth that more studying results in better grades.
Conclusion: Specific study strategies are far more valuable in affecting academic performance as opposed to the amount of time spent studying.
Take-home message: It is the responsibility of the university and faculty to guide students toward correct and effective methods of academic learning in order for them to achieve at their potential.

10EE15 (1245)

The effect of productive failure on learning of a novel concept in health professions education

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Background: Productive failure (PF) is an instructional approach that requires learners to struggle as they attempt to generate solutions to complex problems before, rather than after, receiving relevant instruction. Studies demonstrate that PF prepares students for later learning of new, related knowledge. However, existing research showing PF efficacy is largely limited to high school settings. Accordingly, the objectives of this study were to compare the effectiveness of PF instruction with direct instruction (DI) in health professions education with respect to (1) acquisition and application of a novel concept, and (2) a 'preparation for future learning' assessment.

Method: Year 1 students (N=43) enrolled in the Doctor of Pharmacy program at the University of Toronto were randomly assigned to a DI or PF learning condition. Participants in the PF learning condition were given a description of the problem of estimating renal function based on serum creatinine and were asked to invent a solution. Participants in the DI condition learned about the same problem and were given the Cockcroft-Gault formula to calculate creatinine clearance. Both groups then completed the same practice phase, during which they were given the correct formula. Finally, the participants completed a series of tests designed to assess procedural knowledge (acquisition), near transfer (application), and preparation for future learning (new learning is required for successful problem solving).

Results: As expected, no difference was seen between the two learning conditions when comparing acquisition and application of the novel concept. However, participants in the PF condition (M=.75) outperformed those in the DI condition (M=.67) on the preparation for future learning assessment. A one-way ANCOVA was conducted with practice phase performance as a covariate. A significant effect of learning condition was found, $F_{(1,38)}=6.53$, p=.015.

Discussion & Conclusions: These results emphasize the crucial role of struggle in learning, and support the theory that problem solving prior to instruction may be more effective than direct instruction when preparing novice students to learn new knowledge in the future.

Take-home message: Productive failure may be a method of instruction that can enhance health professions students' effectiveness in their future learning.

10EE16 (3320)

Enhancing Teacher Education to Promote Academic Activities through the Adoption of Active Methodologies and the Use of English as an Additional Language

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Background: As much as the adoption of active methodologies as a way to foster learner autonomy is a component of a comprehensive specialized education, not all medical schools are in the same level in terms of promoting such competences along their teaching. Likewise, an effective command of the English language as an international code of communication is also a feature of an interconnected medical community. Nevertheless, endorsing language education to foment the development of a bilingual medical community is still a challenge in public universities in the Southern hemisphere.

Method: Embedded in such realm, this presentation reports on the experience of a teacher development course implemented in a health sciences university in Brazil, by means of a collaborative work between two lecturers: a medical doctor specialized in active methodologies, and an English language educator specialized in teacher development. This paper highlights the theoretical and educational views that subsume the course.

Results: The program is a forerunner in its kind in Brazil, and has given shape to a number of department seminars regularly held in English through the adoption of active methodologies to teach specialized content. The course content emphasises the use of student-centred teaching practices, content and language integrated learning and the sharing of teaching experiences.

Discussion & Conclusions: Skill in taking an active role along their learning and professional practices, in negotiating decisions and in an effective improvement in the applied use of English as a tool for international medical communication are competences inextricably related to the range of practical opportunities medical students are provided with by their teachers. As most medical educators in Brazil were not required to develop pedagogical teaching skills, neither were they mostly thought through the adoption of student-centered teaching modes, participants have revealed that they feel privileged for the opportunity of rethinking their practices, sharing pedagogical decisions, and adopting English on a regular basis, an aspect which contributes to the internationalization of Brazilian universities.

Take-home message: When it comes to academic medical development, new forms of teaching will contribute to challenge lecturers, expand their professional opportunities and enrich learners' education.

10EE17 (871)

Challenges in Conducting a Community Psychiatry Class in English for Medical Students in a Non-English-Speaking Country

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Background: Lampang Medical Education center has launched a new policy for integrating English into the medical curriculum. It requires at least one rotation block to have one English class. Challenges, debates, and frustrations occurred among instructors and students. In the psychiatry rotation, community psychiatry class is a suitable candidate for an English class. This class is designed as a case discussion. Students integrate their knowledge from previous lectures and rotations to handle a case involving community collaboration.
Method: Before the class, students were divided into two groups, each of 6-7 students. Each group was given the details of one case, written in Thai. Students were then required to summarize the case, plan short- and long-term treatment strategies involving community-based care, and then prepare a presentation and discussion. Language consultation with a native English-speaking teacher was provided. During the class, an English teacher observed. Students led the class and a Thai instructor assisted. All of the students evaluated the class at the end of the year using an online survey. The survey covered knowledge of community psychiatry, class atmosphere, and students' satisfaction.
Results: All of the students completed the survey. Almost all of the students acquired core concepts of community psychiatry. The majority of the students agreed that running a class in English didn't diminish their learning of the core concepts of community psychiatry and didn't lessen the chance for a discussion. One third of the students felt more stress during preparation and one-fifth of them felt nervous when doing the English presentation. Students said they felt that the benefits outweighed the difficulties.
Discussion & Conclusions: Integrating English into a usual class did not diminish the students' learning of the core concepts. English and Thai instructors sitting together in a class help to clarify the concepts for the students. Case discussion is a very suitable format for these classes since the students can exercise their 4 language skills.
Take-home message: The main challenge in integrating English into a usual class is the attitude of the instructor. The language barrier itself is not the major obstacle.

10EE18 (176)

Reliability of English medical article translation among fourth and fifth year medical students

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Background: According to most of Thai Medical School's curriculum,textbooks and English journals are being used as major class materials or references. This due to the advancement of medical knowledge in the Western world and limited textbook in Thai, so English is the significant language tool for medical students.
Method: The research uses a descriptive study, 54 of fourth and fifth year medical students are enrolled. The questionnaires was composed of 1) general information; 2) selected medical article in English which every students will be asked to translate into Thai. The translated article will be evaluated by a specializing medical doctor. Each sentence will be given 1 score if it can cover 50 percent of the original meaning and will be marked 0 score for less than 50 percent of meaning accuracy.
Results: The students can translate the article with reliability rate at 3 levels; Medium Accuracy rate accounted for 46.3 percents, High for 31.5 and low for 22.2, respectively. The two influential factors are 1) the early start in learning English, especially from kindergarten year, 2) the year in medical school whereas 51.6 percent of fourth year medical students have the medium translation reliability rate while fifth year student equally has high and medium rate at 39.1 percent each. 84.6 percents use both Thai and English textbooks while 81 percents mainly rely on Thai books first. 72.2 percent believe that they have average skill in English. 66.4 percents call for the medical school to increase more English classes. Other factors show no statistical significance.
Discussion & Conclusions: Medical courses are based on English textbooks but students prefer using Thai material. Mostly,students 'skill on English translation is at medium level but 88.9 percent can achieve A score in pre-clinic English subject, there should be a further evaluation of English class effectiveness in order to improve both the curriculum and the students' skill. The students' experience is needed to be considered because the significant difference between the fourth and fifth year student ability.
Take-home message: The suggestion for further research is to consider the entrance GPA score and other language skills.The medical school curriculum should encourage students to use English study materials more often plus with more optional English class to develop their skill.

10EE19 (3578)
Additional activities in medical hidden curriculum - Polish multi-centre study

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Presenter: Sebastian Janiec, Student's Scientific Group of Teaching and Examining Methodology JUMC, Cracow, Poland

Background: Hidden curriculum may be defined as an additional set of competencies, that students acquire outside of the formal medical school curriculum. It may influence on students' beliefs, behaviors and future career choices. However, it is usually not taken into consideration while planning students' medical education.
Method: A multi-theme survey was performed among medical students from 11 different Polish universities, using a pre-tested on-line questionnaire. Our work focused on extra-curricular activities of polish medical students.
Results: The survey was completed by 452 medical students. As many as 76.5% of students were involved in scientific work, but only in 23.5% cases it ended with a scientific publication. At the same time, 72.2% of students took part in at least one scientific conference a year. A significant proportion of students (44.5%) participated in activities related to the work of student self-government. 8.4% declared active participation in the curriculum evaluation process. As many as 32.7% of students conducted classes for other students – most commonly practical workshops (53%), lectures or presentations (32%), and clinical classes (10%). 60% of students were involved in volunteering for people in need.
Students are eager to take part in additional training in practical skills (50.9%) and medical communication (27.4%). 76.3% students spent their free time on extracurricular clinical activities. A large proportion of them assisted in on-call medical services at the surgical ward (47%) or ER (41.5%). The largest number of students (31%) declared taking part in 25-100 hours of those activities, and 3.8% even in >500 hours. 75.8% of students agreed with the statement that without extra-curricular activities they would not learn many skills which are relevant to them. Surgical stitching (55.7%), filling in medical records (49.9%) and ultrasound examination (46.9%) were the most frequently mentioned. 21.7% think that they learnt most of the skills outside planned classes.
Conclusion: A large proportion of students exhibit extra-curricular activity that enriches their learning outcomes.

For many students, it is as important as classes in the basic study program.
Take-home message: Planned curriculum does not take into account a large part of student's activity.

10EE20 (386)
"Nice to have a reason to read books" - On literature and films in medical studies

Authors
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Merja K Laine

Presenter: Lena Sjöberg, University of Helsinki, Department of General Practice and Primary Health Care, Helsinki, Finland

Background: The aim of this study was to explore learning on an elective course called Literature and films (2.5 ECTS). The official aims of the course are to broaden medical students´ perspective on clinical work and medicine through literature, films, book presentations and group discussions. The course is bilingual (Finnish/Swedish) and one aim is also to promote skills of the non-native language of the students.
Method: The participant group consisted of twenty students from all study years, twelve Finnish-speaking and eight Swedish-speaking.
All students chose three books and at least one film from given lists. We had four seminars: during the first, we watched a film together and analysed its main characters. During the next two seminars, students presented four books per seminar and during the last seminar two books were presented. Two named students commented on each book presentation. During the last seminar, the films were discussed.
On the last day of the course, we collected anonymous feedback using a structured form with eight Likert-scale and five open-text questions.
Results: The overall rating of the course was 4.7/5. All students reported that they would recommend the course to other students. The students generally agreed that their interest in both books and films increased during the course. They also agreed that it is beneficial for doctors and dentists to read fiction and watch films. They generally thought that the course promoted understanding of patients, but not equally understanding of doctors.
From the replies to the open-ended questions on what the students learned, four main themes emerged: increase in cultural literacy, identifying oneself with patients, learning stress management and development of the professional identity (the last reported by students from earlier study years).
The bilinguality of the course was experienced as positive. Part of the learning experiences could be a result of the group discussions during the course, where both teachers participated "as equals".
Conclusion: The students experienced that the course promoted cultural literacy and stress management. The younger students also reported that the course had contributed to forming their professional identity.

10FF: Posters: Simulation 2

Location: Hall 4.1, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

10FF1 (2468)
Mandatory basic laparoscopic skills course: a 4-year follow-up

Authors
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Presenter: Nynne Dose, Department of Obstetrics and Gynecology, Holbæk Hospital, Denmark, Holbæk, Denmark

Background: Educational theory describes active learning process as a step-wise progression of competencies and a prolonged learning curve amongst novice trainees. Competency-based learning through operative simulation training under protected optimal conditions provides the possibility of gradually achieving cognitive, technical and nontechnical skills before advancing to real procedures. Additionally, simulation-based training has proved to improve patient safety by increasing performance in the operating room. Denmark was one of the first countries to introduce a validated mandatory laparoscopic training program inclusive of above-mentioned components among first-year residents in OBGYN, which was implemented in November 2013. This article will focus on a 4-year follow-up in participation of the validated training program.
Method: The validated training program 'Basic Laparoscopic Skills Course' consists of three steps (1st step 1 day of theoretical knowledge, 2nd step MCQ test and 3rd step 1-3 days of virtual reality training with gradually increasing difficulty ending with salpingectomy due to a bleeding ectopic pregnancy). All first-year residents in one of the seven obstetrics and gynecological departments in eastern Denmark from January 2014 till January 2018 were offered the training program at CAMES, Copenhagen Academy for Medical Education and Simulation. All attendee demography was obtained prior to participation.
Results: In a period from January 2014 to January 2018 approximately 120 first year residents were offered the mandatory 'Laparoscopic Basic Skills Course'. Results on attendees and drop outs are to follow.
Discussion: Based on the results and reason for drop out we will discuss whether mandatory training and protected training time increases participation rate compared to existing laparoscopic curricula literature. Furthermore, we will discuss mastery learning as a way of designing an optimal educational environment and continuous improvement of the training program.

10FF2 (2026)
The Invention of Low Cost Obstetric Ultrasound Training Model for Medical Students from Simple Materials

Authors
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Presenter: Sapachai Saingtong, Medical Education Center Vachira Phuket Hospital, Walailak University, Phuket, Thailand

Background: Ultrasound in pregnancy is now available in almost hospital in Thailand. Nowadays we use ultrasound as a routine checkup in pregnant women, so using ultrasound is an essential skill for general practitioner to detect fetal's health, development and position to plan the delivery route. To training this skill is limited, because it has to be done with pregnant women and commercial ultrasound training model is high cost. The invention of ultrasound training model can improve ultrasound skill in general practitioner.
Method: Many simple materials were tested the echogenicity that proper to be represent each fetal organ. Head with falc cerebri, skeletal(spine, extremities), umbilical cord, urinary bladder were built from plastic football, wooden sticks, Foley's catheter and table tennis plastic ball respectively and covered fetal organ by saline bag. Then put the fetal model in plastic bag filled with water that represent amniotic fluid.
Results: The finished ultrasound training model was used for teaching medical student, extern and intern before real practice with pregnancy. Comparing virtual reality of the model with real pregnancy is 82% . Reporting the accuracy and level of satisfaction in the ultrasound training model are 86% and 92% respectively. Cost of this model was less than USS3 compare with commercial model respectively that normally cost US$ 5,000–20,000. Using ultrasound training model is safety and avoid disturbing pregnancy.
Discussion & Conclusions: The invention of ultrasound training model is made from the simple and low cost materials. It can be actual practices by medical students, extern and intern. It is easy to understand the model training and rehearse until they have confidence to do with real pregnancy without disturbing them.
Take-home message: Every medical school can make this ultrasound training model for training, effectively and realistically at a very low cost

10FF3 (1865)
Simulation-based assessments of ultrasound skills: A comparison of validity evidence from three different procedures

Authors
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Mette Madsen
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Presenter: Liv Dyre, Copenhagen Academy for Medical Education and Simulation, Rigshospitalet, Copenhagen, Denmark

Background: To compare validity evidence supporting simulation-based assessments of ultrasound skills across different types of procedures (i.e. gynecological and obstetric ultrasound and Focused Assessment with Sonography for Trauma (FAST)).
Method: Validity evidence was gathered on the assessment of gynecological and obstetric ultrasound, and the FAST examination using the same type of simulator (Scantrainer, Medaphor, Cardiff, UK). The assessments included automated simulator metrics that were either passed or failed. For each of the procedures validity evidence was gathered according to Messick's framework: 1) Content evidence: identification of modules with relevance to the ultrasound procedure (e.g. content selected by experts/researchers or with a pre-test), 2) Response process: participants interaction with the simulator (e.g. introduction to the equipment), 3) Relations to other variables: metrics' ability to discriminate between expert and novice trainees, 4) Internal structure: reliability of the final simulator test and the performers' variance in test scores 5) Consequences: comparing expert performance levels and metrics that processed validity evidence in the studies.
Results: In terms of relations to other variables, 31.4% of transvaginal, 31.7% of obstetric, and 61.8% of FAST metrics were supported by validity evidence. Image optimization was represented most frequently (41.7%, 47.5%, and 59% for gynecological, obstetric and FAST modules) compared to metrics that evaluated the systematic approach (35.4%, 25%, and 23% for gynecological, obstetric, and FAST modules) or correct measurements or appropriate time (22.9%, 27.5%, and 18% for gynecological, obstetric, and FAST modules).
Discussion & Conclusions: We found validity evidence to support the use of simulation-based assessment in ultrasound performance. However, we also found the metrics with validity evidence to be unequally distributed between the different aspects of performance. Consequently, certain critical aspects of the ultrasound procedure may be missed when relying on automated simulator metrics alone, which questions whether they alone can be used for evaluating mastery learning in the simulated setting.
Take-home message: Simulator metrics with validity evidence are unequally distributed between different aspects of performance (i.e. image optimization, systematic approach, correct measurements and appropriate time).

10FF4 (899)
CHEAP and CHEERFUL: Using locally invented simulators to teach physical examination of a neonatal scalp hematoma to medical students

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Rawee Ausawakittipong
Win Techakehakit

Presenter: Kultida Pongdetudom, Lampang Hospital, Lampang, Thailand

Background: Subgaleal hemorrhage (SH) is a serious scalp hematoma in newborn that requires early detection with close monitoring. However, SH is not easily detected as its manifestation, as scalp swelling, looks similar to other types of scalp hematoma which are more commonly found: cephalhematoma (CH) and caput succedaneum (CS). This makes it especially difficult when teaching medical students about these hematomas, as using lectures alone does not allow students to gain hands-on experience in differentiating these conditions. However, there is currently no simulator for students to practice physical examination of these conditions.
Method: We invented simulators at an affordable price using sponges and rubber gloves filled with water, for students to practice physical examination of SH, CH, and CS. As a rubber-like consistency is present when palpating CS, sponge was used for this. A rubber glove fully filled with water was used to represent CH, which has the consistency of a tense cystic mass. In contrast, a SH simulator was created from a rubber glove half-filled with water to give the consistency of a soft cystic mass. These simulators were used to teach physical examination of neonatal scalp hematoma to 4th and 5th year medical students. Students were tested using the simulators before the lecture started, and then again after class. Then students were asked to answer a questionnaire about their attitudes towards these simulations.
Results: Of 38 students, the mean post-test score markedly increased, compared with that of the pre-test (pre-test = 33.1%, post-test = 96.5%). Results from the study indicated that 98.4% agreed that using simulation helps increase their understanding. Moreover, 93.6% believed that this practice gave them confidence in differentiating between these 3 conditions.
Discussion & Conclusions: Our locally invented simulators appear to be effective tools to provide students with hands-on experience in examining a neonatal scalp hematoma. Given the practicality and affordability, using these locally invented simulators should be encouraged in other medical schools that do not, as yet, have simulation practice.
Take-home message: Locally invented simulators are practical and effective equipment in teaching neonatal scalp hematoma to medical students.

10FF5 (2508)

The experience of creating a simulator for carrying out spinal puncture

Authors

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Presenter: Elena Taptygina, Krasnoyarsk State Medical University named after Prof. V.F. Voino-Yasenetsky, Krasnoyarsk, Russia

Background: Simulation training is an integral part of the educational process of medical Universities, which remains the main problem of accessibility of education: expensive simulators and supplies that transmit anatomical characteristics of the object of influence. In Krasnoyarsk state medical University annually holding a competition "Innovation in simulation training", which aim to promote of students in the development and use of simulation technologies in medical education.
The aim of our work was to create a simulator for carrying out spinal puncture of the available materials, while maintaining the realistic feeling when performing manipulation.
Method: The first step in the project was the creation of drawings and selection of materials. Materials were selected based on accessibility in their purchase, and the opportunity to work with them independently. The developed model is a flat rectangular box-panel thickness 8 cm, which laid a replacement unit with a lumbar spine, the spinous processes of which the exact casts of the applicator of transparent elastic silicone rubber, imitating at the same time the anatomical ligament and the outer leaf of the Dura mater. To create the most realistic anatomical model of the lumbar vertebrae was created STL – model using the 3D – print was made manufacturer of the lumbar spine.
Results: One of the main advantages of the created simulation is affordability. The developed simulator has several differences from analogs: made from available materials, has realistic properties of the tissues, compact, mobile, durable and comfortable in use, has a long life, easy to use, including the replacement of components. After fabrication of the component parts of model, it was built, having in the complete set replaceable consumables.
Discussion & Conclusions: Our simulator was the winner at the contest in the framework of the VI international conference "Innovative educational technologies in medicine" (Moscow, 2015).
Take-home message: The simulator was proposed for testing to doctors, for which making of spinal puncture is the skill with which they regularly face. Was obtained high evaluation of the developed model, noted the differences and advantages it from other similar simulators.

10FF6 NOT PRESENTED

10FF7 (1893)

Development and Validation of Multi-material Three-dimensional Printed Airway Training Models for Bronchoscopy Simulation

Authors

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Brian Ho Han Khai, Lee Kong Chian School of Medicine, Singapore
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Presenter: Sreenivasulu Reddy Mogali, Lee Kong Chian School of Medicine, Singapore

Background: Bronchoscopy is an important endoscopic airway procedure in respiratory medicine with numerous diagnostic and therapeutic applications. Sound understanding of segmental bronchial anatomy as well as ample training experience is mandatory for technical mastery. Although simulated modalities facilitate safe training for inexperienced operators, current training models are expensive or deficient in anatomic fidelity, functionality and patient representation. Three-dimensional (3D) printed airway models offer a high-fidelity, patient-specific and cost-effective means of bronchoscopy training.
Method: We developed patient-specific airway models using multi-material 3D printing of segmented airways from human thoracic computed tomography scans. Expert bronchoscopists performed bronchoscopy on the airway model and completed a standardized evaluation questionnaire to validate its efficacy as an airway trainer.
Results: Four expert respiratory physicians participated in validation of the airway model. Anatomic fidelity was deemed satisfactory, but participants suggested further refinement of colour and texture, as well as simulation of dynamic upper airway structures. All participants supported the suitability of the model as a bronchoscopic trainer.
Discussion & Conclusions: We have developed a patient-specific multi-material 3D printed airway model and validated its use in bronchoscopic training. The results indicate directions for further improvement of the model, and promote its evaluation in a training context.
Take-home message: 3D printed models are patient-specific, realistic and cost-effective. The developed airway models were validated for their suitability for simulation training.

1oFF8 NOT PRESENTED

1oFF9 (2653)
Haematology/Oncology simulation training: combining clinical skills, prioritisation and human factors to improve confidence

Authors
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Background: Induction for junior doctors allows them to gain knowledge, confidence and integration into the hospital team. There are no standards regarding content or delivery methods [1]. Our previous departmental induction had become cumbersome and didactic, resulting in little engagement and failed to adequately prepare juniors for the wards.
Method: We redesigned an interactive induction to include clinical skills, human factors and a prioritisation exercise to prepare the doctors to work and learn more effectively in our department. Simulation (SIMS) training was used to improve their confidence in handling haematology/oncology emergencies and provided clinical context for specialty specific learning. A prioritisation exercise developed skills for lone working overnight with non-resident registrars. Questionnaires using a Likert scale (0=not very confident, 5=very confident) evaluated junior doctors' self-reported confidence at managing a variety of scenarios. Primary outcomes were evaluated immediately following SIMS and secondary outcomes evaluated confidence one month after.
Results: At time of abstract submission, 21 junior doctors have completed SIMS training. Paired t-test analysis have shown a statistically significant improvement (p<0.00001) in confidence at managing haematology/oncology emergencies immediately following the SIMS and this was maintained in 84% of juniors one month following the SIMS (p<0.00001).
Discussion & Conclusions: Overall feedback from SIMS has been positive; doctors felt that the induction helped prepare them for working in the department. 95% of doctors rated this induction programme as excellent compared to other departmental inductions. Future innovative projects include inter-professional simulations and consolidation of learning with micro-SIMS throughout the rotation.
We have shown that delivering an interactive induction significantly increased doctors' confidence and thereby improves their ability at managing a complex patient population.
Take-home message: Simulation provides a safe environment to learn specialty specific skills and can be used not only to test clinical skills but also prioritisation skills, human and ethical factors.

Koshal S et al. Induction training for senior house officers in oral and maxillofacial surgery: literature review and local evaluation. British Dental Journal. 2012 Jul 27; 213(2): 73-6

1oFF10 (1319)
The effect of training with ear examination model on medical students' clinical skill

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Background: Ear examination is the important and difficult skill for medical students. Many students have problems in otoscopic skill, describe lesion and diagnosis. Training with ear examination model in the class, may promote clinical skill. This study assessed the effectiveness of learning with them. For apply to medical students in the future.
Method: The 5th year medical students were divided into two groups. An intervention group of 14 students received routine lecture and training with ear examination models. A non-intervention group of 14 students received only routine lecture. After finished class, the student performed ear examination in real patients. Outcome measurement included patient assessment [comfortable score], teacher assessment [ability and posture in otoscope usage, time for examination per patient] and student assessment [satisfaction of learning with ear examination models, confidence of ear examination].
Results: We found that, our medical students in intervention group had significantly higher score in ability and posture during otoscopic usage, accuracy and time [p-value =0.029, 0.02, 0.020] than non-intervention group. In patients' comfortable score, intervention group was also had higher mean score compared with non-intervention group but there was no statistical significant [p-value=0.138]. From student assessment, most of the students in intervention group had excellent [79%] and good [21%] satisfaction in learning with ear examination models and also had excellent [50%] and good [43%] confidence of ear examination.
Discussion & Conclusions: Training with ear examination models had effectiveness in ability and postures aspect, which lead to better performance, shorter examination time and improve accuracy in diagnosis. The medical students also had satisfaction in learning with the models and gained more confidence in ear examination.
Take-home message: Training with Ear examination models is an effective additional method for medical students in ear examination practice. This method can enhance the satisfaction, confidence and accuracy in real patients.

10FF11 (707)

Randomized and prospective study of simulated training vs opportunistic learning in paracentesis: standardization of learning curve and transfer to real patients in undergraduate medical students

Authors

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Presenter: Arnoldo Riquelme, Pontificia Universidad Católica de Chile, Santiago, Chile

Background: Simulation generates an enabling environment for learning due to the presence of predictable, consistent, standardized and reproducible activities in a safe setting. Abdominal paracentesis is an essential competence for graduate medical students in Chile. A Simulated Paracentesis Training Program was created prior to transfer to real patients.

The aims of this study were: 1. To determine the learning curve required to reach mastery of the procedure; 2. To compare performance of students under simulated training with students using traditional opportunistic learning; 3. To evaluate the transfer to real patients.

Method: A randomized controlled trial was designed including three groups: Group A was composed of clerks taught using the Simulated Training Program; Group B was composed of clerks taught using opportunistic learning, without simulation; Group C was composed of Gastroenterology and Internal Medicine residents, who are exposed daily to paracentesis. The training program includes sessions with effective feedback by experts. A pilot study was performed to determine the number of sessions required to reach mastery in paracentesis. Mastery was defined as ≥95% checklist (≥23 points) and ≥ 24 OSATS score.

Results: The pilot study showed flattening of the learning curve between 3rd and 4th sessions. The randomized trial showed a significant difference in the achievement of mastery between Group A (n=16) and B (n=17) [87.5% vs 5.9%; p<0.01] at the end of the 4th session. No significant differences were observed when comparing the 4th session of Group A with a simulated paracentesis performed by Group C (n = 9). Seven participants from Group A have now been transferred to the real patient phase with 100% mastery.

Discussion & Conclusions: A Simulated Paracentesis Training Program based on a learning curve with four sessions, achieves a significant difference in terms of mastery and transfer to real patients in undergraduate medical students. The results are comparable to the clinical skills of Internal Medicine and Gastroenterology residents trained under the traditional opportunistic method.

Take-home message: This study demonstrates that a simulated training program for abdominal paracentesis is an effective and safe alternative for the acquisition and transfer of skills in medical students.

10FF12 (800)

Effectiveness of surrogate eye models for training of corneal foreign body removal

Authors

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Background: Corneal foreign body (FB) is a common presenting complaint to the emergency department (ED). Junior doctors without prior experience lack confidence and skills in managing this. We aim to evaluate effectiveness of our surrogate eye models for teaching hands-on training of FB removal.

Method: We used 2 models in a randomized crossover design. The first was made of agar, using a globe-shaped mould. The second model (Connie) was fabricated in collaboration with the Division of Industrial Design, National University of Singapore, using 3D-scanning and computer design to print a face with eye sockets to accommodate globes made of gelatin, glycerine and water. Pencil lead shavings were used to simulate corneal FBs.

Groups of 4 participants were randomly assigned to commence training on 1 model before crossing over. Self-administered 7-point Likert scale questionnaires were used to rate their responses. Effectiveness between the two models was compared and objective assessment was done using a procedure competency checklist, which all participants completed. Participants were also given identical pre-training and post-training tests, to compare their knowledge of FB removal and slit lamp interpretation.

Results: We included 12 medical officers, 12 junior and 4 senior residents from the Emergency Department. The median post-graduate year was 3 (interquartile range [IQR] 2 to 4.25). Higher scores for confidence and knowledge in removal of corneal FB were attained post-training. Knowledge increased from 4 (IQR 2 to 5) to 6 (IQR 5 to 6); and confidence in assessing depth of FB and removal of FB increased from 3 (IQR 2 to 4) to 6 (IQR 5 to 6), and 3 (IQR 2 to 4) to 5.5 (IQR 5 to 6) respectively (p<0.001 for all categories). The effectiveness of training sessions was rated with a median score of 6 (IQR 6 to 7). The median pre-training test score was 76.9% (IQR 71.2-92.3%) compared to the median post-training score of 100% (IQR 92.3-100%) (p=0.008).

Discussion & Conclusions: Hands-on training sessions using surrogate eye models are effective in increasing the confidence and knowledge of corneal FB removal among junior doctors. 26 out of 28 participants preferred Connie for the simulation of FB removal.

10FF13 (1082)

Challenges of Self-Directed Learning: Experiences Using the Eyesi Direct Fundoscopy Simulator by Core Medical and General Practitioner Trainees

Authors

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Presenter: Samantha Hunt, Gloucestershire NHS Foundation Trust, Cheltenham, UK

Background: Fundal examination is an essential part of the clinical examination of a patient, but in one survey of physicians, only 4% performed it routinely; a lack of technical skill and confidence is often cited as reason for this. We studied the impact of using the Eyesi virtual reality direct fundoscopy simulator on the confidence and technical skills of core medical, and general practitioner, trainees within Gloucestershire.

Method: Two rounds of recruitment initially focused on core medical trainees, the second also incorporating general practitioner trainees. Refinements to study logistics were made between rounds after disappointing engagement in round one. Participants completed a questionnaire, then a test on the simulator to evaluate their baseline skills. They could then access the simulator's course; upon completion another test assessed for any change. The simulator was always accessible for 5 weeks and participants were encouraged to utilise study sessions to undertake the study. After this, data was extracted. Advanced booking was possible online. Recruited trainees were contacted by email weekly to encourage them to complete the course.

Results: Round 1: 28 volunteers, 10 completed questionnaires, 3 completed initial test, 1 completed all. Round 2: 54 volunteers, all completed questionnaires, 11 completed initial test, 2 completed initial and end tests but not all Course modules, 5 completed all.

Discussion & Conclusions: Even with careful planning, extensive time input to optimise engagement, and initial participant enthusiasm, study completion rates were exceedingly low, such that meaningful conclusions from the study were impossible. Feedback from those who did complete the study, however, was extremely positive.

Take-home messages: Multiple barriers exist to self-directed learning in post-graduate education despite a perceived need by educators and learners alike. Access to novel technologies fails to address these. Competency-based learning within the curriculum and allocated study time may be necessary to optimise engagement with learning opportunities.

10FF14 (1130)

Operating Room General Minimally Invasive Surgery-related Situation Simulative Teaching Program to Improve the Retention Rates of New Nursing Staff in a Hospital

Authors

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Background: Beginning at 2010 that only 50% retention rate of new staff in our operating room , based on the fact of difficulty surgical preparation and follow-up operative procedure work. It is planned to use situation simulative teaching program to make the operating room new staff guidance and diversity support helps to adapt their work to retention.

Method: The purpose of this study is to investigate the effectiveness of new nursing staff's retention rate after the intervention of new nurse practitioners through the introduction of minimally invasive surgery-related situation simulative program. During the three months prior to their employment, new nurses face a difficult role-playing process, and effective guidance and diversified support can help to adapt their work. Due to new staff without adaptation difficulties in surgical procedure preparation. This research method is experimental research design to take a total sample of 20 new staffs in the operating room of a regional hospital in New Taipei City.

Results: It fully a total of 20 new nursing staff accepts the teaching of the situation simulation film and uses the new staffs retention rate as a measure of the effectiveness of the intervention program, in the operating room, the experimental group involved in simulation teaching environment, including watching videos, discussions and simulation exercises. SPSS19.0 data archiving and analysis, mining times, distribution, percentage, average, standard deviation, p-value for statistical analysis. The results showed that: (1) After intervention of endoscopic scene simulation teaching, the experimental group's retention rate increased to 85% at 3 months, significantly better than that of 2016's 50%. (B) endoscopic scene simulation teaching intervention, the subjects consciously in the "ability to prepare endoscopic surgical objects," and "assist in the ability to work out endoscopic surgery" have made progress.

Discussion & Conclusions: The results of this study can provide references for nursing clinic teachers in pre-service education and training courses.

Take-home message: According to this project we could continue to provide training program for new nurses and thus enhance retention rate.

10FF15 (420)

Impact of clinical context on accuracy of simulator-based blood pressure assessment performed by medical students after first simulator-based learning

Authors

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Background: Although Simulation-Based Education (SBE) is an innovative educational strategy to provide medical students instruction and practice in procedures, its effectiveness in teaching correct technique and ensuring accurate readings has not yet been scientifically evaluated. We investigated whether different clinical contexts on three manikin arms would affect blood pressure readings by first-year medical students after first SBE trainings.
Method: After completion of first SBE training for taking blood pressure, 121 first-year medical students reported blood pressures for three manikin arms with three different clinical contexts. The contexts were: Case 1: healthy 20-year-old male college student; Case 2: 18-year-old female high school student diagnosed with hypotension; Case 3: 80-year-old male diagnosed with diabetes and hypertension for 30 years. The systolic (SBP) and diastolic (DBP) blood pressures were set at the same values in all three cases. Student responses with both SBP and DBP falling within ±5 mmHg of the target were considered as correct. Between-case differences of correct answers were analyzed with the Chi-squared test. In addition, the one-way ANOVA test was used to analyze the differences of (reported SBP - set SBP) in the three cases. The Bonferroni test was used as a Post Hoc Test.
Results: There were no significant differences in the proportions of correct answers among the three cases (Case 1: 52%; Case 2: 47%; Case3: 53%; p=.71). However, on average, the reported SBP of Case 2 was significantly lower than the SBPs of Case 1 and 3 (p<.05).
Discussion & Conclusions: After first SBE, about 50% of first-year students performed well. The significantly lower SBP for Case 2 implies that first-year students might be more familiar with characteristics of hypotension than hypertension from their daily experience. Therefore, repeated practice and addressing external factors that may produce a subjective result are important for skill improvement.
Take-home messages: Using SBE for first-year students is an effective method for medical students to learn and practice correct blood pressure taking skills. First-year students can be influenced by subjective characteristics that can interfere with assessing quantitative results.

10FF16 (1735)

High Fidelity Simulation in Medical Physiology: Slovak Experience

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Presenter: Silvia Hnilicova, Comenius University in Bratislava, Faculty of Medicine, Bratislava, Slovakia

Background: In Slovakia, in the first two years medical students are taught Basic Science without any clinical experience. Traditional curriculum in Human Physiology at Faculty of Medicine, Comenius University in Bratislava, Slovakia involves lectures for all students and direct teaching in small group labs, all taught in traditional classrooms.
Method: After the establishment of the Simulation Center, Institute of Physiology was the first to include high fidelity simulations in our MD program curriculum. Four clinical scenarios for 2nd Year students were developed. They involve high fidelity manikin clinical scenarios (Case of Bleeding, Asthma, Myocardial Infarction and Hemorrhagic Shock) with teaching objectives of Human Physiology course (Blood physiology, Respiratory Physiology, Cardiovascular Physiology and Integrative Physiology, respectively). They are mandatory for all students. The aim of our study was to analyze, if adding Simulation into teaching would increase motivation and improve test results among our students.
Results: 63 anonymous self-reported detailed Likert-style questionnaires (1: disagree, 5: totally agree) were collected from sample of students (n=63, 40 females and 23 males). 98% of them reported that simulation program increased their knowledge and improved results in final tests. Simulations motivated them to study Physiology (mean 4,72 ± SD 0,3), helped them in understanding clinical significance of study material (mean 4,83 ± SD 0,2), improved understanding of the topic (mean 4,59 ± SD 0,4), and enhanced critical clinical thinking of students.
Discussion & Conclusions: Simulation program in Slovakia was found to be beneficial for students by increasing motivation and improving performance, and found to be valuable addition to traditional Physiology classes.
Take-home message: High Fidelity Manikin Simulations can be used in Basic Sciences and preclinical subjects to increase motivation and help students to identify clinical significance of studied material.
Contribution was supported by project GOING GLOBAL No. 002UK-2/2016, Ministry of Education, Slovakia.

10FF17 (2599)
Changes in performance during repeated in situ simulation with three different cases

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Background: In Situ Simulation is simulation training in the actual patient care environment, using equipment and resources from that unit and involving actual members of the healthcare team (Patterson, Geis, Falcone, Lemaster, & Wears, 2013). However, little is known about whether performance improve with repetition. The aim was to investigate changes in performance of the same teams performing the same in situ simulation with three different cases.

Method: Three departments, typically involved in the medical chain of an elder patient, joined in an in situ simulation project. All cases, a SimMan 3G with pulmonary embolism, heart failure or sepsis, started in a public nursing home, before being brought by an ambulance team to a public emergency department before finally being moved by the same ambulance team to a hospital emergency unit. All cases had the same learning focus; clinical observations, clinical treatment and tasks skills based on the ABCDE-methodology, and cooperation in multiprofessional teams based on the ISBAR communication model.

Results: There was no improvement in performance from case one to case three in clinical observations skills, clinical treatment or tasks skills or cooperation skills in multiprofessional teams in unit or across unit and medical levels. There was some improvement after the first case in that the units had changed their working environments to better accommodate acute situations. The teams in the public level had some improvements by doing the clinical observations more systematically.

Discussion & Conclusions: It was surprising that there was no clear improvement from the first to the third in situ simulation. This indicates that the staff was not able to apply their newly won experience from one case to a different case. One reason may be that the staff tended to seek for medical diagnosis and focusing on initiating treatment instead of stabilising the patient.

Take-home messages: It is feasible to do repeated in situ simulation along a medical Chain.
Repetition in itself does not necessarily lead to improved performance.
More focus should be placed on learning from one case to another.

10FF18 (2499)
High-fidelity patient simulator-assisted teaching is more beneficial for active students with higher motivation and prior knowledge

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Background: Medical students feel unfamiliar in assessing and managing sick children. We aimed to study the feasibility of using high-fidelity patient simulator in teaching medical students the pediatric assessment and management, and whether or not help them accelerate learning.

Method: A whole semester year(2014.09- 2015.08) of students rotated pediatric clerkship in the National Taiwan University Hospital were enrolled. Conventional group S(-) received video/manikin-assisted teaching of primary assessment and management. Simulation group S(+) had additional 30-minutes of practice+debriefing with high-fidelity simulator SimBaby® after conventional course. Self-evaluated ability and confidence for pediatric assessment and management, attitude for learning, and appraisal/ satisfaction for this course were assessed by pre/post-course questionnaires not included into semester score. Questions were scored with Likert scale 1-5. A p value<0.05 was considered statistically significant.

Results: A total of 141 students were enrolled with 108(76.6%) questionnaires were valid. Forty-four students were in the S(-) group with 37 (84.1%) valid questionnaires while 97 students were in the S(+) group with 71(73.2%) valid questionnaires (p value=0.23). The "simulation increases learning motivation" scale pre-coursely had positive association with "this course is helpful for learning" (p value 3 pre-coursely scaled significantly higher

for "this course is helpful for learning"(4.55 v.s. 4.31, p value=0.04). For students' "overall clinical capacity" scale improvement≧2, "overall clinical capacity" scale pre-coursely had borderline association with "this course is helpful for learning" (p value=0.06) but significant association for students in the S(+) group(p value=0.03). Students with higher "overall clinical capacity" scale pre-coursely scored significantly higher in "this course is helpful for learning"(p value=0.03) after-coursely.

Discussion & Conclusions: High-fidelity simulator reduces error made during training and is feasible in the training of medical students to learn pediatric assessment and management. Students' satisfaction were high in both group. Learning and teaching method meets the learner's preference and attracts their motivation is crucial for the course satisfaction and learning outcome. Moreover, learner's prior knowledge and ability are important for gaining learning effectiveness.

Take-home message: High-fidelity patient simulator helps students to learn pediatric assessment and management, especially for those with higher motivation and prior knowledge.

10FF19 (1065)

Which Simulators do Residents Really Use? Plan a Resource-efficient Self-directed Procedural Simulation

Authors
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Background: Programs and residents have expressed a need for directed self-regulated learning of core procedures, with access to many simulators. In this type of procedural simulation, the learning environment is predetermined, however learners are allowed to move freely between the simulators and manage their time. When planning self-directed practice, educators aim to provide an optimal ratio of each type of simulator to answer residents' needs, while maximizing group size and limiting cost. However, current needs assessment methods hardly predict residents' use of simulators in this context.

Method: We designed self-directed guided procedural sessions for internal medicine residents, 51 in phase one and 24 in phase two. During six 90-minute sessions, 8.5 residents/group could use 22 simulators (69 925 $), exceeding their needs: ultrasound-guided central (6) and peripheral (2) venous catheterization, thoracocentesis (2) and paracentesis (2); lumbar puncture (6) and arthrocentesis (4). We calculated minimal ratios of simulators from time-of-use to plan resource-efficient sessions in phase two.

Results: Calculated from time-of-use (83 min in total) the optimal ratio of simulators for 10 residents were: 3.7 simulators for jugular and sub-clavian venous

catheterization (33 min), 1.5 for thoracocentesis (13 min), 1 for femoral venous catheterization (9 min), 1 for lumbar puncture (9 min), 0.8 for peripheral venous catheterization (8 min), 0.7 for paracentesis (6 min) and 0.5 for arthrocentesis (5 min). In phase two, by selecting 14 simulators based on those ratios (48 720 $), use of simulators increased from 36 to 77 %, accommodating 12 residents/group. Time-of-use remained similar (80 min), in particular for jugular and sub-clavian venous catheterization (35,1 min) and thoracocentesis (16,3 min).

Discussion & Conclusions: Measuring time-of-use of simulators is a practical method to plan resource-effective self-directed procedural simulations. Availability of central venous catheterization and thoracocentesis simulators determined group size in our cohort of internal medicine residents.

Take-home message: Calculating the time-of-use of simulators in self-directed practice will optimise material and human resources, allowing programs to strategically increase group size. Expressed as ratios, this information can be shared with other programs and inform purchase decisions.

10FF20 (1823)

Comparing the effects of "lecture" and "simulated patient" teaching methods on promoting the knowledge and performance of healthcare providers

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Presenter: Fariba Haghani, Isfahan University of Medical Sciences, Isfahan, Iran

Background: Postpartum depression is a common disorder among women in Iran. Therefore, proper and efficient training of healthcare providers for this disorder is of great importance. The purpose of this study was to compare the effects of "lecture" and "simulated patient" teaching methods in teaching postpartum depression to healthcare providers.

Summary of Work: This quasi -experimental study employed a pretest-posttest design with intervention and control groups and it was carried out in one of the health and treatment networks of Isfahan University of Medical Sciences in 2016. Eighty subjects who met inclusion criteria were selected by census method among 86 healthcare providers and divided randomly into two groups of 40. Postpartum depression was taught to the intervention group and the control group using the "simulated patient" and "lecture" methods respectively. Both groups were given a valid and reliable test before and after the intervention to measure their knowledge and performance. Data were analyzed using descriptive statistics, independent t-tests and paired t-test.

Summary of Results: In both groups, the posttest mean score was significantly higher than the pretest mean score (p<0.00001). The changes in the post-test compared to the

pretest scores were significantly higher in the intervention group (p<0.00001). Based on the survey questionnaire, 87% of the intervention group believed that the simulated patient was an appropriate teaching method and 85% preferred it to the lecture method.

Discussion & Conclusion: The results showed that the simulated patient method in teaching postpartum depression had a greater effect on healthcare providers' knowledge and performance than the lecture method and participants preferred this method to the lecture.

Take-home Messages: Based on the greater effect of simulation method compared to lecture, we recommend using this method for teaching subjects like depression to simulate real practice.

10GG: Posters: Clinical Reasoning and Reflection

Location: Hall 4.u, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

10GG1 (3511)
The impact of interactive coaching sessions on the clinical reasoning skills of medical students

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Presenter: Waleed Alghamdi, King abdulaziz University, Rabigh Faculty of Medicine, Jeddah, Saudi Arabia

Background: At the Rabigh Medical college, Saudi Arabia, fourth year medical students participate in an innovative series of clinical reasoning coaching sessions over a period of 4 months. The sessions are introduced at the beginning of their clerkship when students typically had no previous clinical exposure.
Method: This study asks whether early exposure to clinical reasoning training would improve clinical decision making. Students were also exposed to other teaching methods during the course that included lectures, bedside teaching sessions and small group discussions. In order to detect an improvement in diagnostic ability, the Diagnostic Thinking Inventory (DTI) was applied. The research hypothesis was assuming that DTI scores will be higher after the coaching sessions compared to other teaching methods as rated by the students.
In the academic year 2017, a series of 8 coaching sessions were held. At the beginning of the first session and at the end of the whole series 40 students completed the DTI. The DTI measures two main domains of diagnostic thinking: the degree of flexibility in thinking and making diagnostic decisions, and how knowledge is structured and organized in the student's memory.
The coaching sessions were designed using structured tools of clinical reasoning teaching and assessment that included the puzzle test, extended matching questions and Patient Notes with immediate feedback from the coaching faculty staff.
Results: The mean DTI scores for the coaching sessions were significantly higher in the degree of flexibility in thinking (p value = 0.011) and how knowledge is structured and organized in memory (p value = 0.044) as compared to other teaching methods.

Discussion & Conclusions: Exposure to diversified clinical reasoning coaching tools during the early stages of the clinical clerkship improves diagnostic thinking in medical students, as measured by DTI scores.
Take-home messages: Teaching clinical reasoning skills is an important component in medical school curricula. Early utilization of clinical reasoning coaching tools during the clerkship can improve medical student's diagnostic thinking skills.
Clinical reasoning skills can be objectively measured using validated tools such as the DTI.

10GG2 (3657)
Can Machine Learning Assess Students' Clinical Reasoning?....Using Natural Language Processing To Grade Medical Students' Written Assessment and Plan

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Background: Clinical reasoning (CR) is documented in the assessment and plan (A/P) section of a patient's health record. Improving CR skills among medical students can potentially mitigate diagnostic errors. Natural language processing (NLP) can be used to analyze unstructured notes. We studied the ability of NLP analyze medical students' A/P in order to assess their CR.
Method: First-year medical students (n = 157) electronically completed an A/P on a standardized case for our institution's mandatory CR course. These were graded by faculty using the validated IDEA tool, which evaluates CR outlined in an A/P through 5 individually scored categories: interpretive summary, differential diagnoses, explanation clarity, considering alternatives, and well-reasoned plan. We defined NLP features, including concept mentions, semantic types of concepts, and readability to discern which A/P elements are associated with low, average, or high IDEA scores. The NLP models were trained on 126 A/Ps from a pulmonary embolism case. They were then validated on a test set consisting of 31 A/Ps from the same case.
Results: When used to evaluate the test set, our models achieved an overall accuracy (agreement with IDEA score assigned by faculty) of 67.4% (range 65.6% to 72%, specificity (sp)). Categories: 0.84, sensitivity (sn): .67, ROC: .84) for interpretive summary; 90.6% (90%-90.6%, sp: .95, sn: .91, ROC: .94) on differential diagnosis; 72% (sp: .86, sn: .72, ROC: .77) on explanation clarity; 68% (65.6%-69%, sp: .84, sn: .68, ROC: .84) on considering alternatives, and 78% (75%-81.3%, sp: .78, sn: .78, ROC: .9) on well-reasoned plans.

These are all on par or better than weighted majority baselines expected from baseline distribution of faculty IDEA scores. Additionally, the NLP algorithm had better inter-rater reliability (IRR) when compared to prior studies on human IRR using the IDEA tool.

Discussion & Conclusions: Graded A/Ps from standardized cases have the potential to train NLP algorithms regarding appropriate Clinical Reasoning. Future studies may focus on the feasibility of using NLP for formative or summative assessment of student's CR.

Take-home message: This study offers a novel method to train NLP to reliably assesses CR presented in student's A/P.

10GG3 (971)
"5x5 Approach": New framework for clinical reasoning

Authors

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Background: Clinical reasoning is an essential competence of a physician. Dual process theory suggests that this skill is a combination of two systems: System 1 (intuitive and quick), and System 2 (analytical and slow). This theory, however, has no specific underlying method. We, therefore, propose a new "5x5 Approach". Two dimensions of 5 organs (brain, heart, lung, liver/intestine, and kidney) and 5 systems (metabolism, endocrine, blood/tumor, infection, and autoimmune) enable residents to visualize whole image of patients' pathophysiology from symptoms to diagnoses and treatments. The primary hypothesis is that 5x5 Approach improves residents' capacity for clinical reasoning.

Method: Participants were PGY1 residents (n=100). The intervention was one-hour lecture of "5x5 Approach". Forty-five residents attended a live lecture and the other 55 viewed the same lecture through a video feed. Before and after the lecture, the residents had multiple examinations which included questions about differential diagnoses for a case summary. We checked for the use of 5x5 Approach by each resident during the posttest.

Results: We divided the participants according to their scores for differential diagnoses on the pretest, which could show their knowledge level, into two groups: high-level (n=59) and low-level (n=41). In the high-level group, the change of scores from the pretest to the posttest was higher in 5x5 users (n=33) than non-users (n=26) (-1.58 (95%CI: -4.09 ~ 0.94) vs -4.92 (95%CI: -6.9 ~ -2.93), p=0.046) by repeated measures ANOVA. Use of 5x5 Approach during the posttest was related to neither the knowledge level nor the lecture style.

Discussion: 5x5 Approach is useful for residents with high-level knowledge to make differential diagnoses. That is to

say, 5x5 Approach can provide a clinical model upon which for making differential diagnoses.

Conclusion: 5x5 Approach has a potential for residents to structure knowledge systematically and to improve their clinical reasoning, particularly System 2 reasoning.

Take-home message: "5x5 Approach" which is a combination of 5 organs and 5 systems could be a new framework for clinical reasoning.

10GG4 (3510)
Effects of teaching critical thinking on medical students' skills: results from a three-year longitudinal study

Authors

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Background: Integration of critical thinking into medical school programs is crucial in order to ensure that future physicians are able to put their knowledge into practice. Research indicates that in most medical curricula there is a lack of emphasis on improving the critical thinking ability. The aim of the study was to evaluate the effects of holding a longitudinal critical thinking course on medical students' skills at Tehran University of Medical Sciences in Iran.

Method: A prospective, one-group, longitudinal pretest-posttest design was used with a convenience sample of 103 students; 91 medical students participated two times in completing a questionnaire each March from 2011 to 2014. The valid responses rate was 57%. So, sixty-eight percent of students were excluded because of deciding not to participate in the study or not completing both of the tests. The California Critical Thinking Skill Test (CCTST) was administered as pretest and posttest. Participants were asked to complete the CCTST in the week before their first educational session and posttest data were collected 8 weeks after the program.

Results: Ninety-one medical students with the mean age of 20±2.8 years participated in this study. Forty-three of them were male (%47.3) and 48 others were female (%52.7). The highest score in both pre and post-test was for the deductive part. While the lowest mark in both is for analysis. We have a positive difference in all the fields but the difference is not significantly meaningful for inference and deductive part (P-value= 0.287 and 0.421). We found no significant difference between the scores of male and female participants in any of the fields (P=0.77).

Discussion & Conclusions: There was no significant difference between the scores in male and female

students. Students performed the best in the deductive part of the questionnaire and their weakest skill was analysis in both pre- and post-tests. A similar study showed no difference between genders in total scores and a stronger deductive skill among others.

Take-home message: Teaching clinical thinking to undergraduate medical students could improve their critical thinking skills especially in analysis, inductive and evaluation parts.

10GG5 (3369)
Developing Interviewing and Clinical Reasoning Skills with a Novel Low-Cost Virtual Patient Simulator

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Background: Good interview skills are crucial in medicine. In our medical school, interview skills are taught and developed during physical examination Clinical Skills (CS) sessions, however these group interviews do not allow students to access their own unique knowledge base, nor do they allow students to reflect on their clinical reasoning patterns. Yet Vygotsky's zone of proximal development stages, widely recognized in medicine, requires that self-regulated learning must occur for effective skills development.

Method: A low-cost virtual patient history-taking simulator operating in PowerPoint 2013 with custom Visual Basic programming was piloted during a Respiratory Exam session. The simulator mimicked a Jeopardy format, incorporated multimedia, and required no prior preparation by students. It was used by student dyads playing the role of interviewer and patient. Only the patient-student was able to see the computer screen and relied on the software to provide answers to questions asked. The program provided feedback to the interviewer-student regarding areas that should have been addressed but were missed.

Results: A post-intervention anchored Likert-scale survey was completed by 15 students (100% response rate) who used this software. Student responses indicated the software was of educational value (100%), a useful tool for practicing history-taking (86%), and an efficient use of their time during the session (93%). Overall, 93% requested that this software be part of future CS sessions.

Discussion: Dyad training and use of virtual patients are well researched, widely accepted, and utilized as viable teaching methods within medical education. This novel tool maximized students' CS time and enabled acquisition of clinical reasoning skills through self-learning and the application of previous skills such as chest x-ray interpretation.

Conclusion: Students valued using this novel simulator to practice interviewing in an individual, guided manner, with immediate feedback, and without need for additional preceptor or preparation. Future studies will examine assessment outcomes following the use of this tool.

Take-home message: A simple, low-cost virtual patient history-taking simulator is an efficient and useful way to increase interviewing and clinical reasoning skills in a way that promotes individual expertise development while incorporating differential diagnosis, data interpretation, and management skills.

10GG6 (1011)
A debate forum curriculum for teaching critical thinking skills to medical students

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Presenter: Chin-Sheng Lin, National Defense Medical Center, Taipei, Taiwan

Background: Critical thinking (CT) is defined as the use of higher cognitive skills to determine appropriate action, which is essential for health care professionals and medical students. However, evidence supporting the effectiveness of strategies for developing CT remains scarce, especially in medical students. We designed a novel forum curriculum to teach CT to medical students through academic debate.

Method: In our study, 131 fourth-year medical students were recruited and divided into 10 groups. The developed forum curriculum included a background knowledge test, student group debate, expert debate demonstration, and discussion. Before and after experiencing the forum curriculum, students completed a questionnaire that measured learning attitude, learning motivation, collective efficacy, and CT. Students also answered open-ended questions after experiencing the forum curriculum. During the forum curriculum, both teachers and classmates evaluated group debate performance. We analyzed the differences in the pre- and post-forum questionnaires and group debate scores using paired t tests.

Results: The overall satisfaction with the forum curriculum was 8.8 points (standard deviation = 1.2) out of 10 points. The mean scores of learning attitude, learning motivation, collective efficacy, and CT, as measured after the forum curriculum, were significantly higher than those measured before the forum curriculum ($p < 0.001$). In the regression model, we found that participants who had experience of team-based learning (TBL) classes had higher CT scores

than those who had no experience of TBL, with a mean difference of 1.53 points [95% CI (0.51, 2.54), p < 0.05]. Moreover, the mean of previous academic grades was a significant predictor of debate performance score after adjustment for potential confounders.

Discussion & Conclusions: Our study demonstrated that academic debate as part of a forum curriculum may help medical students develop CT skills, which will equip them to deal with clinical uncertainty. Further large-scale, randomized studies are necessary to confirm the beneficial effects of the forum curriculum.

Take-home message: We proposed a promising forum curriculum to teach CT by debate, which not only significantly improved curriculum satisfaction, but also enhanced learning attitude, learning motivation, collective efficacy, and CT of medical students.

10GG7 NOT PRESENTED

10GG8 (1976)
A scoping review of clinical reasoning research conducted on Asian health professions students and practitioners

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Presenter: Ching-Yi Lee, Chang Gung Medical Education Research Center, Taoyuan, Taiwan

Background: Clinical reasoning is "the thought process that guides practice". Psychological research highlights cultural differences in thinking and reasoning between Asian and European American countries. As the majority of clinical reasoning studies have been undertaken in Western contexts, we aimed to clarify the status of clinical reasoning research in Asian countries.

Method: A scoping review of clinical reasoning research was undertaken. Three databases were searched. Inclusion criteria: English or Asian language; full text available; January 2007 to December 2016. Search terms: clinical reasoning, thinking process, differential diagnosis, decision making, problem-based learning, critical thinking, heath care profession, institution, medical students, nursing students.

Results: 14,255 references retrieved from 86 key journals. First: two researchers screened abstracts for duplicates and criteria. Second: from remaining 177 manuscripts, 1 conference and 2 without full text were excluded. All 174 references were coding with context and divided into seven themes, and the majority is evaluation of teaching. The numbers of publications almost doubled at the interval from 2011 to 2012 (n=11; n=20); then steadily increased (23 average yearly publications). The majority are published in Nurse Education Today. BMC Medical Education is secondly highly published journal. Evaluation of teaching using problem-based learning is the most researched topic.

Discussion & Conclusions: In our scoping review we illuminate key concepts and sources of evidence to fully grasp the potential of further research in clinical reasoning for local needs. Knowing the current status of research in Asian countries may assist medical education system to improve current status of clinical reasoning research.

Take-home message: Clinical reasoning in Asian countries has developed in recent years. Rigorous research in this field is required for us to engage in meaningful dialogue with researchers internationally.

10GG9 (1331)
Using Effective Teaching to improve clinical reasoning in pre-clerkship curriculum

Authors
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Chia-Der Lin
Yih-Ming Yang

Presenter: Peiying Pai, China Medical University Hospital, Taichung, Taiwan

Background: To improve the effectiveness of clinical diagnosis course in the fourth academic year (pre-clerk year) according to the effective teaching principles and the new teaching steps and methods. Special attention will be given to case-oriented clinical skills teaching and learning to guide the effective learning in clinical reasoning.

Method: Through our previous study and practical training in developing clinical reasoning methods, we use clinical reasoning group discussion in combination with clinical diagnostic methods to guide students learning clinical diagnosis. In fact, this is physician's general clinical thinking and problem-solving process. Effective teaching methods to be used include: (1) case-oriented teaching, (2) the construction of the concept map (Concept map), (3) Buzz group discussion (4) group of interactive exercises and discussion, (5) reflective learning, which will focus on case-oriented clinical skills teaching and learning, to guide clinical skills and clinical reasoning of effective learning. We applied The California Critical Thinking Disposition Inventory-Chinese Version (CCTDI-CV), a total of 70 questions, tested changes in students' critical thinking traits before and after intervening in the course.

Results: After two semesters of clinical medical diagnostics and clinical reasoning, we performed two tests, the first pretest (September, 2016) and the post-test (June, 2017), using paired sample pair-T statistical analysis. The only statistically significant analysis of the category is "confident in reasoning" (p <.05).

Discussion & Conclusions: This clinical course is expected to inspire and guide medical students to learn critical thinking and modern clinical reasoning. Case-oriented clinical skills teaching and learning can lead students to active learning and activate the learning process. Thus,

students have the ability to learn actual application on the patient and to achieve effective goals of clinical education. Students learn in different ways (more effective) and find out their lack of ability in clinical reasoning after the intervention.

Take-home message: Using effective teaching method with case-oriented clinical skills teaching and learning to guide clinical skills and clinical reasoning of effective learning lead students to active learning and activate their learning process.

10GG10 (1346)
Reflecting on reflection: medical students' perspectives

Authors
Nipaporn Hanpitakpong, Buddhachinaraj Medical Education Center, Phitsanuloke, Thailand

Presenter: Nipaporn Hanpitakpong, Buddhachinaraj Medical Education Center, Phitsanuloke, Thailand

Background: Reflection is an important process for medical students to create lifelong learning. Many instructors facilitate students to do reflection in various ways. Little is known about medical students' perspectives on reflection. The objective of this study was to explore the medical students' attitudes toward their writing reflection.

Method: The online questionnaires (5-point Likert scale) were administered to 48 fourth-year Buddhachinaraj medical students to survey about their satisfaction, benefits and feeling of burden to their writing reflection. The data were analyzed by using percentage, mean, and standard deviation.

Results: The total of 40 medical students (83% response rate) participated the study. The findings showed overall satisfaction of writing reflection was 82.5%. The highest satisfaction was reflection about taking care of patients (3.87±0.78), followed by personal matters (3.60±0.84) and generalize matters in daily life (3.50±0.96). The student' preferences to the forms of reflection were as follows: handwritten paper (3.77±0.78), Line@ mobile application (3.75±1.08) and email (3.55±0.78). The students gained the benefits by reflective learning from mistakes (3.97±0.89), pondering the past events (3.95±0.95), and understanding human being (3.90±1.03) whereas the least benefits was venting their feelings (3.52±1.01). Many students thought writing reflection were their burden (3.37±1.05) and should be done once a month.

The medical students (77.5%) highly satisfied with the teachers' feedback (3.82±0.87) and highly gained benefits (3.77±0.89) from the feedback, especially through talking with their teachers in a reading portfolio hour (3.75±0.86) and talking via Line@ mobile application (3.72±1.08).

Discussion & Conclusions: The majority of medical students satisfied with writing reflection about taking care of patients which encouraged them to learn from their mistakes and pondering the past events. They mostly satisfied with the writing reflection via handwritten paper and Line@ mobile application because of being simple, convenient and able to receive feedback from teachers

quickly. However, since they had to study hard, it should be done once a month.

Take-home message: Reflective practice is very useful learning process in the medical student's perspectives. However, the teachers should recognize about the effect of reflection fatigue to the medical students.

10GG11 (55)
Educational impact and benefit of clinical apprenticeships in West Africa on UK graduate entry medical students

Authors
Jon Morris, Swansea University Medical School, Swansea, UK
Paul Jones, Swansea University Medical School, Swansea, UK
Steve Capey, Swansea University Medical School, Swansea, UK

Presenter: Jon Morris, Swansea University Medical School, Swansea, UK

Background: Swansea University has a well-established link with the Edward Francis Small Teaching Hospital, Banjul, The Gambia. Annually 20 graduate entry medical students take part in a clinical apprenticeship in the region, experiencing all aspects of hospital, rural, traditional and public health medicine whilst simultaneously becoming immersed in the local culture.

Method: Students complete a reflective writing assignment immediately after the apprenticeship which was analysed, along with that of a supervising tutor's reflective journal. The aim of the project was to assess what the students gained from their participation and whether the facilitator's role enhanced their learning opportunities.

Results: More than 100 student responses were analysed with multiple categories noted. All students commented favourably on the experience citing clinical exposure and local culture as the most positive outcomes. Almost all students had the desire to contribute more to the local population in a health care setting and felt that it would make them a better doctor in the future. A small number of responses stated that cultural and organisational differences hindered the overall learning experience but that the facilitators approach had bigger impact on students' experience. Further evaluation of students who have taken part in the apprenticeships would be useful.

Conclusion: Gambia Link apprenticeship program is a valuable one with varied student experiences, but overwhelmingly the exposure to different clinical presentations in a resource reduced environment whilst immersed in an unfamiliar culture is a rewarding and enriching one. Knowledge on whether it enhances clinical preparedness for foundation doctors or increases the likelihood of working in a similar environment in the future would require long term follow up. Educational impact and long term benefit of placements such as these is difficult to measure as influence is personalised and introspective.

Take-home messages: Students found the experience to be of great educational benefit to them and facilitator role can have big impact on student experiences. As some students expressed frustration, expectations may need to

be managed prior to placements with problems managed effectively by the facilitating tutor as they happen.

10GG12 NOT PRESENTED

10GG13 (608)
Perks and Woes: Integrating Reflective Practice into Family Medicine Residency Program in Qatar

Authors
Noora Al-Mutawa
Mohamed Hashim
Saleh Attal
Hisham Elmahdi

Presenter: Noora Al-Mutawa, Primary Health Care Corporation, Doha, Qatar

Background: Reflective practice is increasingly used in medical education to enhance self-awareness, enable better understanding of new learning experiences and assess one's decision-making skills. In 2015, the Department of Family and Community Medicine started to integrate reflective practice into the training curriculum. The aim of this study was to assess implications of introducing reflective practice into Family Medicine Residency Program as perceived by residents in Qatar.
Method: An action research using cross-sectional study design was done from July 2015 to June 2016. Purposive sample included 26 residents (PGY1, PGY2 and PGY3) and questionnaires were provided during orientation session on reflective practice. Residents chose challenging cases from the continuity of care clinic, reflected on the cases and discussed them with peers and faculty mentors. Following reflective case-based activities, residents submitted essays using Gibbs model to their e-portfolios. Faculty mentors provided formative feedback on residents' progress, covering strengths, exploring development needs and agreeing on action plans. Data was analysed using Stata Intercooled 9.0 software.
Results: More than 80% of residents thought sessions were useful and enjoyable. Over 90% believed that engaging in reflective practice would boost their interest in Family Medicine, improve patient outcomes and promote continuous learning throughout their career. However, 27% thought they did not have time to reflect on their experiences. Results generally showed significantly higher positive influence of exposure to other residents' experiences for PGY2 and PGY3 compared to PGY1. Assessment of written reflective case-based essays showed moderate level of reflective writing skills with slight superiority for PGY2.
Discussion & Conclusion: By integrating reflective practice into Family Medicine Residency Program, residents were equipped with enhanced knowledge, skills and attitudes needed to improve their insight about strengths and weaknesses, and develop action plans to take better care of similar cases in future.
Take-home message: Whether involvement in reflective practice will lead to better and sustainable improved patient outcomes, longer-term studies are required.

10GG14 (2652)
Can a linguistics software program be used to evaluate emotional content of reflective writing?

Authors
Diluxshy Elangaratnam, Imperial College, London, UK
Lubna Ghani, Imperial College, London, UK
Nina Salooja, Imperial College, London, UK

Presenter: Diluxshy Elangaratnam, Imperial College, London, UK

Background: The GMC (2013) highlights the value and importance of reflective work. In literature there is a lack of clarity about the role and importance of emotions in reflective work. We investigated the use of emotional language in the reflective writing of medical students to inform our teaching on the subject.
Method: We have investigated 50 reflective accounts (25 female, 25 male) created in the context of a teaching skills course. Students were asked to write about something that impacted on them during the week. We compared two different methodological approaches. In the first, two co-researchers coded use of emotion using the wheel of emotions: trust, anger, sadness, surprise, joy, anticipation, disgust and fear (Plutchik, 1980). In the second, a software program: Linguistic Inquiry Word Count (LIWC2015) was used to calculate percentages of words used in various categories including anxiety, anger, sadness.
Results: Overall expression of emotion was low as measured by either method. Textual analysis by co-researchers found females [10/25] more likely to express emotion than men [4/25]. Amongst the females, 20 expressions of emotion were used including joy [6], trust [5], fear [4], sadness [2], surprise [2] and disgust [1]. In contrast, males there were 7 expressions of emotion: anger [3], sadness [2], joy [2] and disgust [1]. LIWC2015 also identified females were more likely to express emotions than males. LIWC2015 indicated anxiety was more frequent in females [8/25 vs 5/25] and anger more frequent in males [3/25 vs 1/25].
Discussion & Conclusion: There were several discrepancies between the calculations of emotional language between the co-researchers and LIWC2015. The latter identified 5 examples of anxiety –related words in male students, none of which were considered to express anxiety by the co-researchers. Similarly an example of anger-related language identified by LIWC2015 in a female student was categorized as despondency/sadness by both co-researchers. Use of emotional language was low in this study.
Take-home message: Although the LIWC can analyse large data sets in short periods of time compared to manual review by researchers it is limited in its ability to identify individual emotions.

10GG15 (769)

Effect of structured reflection on accuracy, confidence and diagnostic calibration of medical students

Authors

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Presenter: Galileu Costa Filho, Universidade Jose do Rosario Vellano, Belo Horizonte, Brazil

Background: Diagnostic calibration, the relationship between diagnostic accuracy and confidence in that accuracy, may influence diagnostic performance.[1] Deliberate reflection upon initial diagnoses provides insight on performance and may therefore improve diagnostic calibration. Although deliberate reflection has been shown to improve diagnostic accuracy,[2,3] its effect on diagnostic calibration has not been assessed yet. This experiment evaluated the impact of deliberate reflection on diagnostic calibration in dermatological cases.

Method: Sixth-year medical students from Universidade José do Rosário Vellano, Brazil, were randomly allocated to either a reflection group (RG) or a control group (CG). In both groups, students worked with the same 12 dermatological images, one-by-one. First, students provided an initial diagnosis and their confidence in that diagnostic. Subsequently, while RG students reflected on the case using a structured tool, CG students performed a time-filler activity. Finally, all students provided a final diagnosis and confidence in that diagnosis. Outcome measurements: diagnostic accuracy, confidence, and diagnostic calibration, overall and stratified by case difficulty.

Results: 61 students participated (RG: 33; CG: 28). Reflection increased diagnostic accuracy ($p < .01$) but did not affect confidence ($p=.228$) or calibration ($p=.197$).

Discussion & Conclusion: Calibration was associated with case difficulty, with both groups showing more overconfidence when solving more difficult cases ($p < .001$). Deliberate reflection increased diagnostic accuracy in dermatology, which had been not shown yet, but didn't affected confidence and calibration. Calibration was worse while solving more difficult cases, and reflection was not sufficient to improve it.

Take-home message: A single intervention using deliberate reflection didn't improve diagnostic calibration possibly due to its lack of effect on diagnostic confidence.

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3. Mamede S, van Gog T, van den Berge K, et al. Effect of availability bias and reflective reasoning on diagnostic accuracy among internal medicine residents. JAMA. 2010;304(11):1198-203.

10HH: Posters: Student Characteristics

Location: Hall 4.u, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

10HH1 (3020)
The Effect of Attitude, Motivation, and Anxiety on the Academic Performance of Medical Students

Authors
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Presenter: Walaa Elsekaily, Alfaisal University, Riyadh, Saudi Arabia

Background: A students' receptivity to learning new information, diligence and self-discipline, and willingness to exert the effort to complete tasks and requirements, along with the level to which they worry about their performance, all play a role in their academic performance. This study looks at and compares all these variables and correlates them with academic achievement.
Method: A validated online survey was administered to medical students from years 1 to 5. Students chose their preferred answers on a 5-point Likert-scale (1 = not at all typical of me, 5 = very typical of me) on topics of determination, character, and discipline. 18 Questions were split into sub-categories of attitude towards academia, anxiety factors, and motivational factors. Additionally, each participant was required to provide their gender, current GPA, and high school education system that they graduated from.
Results: 109 responses were collected. Students showed poor anxiety management skills all round, regardless of gender or academic year. In particular, the fear of failing (83% of students) and panicking during test taking (72%) scored very high. Attitude and motivation towards Medical subjects and learning in general also scored poorly, with many students (80%) agreeing that they dislike most of the workload that comes with being a medical student. There was a significant difference in motivational subscales, with highly-motivated students having a much higher GPA (3.60 vs 3.51). Several other anxiety, attitude, and motivational factor variables were compared.
Discussion & Conclusion: Academic motivation is quite low, which may be due to the constant stress the students are faced with. Disciplined students with set goals outperform others significantly. Those under-performing must be helped and given adequate resources to combat anxiety and other detrimental factors.
Take-home message: Lack of adequate resources to help students with coping mechanisms towards academic anxiety and stress may be leading to reduced motivation among students. Classes on how to manage anxiety, and programs that support students with identified deficiencies can adequately help support them perform to their desired level.

10HH2 (3456)
Motivational Advising: Utilizing the theory of Motivational Interviewing to facilitate and engage intrinsic motivation within our learner in order to change behavior

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Amy Fleming, Vanderbilt University, Nashville, USA
Sharon Kileny, University of Michigan, Ann Arbor, MI
Chris Golden, Johns Hopkins University, Baltimore, USA
Tom Klink, Vanderbilt University School of Medicine, Nashville, USA
Kendra Parekh, Vanderbilt University School of Medicine, USA
Meg Benningfield, Vanderbilt University, Nashville, USA

Presenter: Amy Fleming, Vanderbilt University School of Medicine, Nashville, USA

Background: Motivational interviewing (MI) is a method of counselling that utilizes a patient's own motivation to affect personal change. While applied routinely and successfully in the management of medical conditions (e.g. substance abuse), employing MI techniques to engage medical learners (termed motivational advising [MA]), may help learners in the health professions overcome professional and/or personal challenges limiting their career development. MI has been gaining momentum with increased discussion in the medical literature and broader implementation in provider-patient interactions. MI purports that patients approach care with different levels of readiness to change their behavior. Learners, particularly learners facing challenges, may benefit from a similar style of advising, utilizing techniques of MI to help the learner make internally motivated decisions to change.
Method: Medical educators from four academic medical centers developed an educational module focused on teaching fellow educators MI theory and techniques for MA. The innovative, interactive workshop used techniques including role-play, think-pair-share, large-group discussion, didactics, and small-group work. Participants actively practiced MA delivery techniques and observed role-play videos of a traditional advisor-advisee interaction as well as an MA-focused engagement.
Results: In a survey of 48 educators attending the workshop at two medical conferences, over 80% of respondents demonstrated an interest in learning more about MA. Additionally, over 60% of respondents indicated that they would seek opportunities to practice and/or implement MA with their advisees. Knowledge of the technical components of MA (techniques of MA, change talk, and sustain talk) also increased significantly ($p<0.001$) in pre-/post-test analysis.
Discussion & Conclusion: This educational module introducing the concept of MA was well-received by medical educators and viewed as a valuable tool in advising medical learners, particularly those

demonstrating ambivalence or difficulties making change. The participants were also provided tools to replicate this workshop in other settings with or without an expert in MI techniques. Although the workshop has been conducted with physicians involved in medical education, it would be applicable to other health professionals involved in advising trainees such as nursing, dentistry, pharmacy, or veterinary medicine.

10HH3 (2066)
Factors affecting motivation toward learning in clinical years

Authors
Nattaphorn Sriwicha
Chaowaphon Ittiphanitphong

Presenter: Nattaphorn Sriwicha, Sawanpracharak Hospital, Nakhon Sawan, Thailand

Background: Medicine is the art, science and practice of the diagnosis, treatment, and prevention of disease, so studying in medicine is extremely challenging for all students. Medical students need to have proficient medical knowledge, take responsibility and be good at working with people. The path is quite difficult and take time, therefore motivation and passion are needed to overcome many obstacles and succeed in medical courses. The aim of this study is to explore the factors that affect student's motivation in learning medicine, and to study the relationship between student motivation for learning and influencing factors including those arising from personal, familial and workplace environments.
Methods: A cross-sectional analytic study was conducted among medical students at Sawanpracharak Hospital,Thailand, from March - September, 2017. A total of 87 male and female medical students in the last three clinical years participated in the study by completing a questionnaire.
Results: There were a total of 87 male and female medical students in the clinical course.41 students were found to have high motivation (47.1%) while 46 students had low motivation (59.2%). The factors that most significantly affects motivation in studying medicine are future orientation and relationship between medical students and attending staffs. Medical students who are psychologically characterized by future orientation have high motivation while studying, meanwhile medical students who have a negative relationship with attending staffs have low motivation to study. Age, gender, type of personality, faith in institution, expectation of parents, physical environment of workplace and relationship between colleagues do not affect on motivation in studying medicine.
Discussion & Conclusion: The factors affecting student motivation in clinical medical students of the medical education center at Sawanpracharak hospital are future orientation and negative relationship between medical students and attending staffs.
Take-home messageS: Negative relationship does not affect only motivation but also the quality of life of medical student. This feeling impacts their professional life, personal life and overall happiness, and can prevent reaching success in the future. We should transform negative relationships to be positive relationships to increase motivation and enhance the ability to study medicine.

10HH4 NOT PRESENTED

10HH5 (3372)
Adaptation and validation of the Academic Self-Regulation Scale (SRQ-A) for measuring motivation in Portuguese medical students

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Manuel João Costa, School of Medicine, Life and Health Sciences Research Institute (ICVS), University of Minho, Braga, Portugal

Presenter: Rafael Vasconcelos, School of Medicine, University of Minho, Braga, Portugal

Background: Students' motivation is seen as a valuable resource for learning and academic performance. The Academic Self-Regulation Scale is a 16-item self-report tool, based on the Self-Determination Theory (SDT), measuring intrinsic motivation, external regulation, introjected regulation, and identified regulation.
Method: This study assessed the psychometric properties of a freshly developed European Portuguese adaptation of the SRQ-A in a sample of 781 Portuguese medical students covering all 6 undergraduate years. Three models (original four factors, two factors of autonomous vs. controlled motivation, and a second-order model) were analysed through confirmatory factor analysis.
Results: The response rate was 59% (460 students). Item sensitivity was suitable. The second order model exhibited better fit (CFI=.89; GFI=.90; RMSEA=.09 [.08-.10]) than the other two tested models. Factor loadings were generally significant (.40-.88). Good reliability was found for the total scale (Cronbach's α =.75; CR = .94) and factor (Cronbach's α =.78-.79; CR=.78-.82) scores.
Discussion & Conclusion: The translated tool showed satisfactory psychometric properties, validating its use to

assess the motivation of Portuguese medical students in a scalable way, either in a subject-specific fashion or in a broader analysis. Given that the original SRQ-A is one of the main instruments used to measure motivation in the educational context, having a validated translation allows for regional, national, and international studies to be done in Portugal in this research field.

Take-home messageS: The European Portuguese adaptation of the SRQ-A is a reliable and valid tool to assess motivation in Portuguese medical students. Thus, it will enable motivation-related medical education research in Portugal, including its association with selection processes, curriculum structure, teaching, and assessment styles, as well as clinical training, extra-curricular involvement, stress, and burnout among medical students.

10HH6 (2425)
Curiosity drives learning, a simply inspirational way for medical students' research engagement through extra-curriculum activity

Authors
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Panadda Rojpibulstit

Presenter: Preecha Wanichsetakul, Faculty of Medicine, Thammasat University, Pathumthani, Thailand

Background: To encourage medical students to participate in an original research in response to global standard medical curriculum accreditation criteria is started since 2015. It was kicked off without expanding the curriculum through "Dome-Med-Star (DMS) extra-curriculum activity Project". This study therefore aims to (1) retrospectively review of two-year management, and (2) to demonstrate the outcomes and students 'satisfaction.

Method: DMS project started annually with 2-month period processes as followed: ignitable-, voluntary students' recruitment-, inspiration-, mapping-, proposal development-, and proposal validation- phase. Afterward, the students would be involved in experimental-, follow-up - and presentation-phase. After arrangement, the number of (A) participants, (B) projects, (C) awards, (D) poster/oral presentation and (E) manuscript were collected. The students were then rated two parts of self-developed questionnaires with a five rating scale. The first part comprised of 10-question asking about what they got after attending this project with an open-ended question. The second one was 6-item emphasized on the satisfaction/benefits of attending. Data was analyzed using mean SD and statistical analysis by pair t test.

Results: For two-year approach, an increasing number of (A) (24 to 27) and (B) (10 to 11) was presented. Interestingly, the number of (C) (0 to 5), (D) (3 to 18) and (E) (1 to 5) were dramatically illustrated. The remainders is in the process of finalizing the abstract/manuscript. From 100% response data, comparing before and after attending this project, critical thinking skill, learning the study design, taking role as clinical researcher and gain more confidently were clearly the most drive that students' were ignited (p-value <0.05).

Discussion & Conclusion: This report demonstrated the easiest way to engage medical students in research productivity. Neither intercalated Ph.D. degree nor mandatory in-curriculum research was needed. International presentation opportunities were providing the good memories, the good lesson and modelling for the juniors to follow as well.

Take-home message: To upsurge medical school graduates to be able to use research skills to influence their practice can be successfully achieved through extra-curriculum arrangement. Though, it might be got better to improve the recruitment process to uphill percent of students' involvement.

10HH7 (3120)
Student Motivation at a School of Health Sciences

Authors
Asta B. Schram, University of Iceland, Reykjavík, Iceland

Presenter: Asta B Schram, University of Iceland, School of Health Sciences, Reykjavík, Iceland

Background: It is important that health care students are motivated to learn. However, some students lack motivation, especially in difficult courses. The MUSIC Model of Motivation was developed by Jones (2009) through the study of motivation theories and research. It is comprised of five factors that have been shown to be highly correlated with motivation. The acronym MUSIC spells out the factors: M for eMpowerment, U for Usefulness, S for Success, I for Interest, and C for Caring. The MUSIC Model of Academic Motivation Inventory (MMAMI) measures students´ perceptions of these five components and was developed to assist teachers in assessing their students motivation with the goal of reflecting on, and subsequently, modifying their teaching strategies.

Method: An Icelandic translation of the inventory was submitted to students at two departments at a school of health sciences at a university in Iceland. The inventory had been translated to Icelandic, translation equivalence acquired, and factor structure confirmed through back-translation, CFA and model tests (Schram & Jones, 2016). Four hundred and twenty responses were received.

Results: Students´ ratings in both departments followed a pattern: On a Likert scale from one to six, students rated the caring aspect the highest (m=4.97). Most perceived their teacher as helpful and caring. Usefulness was the second (m=4,66). Most believed courses were or would be useful. Next was success (m=4.43). Students believed that they could be relatively successful. Interest came second lowest (4.21). Students thought the coursework was interesting but found it hard to keep attention. Empowerment had the lowest mean (m=3.98). Students did not experience a high level of autonomy in the classroom.

Discussion & Conclusion: The results inform the teacher of his/her performance and s/he can respond accordingly by explaining why the course is useful, giving more support to promote success, making lectures more interactive or use cooperative learning to increase interest, etc.

Take-home message: The inventory is useful both for researchers to assess motivation, in general, and teachers to assess their students´motivation. The inventory is free and can be found at www.themusicmodel.com

10HH8 (2662)
Medicine in Portugal – perceptions and motivations of medical students

Authors
Joana Martins
Isabel Fonseca
Daniela Gomes
Idalina Beirão

Presenter: Idalina Beirão, Portugal

Background: The motivations underlying the choice for learning medicine are essential components for medical education success and an important predictor of learning, academic success and well-being of medical students. There are a lot of reasons why people chose to study Medicine, ranging from personal calling to familiar pressures. The aim of this study was to evaluate the motivations underlying the choice and the study of medicine and the expectations for the course of Portuguese students.
Method: Based on the literature, a questionnaire about students' backgrounds, their motivation for and interest in the study of medicine and their career intentions was developed and applied to students of the first, third and sixth years of medicine at one medical school in Portugal. Data was analyzed with SPSS using descriptive statistics.
Results: Of the total of 540 students, 324 (60%) answered the questionnaire. Of the 324 students, when asked about what motivated them to study medicine, 30.9% answered "fit my interests" and 29% answered "providing care for people with diseases". When asked about the advantages of studying medicine, the majority replied that it is to acquire knowledge about the human body and diseases and 24.4% reported working with people. As a disadvantage, 43.2% answered "too much to memorize". Almost half of sample (49.4%) believes it is necessary for medical school to offer education in subjects outside the medicine field and 42.3% of students in the third and sixth year believe that some areas in medicine at ICBAS could be expendable.
About career intentions, 25.3% elect hospital clinical fields and 25.3% medical-surgical careers. In the future, most students aspire to work in a public hospital. The majority of students (65.1%) believe that the greatest merit of being doctor is the humanitarian nature of work.
Conclusions: Thy study allowed to know the perceptions and motivations of students to choose Medicine and became a doctor in a Portuguese medical school. This knowledge will allow the development of strategies to enhance academic performance.

10HH9 (1079)
Incorporation of resilience into medical school curriculum

Authors
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Presenter: Chaya Prasad, Western University of Health Sciences, Pomona, USA

Background: Burnout, depression and suicide rates are on the rise in medical students. Current curriculum fails to address this difficult topic. The author, having personally faced burnout, was determined to share her experience and make a change to the medical school curriculum. Integration of a resilience course may be an effective intervention and allow students to be proactive.
Method: A resilience course was integrated into the medical school curriculum for OMS 1 through 4 students. Sessions included definitions, signs and symptoms and data regarding burnout in the medical profession, with the author sharing her personal story of burnout. Resiliency building tools including time management, nutrition, exercise, mindfulness activities. Peers who had faced burnout and had subsequently developed resiliency skills shared their experiences. Students completed pre and post session surveys.
Results: 300 students, at each grade level participated. Prior to the sessions students were more familiar with the term burnout (95 %) than resilience (82 %). This number increased to 99 % and 95 % at the end of the sessions. 72 % could self-identify burnout prior to the sessions and 99 % after sessions. 50 % did not know how to address a burnout prior to sessions. After presentation 85% were actively taking proactive steps. 68% of students wanted resiliency topics to be incorporated into curriculum. OMS 4 students stated that the sessions would have been more beneficial if offered at start of medical school. Free text comments were emotional and heartfelt.
Discussion & Conclusion: Stress and burnout are on the rise in medical students, with carry over into residency training. Education and provision of resiliency building skills is the first step towards wellness. We successfully incorporated a course on burnout/resiliency into our medical school curriculum. Student knowledge level rose significantly with education with students taking proactive measures. Additional efforts, including longitudinal studies, enhanced student participation and institutional support are necessary to better understand long term effects.
Take-home messageS: Medical institutions are socially accountable to foster resilience during medical school continuum. Integration of wellness lectures is the first step towards achieving this goal.

10HH10 (2404)
Enhancing Healthcare Undergraduates' Emotional Intelligence through a Psycho-educational intervention

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Presenter: Mandakini Mohan, International Medical University, Kuala Lumpur, Malaysia

Background: Emotional Intelligence (EI) is defined as the ability to recognize, understand, and manage emotions while Transactional Analysis (TA) is a model for understanding human behavior by analysing ego states. The objective of this study was to compare the baseline, 4-week and 6-month follow-up (EI) scores between healthcare undergraduates receiving a psycho-educational training (PET) based on TA, and those receiving information leaflets alone. Participants' experience and impact of the intervention was also evaluated.
Method: A four week PET programme was designed by two education psychologists. Each weekly 90-minutes session allowed discussion on concepts of EI and TA, role-plays and experiential sharing. Thirty-four Health professions students at one university volunteered to participate, with 17 receiving the PET and reading material on EI and TA while 17 receiving only the reading material.
Results: All participants completed the 16-item Wong and Law EI Scale at baseline, at completion of the 4-week training and at 6 month follow-up. The paired T-test was carried out to test for differences in EI scores. Following training, intervention participants were interviewed which was audio-recorded, transcribed and analyzed.
The mean EI score at baseline was 72.9 (SD=14.0) for the intervention and 82.4 (SD=7.7) for the control group, and 88.5 (SD=11.3) and 86.5 (SD=8.6) for the 4 week and 6 month follow-up respectively. Paired samples test indicated that the mean difference between baseline and follow-up EI scores for the intervention group (15.6, SD=12.0, p=0.001) was higher than the mean difference for the control group (4.06, SD=5.7, p=0.10). Participants found that they had improved in all four domains of EI through this training.
Discussion & Conclusion: Various EI-enhancing interventions have been reported. The design of the intervention in the present study, based on well-established psychological and behavioral concepts, accounts for its strength in enhancing EI. The use of the controlled trial study design and tested EI measurement provided strong support for the findings.

The results suggest that EI scores in undergraduates may be enhanced through a psycho-educational training. However, further research is need to test this intervention in different samples and also its longer term effect.

10HH11 NOT PRESENTED

10HH12 (588)
They Like Me, They Like Me Not? How Medical Students Can Gain Trust from Residents and their Teams during Clinical Education

Authors
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Presenter: Vijay Rajput, Ross University School of Medicine, Miramar, Florida, USA

Background: Trust between students and their supervising residents and attending physicians is key to an effective clinical education in patient care environment. Medical students are constantly trying to fit into the clinical hierarchy and organized chaos that predominate teaching hospitals. In an era of inter-professional education the entrustment of medical students within these teams during their clinical education has not been extensively studied.
Method: We conducted a narrative review of the current literature in the English language regarding trust and autonomy in medical education. We analyzed the literature from the last two decades and explored the role of entrustment in medicinal students. Narrative experiences and observations during clinical clerkships were also taken into account in an attempt to evaluate factors that enhance the engenderment of trust.
Results: Lack of interest, disregarding responsibilities and the short duration of clinical rotations can negatively impact the development of trust between medical students and their residents. The following factors allow medical students to build trust during their clinical clerkships: (1) fostering a positive relationship with other medical students throughout clinical education, (2) taking ownership of their patients on the team, (3) establishing expectations and clearly communicating them at the beginning of the clerkship, (4) demonstrating an ability to be dependable, and (5) showing a willingness to work hard.
Discussion & Conclusion: Establishment of trust within team members will allow students to gain autonomy and strengthen their experience and independence when taking care of patients. This also enhances the development of a professional identity during their clinical experience. Emerging research show interpersonal and inter-professional trust is critical in patient care. Trust, accountability and autonomy are complex dynamic factors that interplay during a medical student's transition into residency. The formation of trust between medical

students is a characteristic that should be fostered early in medical education. Medical students can develop required skills and behaviors to form trust with their residents and medical teams when undergoing their clinical education.
Take-home messageS: Medical education community should promote these qualities in students during their training in pre-clerkship and clinical clerkships, particularly in fostering a positive relationship between students.

10HH13   WITHDRAWN

10HH14 (2987)
The role of medical student mind-set in the achievement of early academic success

Authors
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Background: Many students find the transition from school to university challenging, despite having performed extremely well in their prior studies. In this investigation we explore the factors which are perceived by staff and students to contribute to academic success in the first two years of an undergraduate medicine programme.
Method: We undertook semi-structured interviews with ten second year medical students and eight personal tutors to first and second year students about their perceptions of academic success. We specifically asked about the factors which assisted students achieve success in their first year of study. Interviews were recorded, transcribed and thematically coded.
Results: Whilst students perceived academic success as a combination of knowledge acquisition and achievement, staff perceived engagement with the programme as the essential foundation on which knowledge and skills were founded and which, in turn, gave rise to achievement and thus academic success. The factors driving engagement and the acquisition of knowledge and skills were the external pressure of examinations and rankings, social background and prior life experiences and individual personality traits. Students with an incremental mind-set (1) and with both performance goals (orientated towards attaining external validation) and learning goals (orientated towards a desire to learn) were more likely to engage fully with the programme, deal more effectively with difficulty and achieve greater academic success than their peers. Although performance goals stimulated motivation, students who focused exclusively on these were lacking in resilience.
Discussion & Conclusion: The importance of student mind-set is a major factor in student achievement in the early years of the programme. In order to facilitate the development of an incremental mind-set the School of

Medicine is providing coaching skills training to its staff so they can help students develop greater self-management.
Take-home message: Coaching medical students to maintain or develop an incremental mind-set is likely to help them achieve academic success in the early years of their programme of study.
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10HH15 (3021)
Self-Regulation Skills and its Role in Academic Success in Medical Students

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Presenter: Lamya Alrayes, Alfaisal University, Riyadh, Saudi Arabia

Background: It is believed that learning processes are aided with the right use of time management skills, focus of attention and concentration on the right aspects of any learning objective, self-testing, and the usage of proper resources. This study looks at the correlation between self-regulation skills and academic success in medical students, along with comparisons between gender, academic level, and the high school education system.
Method: An online survey was administered to year 1 to 5 medical students. Students chose their answers on a 5-point Likert-scale (1 = not at all typical of me, 5 = very typical of me) on several topics of self-regulation. 24 Questions were split into sub-categories of concentration, time management, self-testing, and usage of academic resources. Additionally, each participant was required to provide their gender, GPA, and high school education system.
Results: Of the 109 students that responded, 63% showed adequate skills (4 or 5 on the Likert-scale) for the concentration and attention variables, 38% for usage of available resources, and just 22% for self-testing methodologies. Those that do appropriately carry out self-testing methodologies had a higher GPA (3.52 vs 3.40). Females tend to be more focused, whereas males tend to be more resourceful. Varying results were also seen depending on whether the student graduated from an American, British, or Saudi education system.
Discussion & Conclusion: The ability to self-regulate is an important factor to improve students' grades. Most students are already self-trained in concentration and attention, from several years of studying in school and college. Self-testing and the usage of resources are low in our study and cannot be blamed on the students themselves as these are not as important in high school as they are during college years. Being well oriented with

self-regulation skills is important in academic success for students.

Take-home message: Educational interventions are needed to make students aware of the of self-testing and be oriented about the resources available to them. Students good at self-regulation are likely to be successful academically.

10HH16 (1863)
Academic integrity: attitudes and perceptions of teachers and medical students

Authors
Isabel Neto
Inês Barroca

Presenter: Isabel Neto, Faculty of Health Sciences, University of Beira Interior, Covilhã, Portugal

Background: Academic honesty is an ethical requirement for any Medical practitioner. However, dishonest academic behaviours are practiced around the world, increasing concern about the lack of students' skills in their professional future. Nevertheless, little is known on this subject in Portugal, particularly among Medical students. The objective of this work was to analyse the perspective of students and teachers on the students' academic conduct.
Method: 580 students from years 1st to 6th of the medical course and 32 teachers (from basic and clinical sciences) completed a questionnaire about their perceptions of students' dishonest behaviours. We compared students and teachers answers about students' behaviours and the seriousness they attribute to them.
Results: The mean value of dishonest academic behaviour declared by students was very low ($1,41\pm0,46$) but teachers believe that they have these behaviours more often ($1,78\pm0,46$) ($p<0,005$). The most common dishonest attitudes were "asking a colleague to sign for themselves the class attendance record", "change a class attendance record" and "copy answers by a colleague during an exam" which teachers and students agreed are the less serious behaviours. The less common was "to pay an examiner to pass an exam" and was considered the more serious by the two groups. However, almost all behaviours were considered more severe by teachers ($3,45\pm0,32$) then by students ($2,96\pm0,48$) ($p<0,001$).
Discussion & Conclusion: It was found that the level of prevalence of dishonest behaviour that Medical students declare to practice is very low despite teachers believe this prevalence is higher. However, medical students' perceptions about the seriousness of that behaviours are lower than desirable since they can influence their future professional attitudes. Medical educators must be aware of this issues and work with students to develop the appropriate attitudes related to medical profession.
Take-home message: Medical schools should take the necessary measures to prevent the practice of less ethical attitudes by future doctors.

10HH17 NOT PRESENTED

10HH18 (3462)
Learning styles in an international classroom

Authors
Tiina Immonen

Presenter: Tiina Immonen, University of Helsinki, Finland

Background: Deep approach to learning has been connected to better learning outcomes. Studies across disciplines and different educational systems have shown learning approaches to be dynamic and related to educational contexts, rather than to be rigid and predictable. We studied the approaches to learning among multicultural Translational medicine students "in situ".
Method: A questionnaire was sent to all students in Master's Programme in Translational medicine (TRANSMED). The questionnaire was based on two internationally validated question sets: Learn and RoLi (Reflections of learning inventory). Student's learning styles were analysed across five variables represented in the questionnaire using an individual-oriented approach.
Results: The students were grouped based on their scores for deep approach and organized studying. Three different profiles were identified: those with high scores for both, those with high score for deep approach but medium score for organized studying, and those with medium scores for both deep approach and organized studying. In contrast to previous studies, surface approach -oriented students were completely absent. Much of the current literature studies first-year university students, and the results should not be applied to Master's students. On the other hand, only medium scores for self-regulation were common among students with deep orientation to learning.
Discussion & Conclusion: It has been shown that discordance of the educational design with deep learning style impairs the correlation between deep orientation and study success. Thus the assessment, teaching methods and constructive alignment within curriculum and courses should be aligned with deep approach to learning, while simultaneously supporting their self-regulation skills.
Take-home message: Studies comparing the learning styles of various demographic groups of students are of little help in designing the curriculum and methods of teaching and assessment in international education. Instead, the learning styles of the often highly selected students in each programme should be studied in their actual learning environment.

10HH19 (345)
Comparisons of the learning styles among medical students of different application methods

Authors

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Presenter: Hsiang-Chin Hsu, National Cheng Kung University Hospital, Tainan, Taiwan

Background: A learning style is the complex manner in which learners prefer in learning materials most efficiently and effectively. Learning style is a good predicator for individual's preferred learner's learning behaviors. The identification of learner's learning styles helps educational planners and teachers provide learners necessary educational support and design. However, there are limited study of medical students' learning patterns which is compared between different admission methods to medical college. The study was to explore the status of new medical students' learning patterns.
Method: This is a retrospective questionnaire-based analysis of learning style in new enrolled medical students. Memletic Learning Style Inventory (LSI) was provided for medical students those who entered the college in three academic years from September 2014 (academic year 2014) to September 2016 (academic year 2016). The seven types of learning style were analyzed.
Results: During the three consecutive academic years, there were 77, 77, 86 students admitting College of Medicine, National Cheng Kung University, respectively. 87 medical students were through national college entrance examination and 133 were through application. Visual style, verbal style, and physical style were significant in application admission group and logical style was significant in examination admission group. All medical students can be divided into 4 classes according to learning styles and admission methods.
Discussion & Conclusion: The learning styles of medical students was different between different admission methods. It can be divided into four categories of students' characteristics. This study can provide us a better understanding of the student learning patterns to helps educational planners and teachers provide learners necessary educational support and design learner-specific courses and effective curriculum.

10HH20 (1953)
Motivational Profile and Learning Strategies of Students from 1st to 4th Year of Medical School at Universidad Andres Bello Viña del Mar, Chile

Authors

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Presenter: Veronica Silva, Escuela de Medicina Universidad Andrés Bello, Viña del Mar, Chile

Background: Motivation and learning strategies are two important areas to achieve a significant learning experience. Objective: determine the motivational profile and learning strategies of students from 1st to 4th year of medical school.
Method: A cross-sectional study with 185 students. Informed consent was obtained. The Motivated Strategies for Learning Questionnaire (MSLQ) was applied, which measures motivation (intrinsic (IM) and extrinsic (EM)) and learning strategies (LS). Statistical analysis: mean and Anova test p < 5%.
Results: IM (5,34) is higher than EM (4,38) p <0.0001; and higher in men (5.54) than women (5.23) p <0.01. EM from 1st to 4th year is 5.48; 4.01; 4.38; and 3.65 respectively (p <0.0001).
IM from 1st to 4th year is 5.76; 5.27; 5.38; and 4.91 respectively (p <0.0001). In the motivational subdimension self-efficacy, average men is 5,54 and women 5,23 p <0,01. In the resource management dimension of LS, the scores decrease from 1st to 4th. In the dimension congnition and metacognition of LS, the subdimentions organization, critical thinking and self-regulation, decrease from 1st to 4th year p <0.001. In LS, organizational subdimension obtained an average of 5.88 in women and 4.94 in men, p <0.0001.
Discussion & Conclusion: IM and EM decrease as courses progress, could be explained by academic demands, subjects complexity, study load, beginning clinical practice and decreased free time. LS consistently decreases as global motivation does. Self-efficacy (higher in men) and organization (higher in women), may explain inherent gender differences. Elaboration is an important strategy however it decreases over time, although it should be maintained or increased.
Intrinsic motivation is greater than extrinsic motivation. Both decrease with course progress. Learning strategies also suffer a decrease. Both situations are alarming, as they do not favor a comprehensive development of the student.
Take-home message: A cohort study should be developed to obtain more accurate information on the observed changes. Strategies should be developed to maintain

stable motivation and strengthen learning strategies at different levels.

10HH21 (1672)
"Su-Ji-Pu-Li" appreciating learning styles in clinical years of medical students

Authors
Rungnapa Pengprakhon
Yada Siriphannon
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Surasak Aumkaew
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Presenter: Rungnapa Pengprakhon, Buriram Medical Education Center, Buriram, Thailand

Background: In general, the skills of students for learning new things have many variation. In oriental way, the heart of the philosopher called in Bali word "Su- Ji –Pu- Li" is mean "listening-thinking-ask-writing", that leading to make the wise man.
Different skills to recognize will change according to life learning experience. In 2011, Franklynn Chernin introduced appreciating learning style differences and preference for help in planning and implementing personal learning strategies.
Understanding in appreciating learning styles can apply the appropriate learning method and suitable environment for medical student in clinical years.
Method: Electronic questionnaires and online self assessment were sent to 4th-6th clinical medical students before and after medicine rotation. The ten questionnaires contained of three parts. Each question has four choices of skills to classified students in four different learning styles as "A=visual", "B=reading", "C=auditory" and "D=kinesthetic" by rating scales. The data were analyzed individually, in pre and post and then compared to each student years. Mean of sum scores of each items were calculated.
Results: Seventy-seven questionnaires were collected. The more appreciate learning style of 4th year students was kinesthetic, visual, reading and auditory (3.67, 2.73, 1.83, 1.77) respectively. For 5th year students was visual, kinesthetic, reading and auditory (3.79, 3.0, 2.46, 0.75) respectively. And 6th year students was kinesthetic, visual, reading and auditory(4.13, 2.83, 2.04, 1.0) respectively. There were no difference in pre-post evaluations but individually student changed their styles while growing with the year.
Discussion & Conclusion: The most appreciate learning style in 4th and 6th year students were the same of kinesthetic while 5th students like visual learning style. These may result from "mind mapping concept" to understand much medical core content in 5th year meanwhile the4th year students, they learning new things by doing first time in clinical ward. And for 6th year medical students, they preferred kinesthetic learner because they had some skill in practice to gained experience and kept in training to become real doctors.
Take-home message: The appreciating learning styles is a dynamic patterns that medical teacher should provide

appropriate leaning materials and learning environment with each student groups.

10II: Posters: Collaborative/Self Directed Learning/Porfolios

Location: Hall 4.u, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

10II1 (438)
The Hidden Curriculum in Peer-Assisted Learning: a study of final year students in a Thai medical school

Authors

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Presenter: Amnuayporn Apiraksakorn, Khon Kaen Medical Education Centre, Khon Kaen Hospital, Khon Kaen, Thailand

Background: Peer-assisted learning (PAL) is defined as learning from and teaching others who are from a similar society but who are not engaged in a teaching career. PAL is accepted worldwide as an important learning experience for undergraduate medical students. The hidden curriculum is defined as a set of influences that function at the organisational, structural, and cultural level. The hidden curriculum is the knowledge that students absorb in addition to the formal and informal curriculum, which shapes their views vis-à-vis their career path.
Method: The aim of the current research was to explore the hidden curriculum associated with PAL among fourteen final-year medical students and their perspective of this hidden curriculum using a qualitative case study approach, through direct observation and individual interviews.
Results: The students reported both positive and negative experiences with PAL. Four core themes emerged from the thematic analysis of student interviews which were then triangulated with observational data: (i) developing empathy, (ii) developing self, (iii) tension between feedback needs and eliciting dialogue, and (iv) barriers to deeper learning. This research adds new insights into the hidden curriculum associated with PAL, such as: (a) student concerns about peers presenting incorrect information during teaching sessions; (b) difficulties experienced by students in comprehending English journal articles and statistics; and, (c) students plagiarising presentations.
Discussion & Conclusion: The hidden curriculum can affect the entire educational system; from what and how students are being taught and what is being learnt in the medical habitus, which then informs and shapes the medical curriculum and curricular development. The findings in the current study on hidden curriculum highlight the importance of considering the formal, informal, and hidden curriculum as an integral part of curriculum evaluation. The implications of the study are discussed in relation to the use of PAL as part of medical school teaching and learning strategies.
Take-home message: The policy makers and all stakeholders of medical schools involved in curriculum development and delivery need to consider addressing formal, informal, and hidden curricula to best suit medical graduates and the needs of the patients they will ultimately serve.

10II2 (2607)
Peer-teaching for hifi simulation aimed at clinical reasoning training

Authors

Lucile Morgan
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Patrick Baqué
Jean Paul Fournier

Presenter: Jean Paul Fournier, Faculte de Medecine de Nice Sophia Antipolis, Nice, France

Background: Tutors shortage is a major limiting factor of simulation. Peer-teaching is an efficient way of training both students or mentors but scarcely used in simulation programs.
Method: Voluntary 4th and 5th-year medical students (4-5 YMS) were trained to prepare and rule 4 hifi simulation sessions with 8 scenarii aimed at clinical reasoning training for 2nd and 3rd-year medical students (2-3-YMS). Students were randomized to attend sessions with peers or faculty in a 2/1 fashion. They took a specifically-designed Script Concordance Test (SCT) before sessions and after a 3 week-wash-out (same questions in a random order). Demographic data, pre-simulation academic examinations scores were compared, as were SCT scores before and after simulation sessions between the 2 groups, year by year. Peers' demographic data and academic examinations scores before and after sessions were compared with non-participating 4-5 YMS. All analysis were conducted for each academic year. Fisher and Wilcoxon tests were used, with significance being defined for $p < 0.05$.
Results: 86 2-YMS, and 141 3-YMS attended both simulation sessions and SCT. 17 4-YMS and 14 5-YMS prepared and ruled the sessions. Pre-simulation data were not different for all participating students (attendees and peers). 2 and 3-YMS significantly improved their SCT scores, with no difference in progression for peers-trained students vs faculty-trained students : respectively : 10.22 ± 12.25 vs 10.15 ± 7.26 and 4.68 ± 6.61 vs 4.06 ± 9.07. Post-simulation academic scores were significantly higher for 4-YMS ($11,42 \pm 1,13$ vs $10,60 \pm 1,36$, $p = 0,01$) and 5-YMS peers ($12,63 \pm 0,94$ vs $11,84 \pm 1,37$, $p = 0,01$), compared with non participating students.
Discussion: Results were reproducible for attendees and peers whatever was their academic year, with a significant improvement in both cases.
Conclusion: Hifi sessions aimed at clinical reasoning training were efficient whatever the tutors were (faculty

vs peers). Peers significantly improved their academic results.

Take-home message: Introducing peer-teaching in hifi simulation is a promising way of circumventing tutors shortage in simulation centers, for both attendees and tutors.

10II3 (1249)
Perception of Paired Learning in Speech Therapy Fresh Graduates

Authors

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Eileen Fong

Presenter: See San Chok, Tan Tock Seng Hospital, Singapore

Background: This education research is to study learners' perception of paired learning model. Tan Tock Seng hospital (TTSH) has been actively recruiting speech therapists to provide care to a rapidly aging population in Singapore and all fresh graduates are required to undergo clinical education. Therefore, the Speech Therapy department has adopted 1 clinical educator (CE) to 2 learners supervision model with newly developed structures in place since 2017 to promote efficiency and effectiveness in learning.

Method: An online survey was carried out for 9 learners who joined TTSH Speech Therapy department in 2017 with less than 1 year of working experience. The survey includes 10 questions with a 5-point Likert scale, and three open-ended questions.

Results: All learners agreed that they benefited from observing their peers receiving feedback from their supervisors. Almost all of them learnt from peers' feedback pertaining to their performance and in return they have also contributed to their peers' learning. However, 25% of the learners felt that paired learning was stressful. 12.5% of them found it difficult to provide feedback to each other. 12.5% of them felt that they did not receive adequate education from their CEs.

Discussion & Conclusion: Two main challenges that were mentioned frequently by the learners are:
1. Difficulty catching up with peers due to differences in learning style and clinical competencies.
2. Too reliant on each other.
Almost all respondents suggested having individual sessions at certain stage of their learning journey.

Discussion: Paired learning has contributed to the learning of speech therapy fresh graduates. However there are a few factors we need to consider for further improvement. Having individual training session might be useful towards the end of learning journey to facilitate learners in achieving full competency independently.

Conclusion: The feedback solicited was important for the department to evaluate effectiveness of this model. More specific feedback will be needed to further refine the structures and guidelines supporting this learning model so that it can cater to different learners' needs.

Take-home message: Paired learning model promotes effective learning experience among the speech therapy fresh graduates.

10II4 (556)
Same grade peer-to-peer tutoring experiences for clinical skills among the 2nd year undergraduate medical students

Authors

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Presenter: Sang Hui Moon, Seoul National University, Seoul, South Korea

Background: Seoul National University college of Medicine launched new curriculum in March 2016. In preparation for clinical clerkship, Introduction to Clinical Medicine course was scheduled as one-year longitudinal course instead of the previous 3 weeks block. To foster active learning and team approach, we introduced innovative same grade peer-to-peer tutoring for clinical skill classes.

Method: One hundred fifty one 2nd-year students were divided into 6 groups and learned 2 sets of six clinical skills. Each set of classes continued for consecutive 4 weeks; one week for mastering one skill with a faculty tutor and 3 weeks for peer-to-peer tutoring. Every student had one session to teach peers and five to be taught by peers. While small group of student tutors led the class, a fellow or resident doctor supervised the whole process and helped tutors on request. Students underwent two OSCEs, one of which was course evaluation and the second was progress test. We surveyed students' opinion about peer tutoring.

Results: Tutor student got a little better scores in the first OSCE, however, the result did not chance the grade. In the progress test, the score was not statistically different between tutor students and others. The mean students' satisfaction for the overall course and the way of operation was 4.3 and 4.6, respectively (Likert scale, 6 is very satisfied). Practice itself was chosen as the most helpful method to improve clinical skill, followed by peer-teaching and being taught by peers. Even though students slightly preferred expert tutors for coming classes, more than half of all student were willing to learn from peers. Students showed positive response to being an educator and working together. On the other hand, peer tutors had difficulties in answering questions due to lack of clinical experience.

Conclusion: Same grade peer-to-peer tutoring was feasible and gained positive educational effect of active learning and team work. Less faculty staffs were needed for the course running, however, more study is needed to compare expert and peer tutoring.

Take-home message: Peer tutoring can be a solution for shortage of faculty tutors.

10II5 (3359)
Collaborative Learning for Histopathology Education

Authors

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Presenter: James Fishback, University of Kansas, School of Medicine, Kansas City, USA

Background: Over the course of our combined 70+ years of teaching histology and histopathology in the pre-clinical phase of medical school, we have observed that histology, and closely-related histopathology, seem to be difficult subjects for most medical students to master. In traditional curricula, the disciplines of histology and pathology are often taught in separate years with the promise to students that the normal microanatomy will be important during the pathology course to follow.
We combined histology and histopathology as we initiated an integrated basic science curriculum about a decade ago. Our initial teaching paradigm, upon selecting the Aperio Scanscope® (now Leica®) system to digitize our respective histology and histopathology slide sets into "virtual microscopy" slides, was that each individual student would examine the assigned slides, take photomicrographs, and generate their own atlas. The teaching style still remained passive and dominated by the instructor leading the class. We have now modified our pedagogical approach, to a team-based, collaborative learning model.

Method: To accomplish this aim, we assigned the students into small groups of "microdissection" teams, mirroring the approach we use in human anatomy dissection. These collaborative groups of 3 or 4 students would then present the case, including the history, relative labs, imaging, gross pathology, and microanatomy to their classmates. The VINDICATE acronym was used to organize a differential diagnosis framework for case collaboration, and to enhance differential diagnostic and clinical reasoning skills. The exercise mimicked clinical students on rounds with the facilitator serving as attending physician. Each clinical case contained hyperlinked references to the medical literature (a pathology textbook or general medical journal, e.g., The New England Journal of Medicine®). In order to facilitate this collaborative process, we decided to use Microsoft Office 365® and the included OneNote® program.

Take-home message: Students adapted to the collaborative learning experience and improved dramatically in their case presentations and felt better prepared for their clinical years where they will present patients on clinical rounds. The use of collaborative groups also leveraged the diversity of adult learning skills seen in most medical school classes, and use that diversity in styles to enable deeper learning.

10II6 (297)
Measuring social interdependence in collaborative learning: Instrument development and validation

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Presenter: Ikuo Shimizu, Shinshu University, Matsumoto, Japan

Background: In medical education, several collaborative learning approaches such as problem-based learning and team-based learning have been used. Collaborative learning has a theoretical background of social interdependence theory (SIT). In other words, collaborative learning is a learning method to engage students in positive social interdependence. To evaluate and compare several learning approaches, a valid instrument to measure social interdependence is required.

Method: Firstly, a draft instrument was prepared based on a theoretical construct of SIT. Then a modified Delphi procedure was conducted with three types of international stakeholders (10 medical students, 10 education experts, and 10 medical faculties with any experience of collaborative learning) in 8 countries (Australia, Czech Republic, Japan, Malaysia, Netherlands, Singapore, Thailand, the USA). Secondly, fourth-year health professions students in Shinshu University with experience of collaborative learning were asked (n=239) to answer the instrument. Then a confirmatory factor analysis of the data was conducted to establish construct validity. Finally, to test a model of the factors, the fit of a structural linear model to the data was tested.

Results: Two rounds of Delphi were conducted to revise the instrument. Confirmatory factor analysis yielded a three-factor model with 16 items, which fitted the data well. The three factors were considered to represent the categories in SIT; outcome, means and boundary, respectively. Cronbach's alpha of these factors showed high values (outcome=.854; means =.803; boundary=.873).

Discussion & Conclusion: A structural linear model revealed that the three factors affected each other, and the model was consistent with the concept of SIT.
This study describes the development and construct validation of an instrument for measuring social interdependence in collaborative learning. This instrument will provide individual faculties with feedback about their classroom environment.

Take-home message: When faculties try to design and implement a collaborative learning approach, the three categories in SIT should be considered.

10II7 (1452)
Measuring Social Interdependence in Collaborative Project-Based Learning

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Presenter: Tsan-Hon Liou, Shuang Ho Hospital; School of Medicine, College of Medicine, Taipei Medical University, Taipei, Taiwan

Background: This study aims at identifying a collaborative project-based learning path to help maintain students' positive social interdependence (PSI). To conduct the study, we considered the physicians' role as collaborators and provided four types of medical-humanities collaborative learning projects to 160 year-3 medical students to select from (40 students per model).
Method: A scale based on cooperative learning theory was conducted to measure students' appreciation of cooperative learning, psychological process within PSI, and confidence in Teamwork Effectiveness among the four groups: A) study group for community-based medicine, B) open information working group, C) consensus conference working group, D) clinical stimulation for informed consent. 95 students participated in this survey.
Results: The ANOVA of psychological process within PSI was significant (p=.01<.05). The post hoc tests (Scheffe's procedure) indicated the significant differences existed between group A and group C (p=.0.0263.075).
Discussion & Conclusion: Among the four projects, differences in three areas were noted: autonomy, required learning engagement, and group size. The team size in group A was 2 members, in group D was 10, while the group size in other models was 20. Group A had completely autonomy to plan their works but under structured schedule.
Students in the small group size with full autonomy to choose their project topics, but within a rigid timeframe demonstrated a stronger attitude towards positive social interdependence.

Take-home message: According to Johnson and Johnson (2005), the positive social interdependence lead students to the successful collaborative learning. To help student maintaining PSI, instructors should provide small group size for team project, rigid working schedule, and empower them to conceive the idea of their final outcome.
Johnson, D. W., & Johnson, R. T. (2005). New developments in social interdependence theory. Genetic, social, and general psychology monographs, 131(4), 285-358.

10II8 (1774)
What are the teaching strategies that promote self-regulated learning among the pre-clinical medical students?

Authors

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Background: Self-regulated learning (SRL) ability is an important core attribute for students to develop. This is essential to instill lifelong learning. However, most medical programmes have yet to grapple with this concept in a systematic and uniform way. Hence, this project aims to investigate the teaching-learning activities which support the development of SRL at NUS Medicine, Singapore.
Method: This research employs an exploratory qualitative approach in collecting data. A focus group discussion to seek teachers' views on the teaching-learning strategies in pre-clinical years was conducted. This presentation will focus on the qualitative data from teachers' interview.
Results & Discussion: There are four themes emerged from the qualitative data: pedagogies preferences, need-supportive teaching environment, teachers' attitudes towards teaching and students as the driver. Under pedagogies preferences, teachers believe that there is a need to move away from controlling teaching approach in promoting SRL. Some approaches that are useful in encouraging SRL are thinking approach, connecting approach and flipped teaching approach whereby students take over as the role of teaching. Apart from pedagogies preferences, a need-supportive teaching environment is required by interacting with students in an autonomy-supportive way. Students must be given the opportunity and to nurture their psychological needs. Teachers' attitudes towards teaching must be positive especially having strong self-efficacy which is currently lacking. In addition, there is a strong perception that research still holds the prime as compared to teaching. Coping with multiple tasks such as clinical work and research, teaching has becoming secondary to the teachers. Besides actively promoting SRL by the teachers, students are crucial in engaging themselves in learning. As mentioned by the interviewees, it takes two hands to clap.

Discussion & Conclusion: As conclusion, while teachers recognize the importance of implementing SRL in the teaching and learning environment, there are more effort need to be done to prepare students to achieved this.

Take-home message: We understand from the data that strategies alone is not sufficient in promoting SRL. Providing a supportive environment coupled with appropriate attitude from the teachers and students are essential.

10II9 (1918)
Educating for self-directed learning: a longitudinal study of learning strategy development

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Presenter: Tamara van Woezik, Radboudumc, Nijmegen, Netherlands

Background: Self-directed learning (SDL) is implemented in education to foster lifelong learning. It is also believed to promote better study results. We tested whether students of Radboudumc developed SDL using the Motivated Strategies for Learning Questionnaire (MSLQ). In their curriculum, SDL is encouraged through project-based courses and monthly coaching groups.

Method: The MSLQ was administered to first and second year medical and biomedical sciences students. The learning strategy scales of the MSLQ were used. The Organisation, Elaboration, Critical thinking and Metacognitive self-regulation scales were considered indicators of self-directed learning; the Rehearsal scale indicated a surface learning strategy. T-tests were conducted to detect differences in means between cohorts and within cohorts.

Results: Cohorts of 2016 (n=218) and 2017 (n=258) were followed up over a two-year period. They filled out the MSLQ twice, in January of their first and second study year. For the 2016 cohort, we found an increase in Elaboration (4.82 to 5.06, p<0.01), Organisation (4.69 to 4.92, p<0.05), and Metacognitive self-regulation (4.34 to 4.51, p<0.01). The effect was similar for the 2017 cohort, except for Elaboration, which did not increase significantly. Furthermore, the 2017 cohort started with significantly higher mean scores on Elaboration than the 2016 cohort (4.82 vs. 5.05, p<0.01).

Discussion: Surprisingly, critical thinking did not increase and was in fact quite underused compared to other learning strategies in a curriculum targeted at Self-directed learning. We found that students did improve on related learning strategies: Elaboration, Organisation and Metacognitive self-regulation. These findings are in line

with previous research. Apparently, critical thinking needs specific attention, even a self-directed learning environment.

Conclusion: Our findings suggest that a self-directed learning curriculum can positively influence associated learning strategies, although the development of critical thinking lags behind. Factors influencing increased scores or lack thereof should be researched qualitatively, especially with regard to critical thinking.

Take-home message: As critical thinking is important for the development of lifelong learning, it is important to pay more attention to the development of this learning strategy. Even in a self-directed learning environment, this is not self-evident.

10II10 (3553)
Self-directed learning Readiness Among Pakistani MBBS students of University College of Medicine & Dentistry (UCM&D)

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Background: SDL is defined as a learning methodology in which students take the initiative of identifying their own learning needs, preparing their learning outcomes and learning resources. Students choose appropriate learning strategies and evaluate the learning outcomes. SDL is an embedded component of Medical curricula that adapt problem based learning (PBL).

Method: The students were given a pre-validated questionnaire on "Self-Directed Learning Readiness Scale" a self-assessment tool that aims to assess three main components: self-management, desire for learning and self-control. The students responded to each item on a 5-point likert scale.This study aims to identify the effect of SDL on students' performance in PBL and the students' readiness regarding SDL.

Results: According to the Self-Directed Learning Readiness Scale the mean scores for the three components was almost the same, with the highest aptitude for self-control (4±0.069) followed by self-management (3.99±0.071) and the mean score for the desire of learning was (3.997±0.068).

Discussion & Conclusion: In the present study SDL readiness showed that the students had the ability for self-control, they were highly motivated for self-learning and had self-management skills. Life-long learning involves the development of skills in self-directedness (SDL), critical thinking and effective group process. Incorporating SDL in the curriculum would help students in better and deeper understanding and learning of the content

Take-home message: SDL is a skill for the students to become life-long learners. Lifelong SDL is essential to meet the growing challenges in healthcare imparted by a rapid increase in knowledge of health problems.

10II11 (2192)
Longitudinal monitoring of self-directed learning skills: do novice and returning students score comparably?

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Background: Self-directed learning (SDL) is a skill students acquire during formal studies to support them in unstructured educational environments and foster their learning beyond university level. SDL is especially important in medicine as a high educational demand is put on students in residency through less structured learning. Longitudinal studies on SDL are rare, as they are time-consuming, but represent the basis for any intervention to enhances students' SDL abilities as well as evaluate any curricular changes. We present our 2-year progress on understanding SDL progress.

Method: In the academic years 2016-17 and 2017-18 students at the Faculty of Medicine, University of Maribor participated in the SDL study. The study used the validated self-rating scale for self-directed learning (SRSSDL). In year one 100 students participated. 84 of them returned to participate in the second research year, providing us with valuable baseline SDL progress information. Next to the returning participants, the study recruited additional 52 students. Compiling data from 136 different students over two years. Data analysis was done using the Mann Whitney U-test and descriptive statistics.

Results: Among the students, 43 participants from the 2nd and 3rd year of undergraduate medical studies were involved. Data was analyzed to understand differences in returning and novice study participants in a sensitive transition from pre-clinical to clinical education. Returning participants scored on the questionnaire comparably to novice participants. There was no significant difference in mean awareness (44.4 vs. 44.1; $p>0.268$), study strategy (43.3 vs. 44.0; $p>0.835$), study activity (43.2 vs. 42.9; $p>0.482$) and evaluation (40.3 vs. 40.7; $p>0.189$).

Discussion & Conclusion: Our data shows, that SRSSDL is reliable in long term, as returning and novice students in the same year score comparably. Furthermore, detailed data analysis shows moving from pre-clinical to clinical education in our school doesn't result in significant changes in study strategies and self-evaluation, enabling us now to form decision making on SDL enhancement.

Take-home message: SRSSDL is a reliable tool for long-term skill evaluation and enables us a detailed understanding of impactful events such as educational transitions.

10II12 (2053)
The attitude toward teaching technique in medical students at Chaiyaphum Medical Education Center

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Presenter: Paweena Kaladee, Chaiyaphum Medical Education Center, Chaiyaphum, Thailand

Background: Medical education is comprised of many teaching techniques such as lecture, self-directed learning (SDL), problem-based learning (PBL), bedside teaching, etc. Despite effective teaching, learning is very important in medical education. The aim of this study was to investigate the least appreciated teaching technique according to medical student's opinion.

Method: A cross sectional descriptive study in Chaiyaphum Medical Education Center. Thirty four 4th-5th year undergraduate medical students completed the questionnaire about teaching technique. Dermographic data and attitude data were collected. The collected data was analyzed using descriptive statistics.

Results: The least appreciated teaching technique according to medical student's opinion was SDL (66.7%), followed by lecturing (16.7%), PBL (11.1%), and bedside teaching (5.5%). Most students in this study thought SDL was the least effective teaching technique with their given reasons as following; lack of clarity about the purpose 46%, distraction by environment 30%, lack of motivation 15% and lack of skill for data accessibility 9%.

Discussion & Conclusion: The study reveals most of the undergraduate medical students in Chaiyaphum Medical Education Center thought SDL was the least useful medical teaching technique because SDL put students under pressure to find their own way to learn. Effectiveness of SDL is multifactorial and depends on individual.

Take-home message: SDL is an essential tool for developing lifelong learning and improving academic performance. Encouraging medical students to recognize the importance of SDL was needed. Medical staffs need to guide and encourage students to set learning goal, choose learning strategies and assess progression toward their goals.

10II13 (883)
Utilizing of Logbook - Medical Students' Viewpoint

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Background: According to the assessment process of the medical education, the self-assessment by using logbook was become an alternative tool for evaluating the potential of the medical students. The purpose of this study was to appraise the objective of logbook.
Method: The descriptive cross sectional study was conducted in the Surin Medical Education Center, Thailand. Ninety-Three medical students were included. Research questionnaire is composed of 15 multiple checklist questions. This study was analyzed about logbook's purpose, the requirements in logbook, how to use logbook guided their learning and form of logbook
Results: The top three ranking answers for logbook's purpose were to record learning experience, assess learning abilities by themselves and estimate their attitude, that were 71.1%, 62.4%, 38.7% respectively. 87.1 % of medical students required lesson's instruction in logbook, 67.7% required logbook guideline and 38.7 % would like to use logbook to express their opinions. However, only 45.2% of medical students use logbook guided and prepared their lesson. The handy, non-electronic logbook was the best choice for the medical student from questionnaire.
Discussion: Most of medical students understood the logbook's purpose but only a half of the medical students had used it properly. Interestingly, the medical students would like to participate in the lesson via the logbook feedback. The new logbook form that will be used by hand writing, tiny in size and also can be carried comfortably, might be an appropriate logbook for medical students.
Conclusion: Logbook was an effective tool for evaluating the potential of the medical students. The logbook design as medical students' viewpoint were raising their competency.
Take-home message: Facilitating in logbook form will help medical students use it more comfortable. Moreover, the new design of logbook, students' viewpoint, also encourage them to use it properly.

10II14 (193)
Design and development of mobile-based portfolio for medical sciences students: A portable tool for objective assessment in the modern world

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Background: In view of the recent interest in the use of mobile technologies for assessing people's work and career, tools such as personal digital assistants (PDAs) and cellphones can not only make data collection possible at anytime and anywhere, but also improve this process by allowing for the collection of multimedia data. This study was conducted to design and develop a mobile portfolio and evaluate its efficacy in assessing the performance of nursing students in clinical wards.
Method: The graduate nursing students of Jahrom University of Medical Sciences were recommended to draft a clinical portfolio of their clinical experience in written, audio and video formats in various media. Mobile e-portfolios have been developed to synchronize wirelessly with the user's personal webpage over Wi-Fi and cellular networks. Data on the students' duration and type of training, time, learning opportunities, work performance, resources and clinical experiences were recorded on the ward's website. The teachers were also able to access the students' portfolios for adding notes and comments. The teachers' assessments were both qualitative and quantitative. Each student was given a PDA or clinical software to use for three weeks during a psychology course and received training on the tools and then prepared a report on his experience. The focus group discussions were held to explore the advantages and disadvantages of this software. The quantitative questionnaire given to the students contained 20 items scored on a 3-point Likert scale for the quantitative items.. The total score obtainable was 60.
Results: Mobile e-portfolios are a user-friendly, accessible and attractive method for the objective assessment of students that enable the careful assessment of the students by encouraging their Improving information literacy and feedback. This tool satisfied 70% of the students.
Conclusion: Smartphone-based e-portfolios can facilitate the continuity of work and create uniform frameworks for the students to display their performance and learning efficiency, invite others to interpret and evaluate their work and selectively publish online documents of their clinical achievements (through careful planning and support). These software also help with the targeted assessment of the students' performance.

10II15 (3379)

The Relationship Between Electronic Portfolio Participation and Residency Upgrading Examination Outcome in Family Medicine Residency Program

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Background: Electronic portfolios (E-portfolios) have been shown to be a valid way to document residents progress, encourage resident involvement in the learning process, and provide feedback for improvement. E-portfolios also represents a method of learning outcomes assessment and curriculum evaluation.
Method: We studied 20 residents who were trained in our family medicine residency program and completed the whole course at the time of data collection. The numbers of electronic portfolio articles of every individual resident were monitored throughout 3 years of residency program and then compared to their residency upgrading examination results.
Results: There was a trend with slightly positive correlation between numbers of electronic portfolio articles and scores of residency upgrading examination, but was not statistically significant (r=0.21, P>0.05). The trend was more obvious compared with oral test(r=0.19) than written test(r=0.17) in the residency upgrading examination.
Discussion: Electronic portfolios participation which was assessed by numbers of electronic portfolio articles might be a predictor of residents' examination performance. We also found a peer effect of numbers of electronic portfolio articles which the residents trained in the same year had similar numbers of published articles.
Conclusion: It is unclear what the factors maybe plays an important role in portfolio management. For family medicine residents who spends more efforts in electronic portfolio might have better performance in other examination.
Take-home message: Residents' participation in e-portfolios can provide a lens to look at trends in residents' learning and outcome assessment, and can also detect the need of early intervention and an opportunity to provide support.

10II16 (195)

Reflections of postgraduate medical students during their clinical years - a qualitative study of logbook entries

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Background: This study aimed to identify themes within postgraduate medical students' logbook reflections, intended to inform future decisions regarding the value of the logbook.
In 2017 the logbook for postgraduate medical students at our institution changed focus to encourage reflective practice. Anecdotally the quality of student's logbook entries improved, however no systematic analysis of entries had occurred. It is uncertain what themes were covered in these entries and indeed whether the majority of entries were in fact reflective. Consequently, the ability of the logbook to promote reflective practice was unknown and its value as an assessment tool unclear.
Method: A qualitative approach with thematic analysis methodology was implemented for this study. A literature review was conducted using the concepts of reflective writing, medical students and clinical experience. Participants were current year 4 students of a postgraduate medical course (Year 3 students in 2017). Data were collected from logbook entries completed in 2017 as a compulsory requirement of intra-rotational assessment. Logbook entries were randomly selected, coded and analysed using an inductive approach to provide an overall description of recurring themes. Thematic analysis of the data was aligned with Borton's Developmental Framework.
Results: The findings indicated the majority of logbook entries were indeed reflective. Within the categories of knowledge, skills and attitudes, the students reflected on clinical competency (consolidating learning, planning for future learning), professional competency (teamwork, interprofessional communication) and emotional responses to clinical and professional situations.
Discussion & Conclusion: This study sought to explore the logbook entries, aligned with a reflective theoretical framework, to identify and group common themes to allow further discussion. The literature suggests reflective practice is beneficial to the medical profession. Consistent with findings in the literature supporting reflective writing as valuable to medical students overall learning, thematic analysis of the logbook confirmed its value in development of reflective practice in postgraduate medical students. These findings support the logbook as an important assessment tool within the curriculum.
Take-home message: The logbook encourages medical students to reflect on their learning experiences, enabling development of reflective practice, a necessary skill for life-long learning and professional growth.

10II17 (2088)

Using clinical case E-portfolios to support case-based learning and assessment in orthodontic postgraduate education

Authors

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Presenter: Richard Cure, University of Warwick, Coventry, UK

Background: Historically, postgraduate orthodontic students have prepared hard-copy log-diaries of treated clinical cases for specialty examinations. This process occurs towards the end of three years of study, and requires subsequent transportation of documents and artefacts to assessment centres, giving examiners little viewing time, and minimal opportunity for formative assessment, tutor feedback and reflective learning during patient treatment.

Online e-portfolios allow students to upload clinical material contemporaneously, and to reflect upon all aspects of clinical care, propose subsequent actions, and receive formative assessment and feedback from tutors. The e-portfolio clinical cases are subsequently summatively assessed as part of specialty examinations.

Method: Warwick Medical School has developed a clinical-case E-portfolio, using 'Sitebuilder' web-publishing tool, having a template structure, which requires relevant patient data to be uploaded prior to, during, and post-treatment, allowing continuing interaction between students and tutors. Internet access to the University Virtual Learning Environment facilitates outreach-centre education and patient-care delivery. Each student logs-in to their personal e-portfolio, uploading clinical-case material, together with a reflective commentary, at each patient visit. Tutors are simultaneously alerted by auto email feed and provide feedback and/or formative assessment. Clinical E-portfolios are used by Masters level Orthodontic, Orthodontic Therapy and Orthodontic nurse students to support case-based learning; by tutors for support provision, and for assessment.

Discussion: E-portfolios enhance clinical case-based learning, feedback and assessment, by requiring students to contemporaneously log data, analyse case progression and interact with tutors, thus facilitating reflective learning. Clinical case presentation is enhanced and examiners given increased flexibility for summative assessment.

Conclusion: Clinical case e-portfolios are valuable learning and assessment tools allowing immediate tutor feedback and enhance examination processes. They facilitate interactive clinical education and mentoring in outreach centres and are integral to case-based learning. They enable interactive, peer group case-based discussion and are significant in developing understanding of orthodontic case assessment, diagnosis and treatment mechanics.

Take-home messages: Clinical E-portfolios:

- Enhance case-based learning
- Encourage reflective learning
- Facilitate tutor feedback and mentoring
- Allow flexible formative assessment
- Simplify case presentations
- Support outreach treatment provision
- Enable examiners to interact to summatively assess clinical cases and deliver appropriate reports.

10II18 (3454)

Use of portfolio of residents in the training of the Medical Institute of NEFU

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Background: Portfolio of the resident, developed by the North-Eastern Federal University, as a new tool for training in residency.

Since 2014, the NFUU medical institute has started using the "Portfolio of student" programs to use it as an additional tool for training in residency.

Discussion: The purpose of creating the "Portfolio of the student" program is to develop the ideal, maximally effective model for the improvement and development of the resident, based on the method of individual cumulative assessment, the main strategy of which is to monitor the progress of the resident's training in his professional activity.

For the first time the theme of the portfolio in the Russian educational community was voiced in 2003. According to the general opinion of teachers and trainees, the portfolio increases the motivation of the latter, their responsibility for the results of the educational process, and promotes the development of the students' conscious attitude to the learning process and its results.

The idea of using a portfolio in the education system has recently become widespread. As part of the federal experiment to improve the structure and content of general education, which says that the change that has occurred in the state of modern education over the past decade, entails a change in the assessment system.

The portfolio model developed at the university is a fundamentally new learning strategy in a higher medical education institution. This model is able to demonstrate educational activity, level of self-organization, opportunities and practical achievements of the resident. From the point of view of teaching, the developed model of the portfolio allows you to select an individual approach to each resident, determine its strengths and weaknesses, and use the step-by-step assessment of the learning process to achieve result maintenance. Also, a teacher or curator can easily control the learning process.

Conclusion: Thus, the use of the portfolio as an additional method of education in higher educational institutions is gaining popularity in Russia. In domestic and foreign education, the portfolio is one of the most commonly used varieties of results-oriented technologies.

10II19 (3305)
Using videos from human medicine to reinforce application of diagnostic error concepts in veterinary students

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Background: Diagnostic errors are significant causes of morbidity and mortality, in both human and veterinary medicine. To address this issue, we developed a didactic course entitled "Veterinary Medical Decision-Making" as part of a required course sequence in veterinary clinical reasoning. Topics covered include: dual process theory, types of clinical errors, cognitive biases, heuristics, and illness scripts. In addition to lectures, students complete assigned relevant readings from the veterinary literature and engage with online veterinary cases specifically designed to lead them to commit diagnostic errors. In-class debriefing sessions encourage students to name the types of cognitive biases involved and discuss preventive strategies.

Results: In order to examine students' abilities to transfer and apply knowledge from a veterinary course to a novel environment, we used a video produced by the University of Pennsylvania School of Medicine, designed for resident education, as a stimulus for analysis and reflection. Veterinary students (n = 102) were asked to watch the video depicting a medical team engaged in patient rounds. Their tasks were to: a) identify two cognitive biases displayed in the video, b) identify the key information that helped the team recognize their error(s), and 3) describe strategies used to rescue the situation.

Results: Most veterinary students in the study were able to complete all three tasks satisfactorily, as measured by scores on the assignment (average = 95.3%, SD = 0.82). The most commonly identified cognitive errors were anchoring, confirmation and availability bias. Students had difficulty applying/understanding the concept of outcome bias. Additionally, some students struggled with differentiating anchoring from availability bias.

Discussion & Conclusion: Given the success of veterinary students in identifying cognitive errors and rescue strategies employed by a medical team; this study provides preliminary evidence to support the assertion that clinical reasoning skills are species-independent, and can be transferred across health-care settings.

Take-home message: Educational materials created for use in human health professions can be leveraged for veterinary education. This opens the door for further initiatives utilizing clinical reasoning exercises as a stimulus for fostering shared learning and collaboration in inter-professional settings.

10II20 (3402)
The effects of on-line video supported self-directed learning for three common clinical skills: a comparative study

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Presenter: Chun-Chao Chang, Taipei Medical University Hospital, Taipei, Taiwan

Background: The purpose of this study was to explore the effects on-line video supported self-directed learning for three common clinical skills including nasogastric tube insertion (NG), electrocardiogram (EKG), and Foley catheterization (Foley).

Method: Taipei Medical University Hospital designed a series on-line video supported self-directed learning activities of clinical skills (SLAOCS) for year-7 undergraduate medical students. Each SLAOCS consists of an on-line video, simulated practice, and discussion on-line platform with a medical doctor response. All the medical students can practice clinical skills that they would like to learn by simulation in the Clinical Skills Center during day-time according to their time management. The students who learn in SLAOCS were asked to fill short 5-point Likert questionnaires before and after each SLAOCS. The questionnaires consist of self-efficacy regarding to knowledge and skill of a specific clinical skill. The post questionnaire has one more question about how is help from the SLAOCS. We reviewed 67 learning records of three common clinical skills including nasogastric tube insertion, electrocardiogram, and Foley catheterization. Around 20 year-7 medical students participate in each SLAOCS.

Results: The results of one-sample t-test (test value: 4) showed that students had no sufficient self-efficacy of knowledge (M±SD=3.84±0.771) and skills (M±SD=4.00±0.759) in pre-SLAOCS (t=-1.744, p=.086; t=0.000, p=1.000). The paired t-test showed that students had strong self-efficacy of knowledge and skills after EKG (MD=1.269, t=3.892, p=.001), NG (MD=1.053, t=3.705, p=.001), and Foley (MD=1.227, t=3.983, p=.001) SLAOCS. Moreover, no difference in improvements of self-efficacies were observed among nasogastric tube insertion, electrocardiogram, and Foley catheterization in one-way analysis of variance (F=.0.068; F=.0.099).

Discussion & Conclusion: The SLAOCS provides clinical students a flexible way to learn clinical skills. Clinical students can self-directly practice clinical skills according to their own schedule with on-line video and feedback from a medical doctor. Further large scale of comparison of learning satisfaction and skills performance between SLAOCS and traditional clinical skills course is needed.

Take-home message: The SLAOCS might be a flexible and effective approach for clinical students in learning clinical skills.

10II21 (280)
Teaching Mental State Examination (MSE) - a new contemporary approach

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Presenter: Jessica Roberts Hansen, Psychiatry West Region Zealand, Slagelse, Denmark

Background: A psychiatric video library containing short interviews was produced with the aim of assisting undergraduate students' training of MSE.
Method: In a case-control study, students were assigned to an intervention group (video/V, n = 40) with access to the video library for three weeks, or to a control group (no-video/N-V, n = 27) without access to the library. After the three weeks, both groups were tested with a multiple choice questionnaire after watching three videos. The questionnaires each consisted of 20 descriptive phrases, which might occur in a MSE; five out of these phrases were correct. Specialist trainees/specialists in psychiatry (n = 57) were tested with the same three videos and MC questionnaires – this to provide a "golden standard". The data was analyzed by one-way ANOVA and chi-square analyses with SPSS©v.24.
Results: The pilot study revealed a higher average-score by the specialist group (mean 12,6 SD 1,6) on all 3 videos compared to both groups of students (mean for student average all videos = 10,5 SD 2,7). The group of students (V) with access to the video library (mean 10,5 SD 3,3) was better at assessing the patient's mental status in one of the videos compared to the N-V student group (mean 8,7 SD 3,8; p<0.02). The test results of the two other videos showed no difference.
Discussion & Conclusion: The results are promising, and can help with the implementation of a video library as a new standard way to teach undergraduates how to conduct a thorough mental status examination. The available literature, on ways to use videos in the teaching of standardized MSE, is sparse and therefore, it is unknown to the authors, if the use of a video library already is standard practice in other countries.
Take-home message: A video library might be a way to teach medical students the art of MSE. An easy-to-distribute sensitive quantitative assessment of MSE competence has been developed.

10JJ: Posters: Threshold Concepts / Clinical Teaching / Simulation

Location: Hall 4.u, CCB
Date: Wednesday 29th August
Time: 0830-1015 hrs

10JJ1 (235)
Threshold Concepts in Medical Education: Similarities between the USA and UK

Authors
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Robert Brooks, Uniformed Services University of the Health Sciences, Bethesa, USA

Presenter: Virginia Randall, Uniformed Services University of the Health Sciences, Bethesda, USA

Background: The theory of Threshold Concepts (TC) proposes that there are ideas necessary for a student to learn which enable them to think like a professional. Studies of TC in higher education have appeared since 2003. Studies in medical education are more recent.
Method: We studied TC using a qualitative analysis approach (grounded theory) to produce a thematic analysis of 135 de-identified reflective practice essays from students in the pediatric clerkship at our medical school. This study was approved by our IRB.
Results: Seven themes met our criteria for a threshold concept; they were transformative (caused an ontological shift) and troublesome (caused angst). 2 TC in our students' work were identical with those found by authors from the UK ("Medicine isn't black and white," and "Sometimes there isn't a right answer,") 4 TC were similar and 2 were distinct.
Discussion & Conclusion: Our findings suggest that there are some TC inherent (maybe essential) in personal and professional identify formation for a student moving from layperson to physician-hood, regardless of the setting of the medical school.
Take-home message: "Medicine isn't black and white" and "Sometimes there isn't a right answer" are concepts essential for medical students to understand as they move into clinical medicine.

10JJ2 (3360)
Definition of educational objectives of medical students in a history of medicine class

Authors
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Presenter: Jorge E. Valdez-García, Tecnologico de Monterrey, School of Medicine and Health Sciences, Monterrey, Mexico

Background: New educational student-centered models require a self-directed learner that is able to define learning strategies, managing emotions and achieve continuous improvement. Self-direction can occur in diverse situations that vary from the classroom to self-planned and self-directed learning projects developed as a response to personal interests or individual or collective needs. There are certain personal characteristics such as attitudes, values and skills that determine the level of enthusiasm and responsibility for the learning objectives and the learning activities.
Method: The objective of this study is to assess the self-direction approach of the learner by analyzing the learning goals designed from a self-diagnosis performed on the first day of classes. The method of this study is mixed, descriptive and cross-sectional. A sample of 47 students of the History of Medicine course were assessed using an instrument that assess the definition of their learning strategies. The information collected was contrasted with the designed objectives of the class. The learning goals were catalogued using Olivares and López (2016) proposal for self-directed learner that classifies in: learning strategies, managing emotions and continuous improvement.
Results: Considering the definition of educational objectives, 64% correspond to the dimension of learning strategies, 15% managing emotions, and 21% to continuous improvement. The course design maintains a 50% development-oriented learning strategies, 25% in managing emotions, and 25% in continuous improvement.
Discussion & Conclusion: There is some correspondence between the definition of learning goals of students and those part of the course design. The emphasis on the acquisition of study habits show that students do not identify their own motivation for learning, this requires that medical schools review their educational intentions, and that they foster reflection to develop lifelong learning habits.
Take-home messages: In the context of the theory of andragogy of Knowles et al, adults should have the autonomy to make decisions about what they want to learn, as well as the method to achieve it. This theory considers the individual as the center of the system, with a proposed method towards personal change.

10JJ3 (3512)

The effectiveness of blended learning on performance of medical students in back school program

Authors
Radchada Sahaworakulsak
Chatchai Kraysubun

Presenter: Radchada Sahaworakulsak, Chaophyaabhaibhubejhr Hospital, Prachinburi, Thailand

Background: Back school is the educational program about back care, posture, body mechanics, back exercises, and how to prevent long-term back problems in patient with low back pain. Medical students should appropriately demonstrate back school education program to patient.The aim of this study is to compare the effectiveness of traditional lecture and traditional lecture with hand-on back school program on performance of medical students in back school program.
Method: A quasi-experimental study was obtained in this study. Fifth year medical students of Chaophyaabhaibhubejhr Medical Education Center were divided into two groups which is traditional lecture and traditional traditional lecture with hand-on back school program group. Performance of medical student on back school program was measured by using Objective Structured Clinical Examination(OSCE).
Results: 15 medical students were assigned in each group. A traditional lecture with hand-on back school groups demonstrated significantly higher score compared with traditional lecture group(Mean±SD: 96.93±4.04 vs. 82.27±11.15; p =0.003).
Conclusion: Traditional lecture with hand-on back school program improve performance of medical student in back school program.
Take-home message: Combined learning method with traditional lecture with hand-on back school program is better way to improve performance of medical students in back school program.

10JJ4 (1525)

Improve PALS learning of final-year medical students with simulation scenarios

Authors
Natthachai Muangyod

Presenter: Natthachai Muangyod, Cardiovascular Unit, Pediatrics Division, Lampang Medical Student Center, Lampang Hospital, Lampang, Thailand

Background: Final-year medical students are required to complete pediatric advanced life support (PALS) module. This class is conducted in a 2-hours period. A new study guide has been developed to maximize learning experience.
Method: In the class, a group of 8 to 10 students were assigned to watch 15-minutes PALS video, attended 15-minutes lecture, practiced pediatric basic life support (PBLS) with a cardiopulmonary resuscitation (CPR) model individually for 30 minutes. Then, for the last hour, they were assigned to practice in a small group with 2 or 3 simulation scenarios. For PBLS, instructor observed students performed chest compression, basic and advanced airway management, and foreign body removal. For the simulation scenarios, students were assigned their specific role in each case and then they had to take turn with their classmates in other cases. Students were evaluated by their pre and post-test scores.
Results: Fifty-three medical students joined the PALS practice, July to December, 2016. The post-test scores of the students increased more than 10%. Almost of the students got core concepts of PALS and could practice accurately. Students enjoyed the class and felt enthusiastic to learn.
Conclusion: A new study guide that includes simulation scenarios made the 2 hours-class very fruitful. Students could achieve both PBLS and PALS within a limited time.
Take-home message: Simulation scenarios can improve students' learning.

10JJ5 (2618)

The Application of 3-dimensional Printing Tools Added in IPE/IPP Teaching Courses in a Resources-limited Hospital in Taiwan

Authors

Cheng-Hsi Liao
Chin-Hu Lai
Deng-Ho Yang
Chih-Hung Wang

Presenter: Cheng-Hsi Liao, Department of Surgery, Taichung Armed Forces General Hospital, Taichung City, Taiwan

Background: For the past 7 years, 3D-printing technology has become a new teaching trend to those clinical teachers. Today, we catch up with the trend to develop the 3D-printing skills and cooperate with the professional company to design teaching tools, teach new-coming stuffs to improve their clinical skills.
Our IPE team creates clinical tools, using the 3D unique software "3-matic", that combines CAD tools with pre-processing capabilities, and use MIMICS, an image-processing package that provides an interface between 2D image data (such as CT,MRI,3D ultrasound,etc). After learning, we design suitable tools for a better teaching environment. Then we use the tools to demonstrate a simulation scenario (Ex.Dentist's tooth model), and do more practices to teach the new-coming stuff, not directly on real patients.
Results: Since 2017 Dec., we cooperated with the professional company to create our own 3D-printing tools, and bought their software and basic 3D-printing machine, called FDM. Then we hold conferences,workshops and a master lecture to teach our hospital members from 2018. Jan. to June. Then our IPE team will design their own 3D tools in teaching. And we hold regular meetings monthly and perform clinical scenarios by using the 3D-printing tools, Ex. A dentist's tooth model, and a human heart model.
Discussion & Conclusions: 3D-printing technology is not hard to learn. Fortunately, our hospital supports the plan. Therefore, we need the IPE members to be well-educated about how to design teaching tools, and operate the 3D tools. In hospital, patient's safety is always the first priority, so we don't practice immature skills on patients. We have confidence to use the 3D-printing tools, and IPE team members can make their teaching quality better. Then we'll trace the teaching and learning effects monthly. Rapid changes in health care systems esp.the new trend in using 3D-printing technology. We catch up with the trend to develop our own 3D-printing skills to let our IPE members design suitable clinical teaching tools.
Take-home messages: 1. Teach the IPE members to use the 3D software/machine to design,and create their own particular teaching tools,and hold conference monthly to trace the teaching and learning effects.
2. Perform simulation scenarios with IPE teams to teach stuff by using those tools.

3. Let hospital managers know how we perform the tools and keep on supporting the plans,even the resources are limited.

10JJ6 (944)

3D Printing Technology Applications in Clinical Teaching

Authors

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Bo-yu Tsai
Yi-Chun Tsai
Wan-Meng Lee
Chia-Hsin Chen
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Presenter: Wen-Lung Liang, Kaohsiung Medical University Chung-Ho Memorial Hospital, Kaohsiung, Taiwan

Background: The clinical teaching aids manufactured using 3D printing technologies have been the replacement of traditional teaching aids nowadays, not only help achieve cost savings but also offer customized assistive devices for patients in different clinical cases. Since August, 2016, Kaohsiung Medical University Hospital has created a database containing the data of applications of more than twenty 3D printed teaching materials in clinical teaching, diagnosis and treatment.
Method: The images of 3D printed teaching aids are provided by the academic department, and the manufacturing application should be submitted in accordance with "Standard Operating Procedures for 3D Printed Teaching Materials". Subsequently, the department of production will convert CT scans to 3D printable files, thereby printing the teaching aids and creating an image database for future reference. Afterward, a follow-up survey on the satisfaction with applications of 3D printed teaching aids and the analysis thereof will be done by following the process improvement cycle- PDCA.
Results: There are more than twenty 3D printed organs models in the database as follows: pelvis and lumbar (low back pain lecture), nose (large), liver, gall and pancreas (liver function lecture), eyes (eye movements lecture), hands (hand function lecture), heart (ventricular septal defect lecture), lungs (respiratory therapist training), upper and lower jaws (dentistry lecture), breasts (breast lump exam) and baby's foot (blood collection lecture). After two-year follow-up of the satisfaction with the applications of teaching aids, the average satisfaction reaches the degree between 88.1%~95%.
Discussion & Conclusion: Whereas the characteristics of 3D printing technologies are low cost, low risk (teaching aids) and the rapid manufacturing of customization, which correspond to the convenience and high-level satisfaction with teaching performances provided by applications of modern simulation teaching aids in clinical teaching , hence such applications in medical science (clinical diagnosis, treatment and teaching) have been widely used day by day.
Take-home messages: Since solid models ignites learners' interest in learning and thereby enhances the clinical teaching performance, whereby 3D printing technology

applications in clinical teaching have been well approved by instructors and learners.

10JJ7 NOT PRESENTED

10JJ8 (2560)
Development of large-scale simulation-based education programs to accomplish early exposure to clinical medicine for year one medical students

Authors
Kazunobu Ishikawa, IUHW, Narita, Japan
Gen Kobayashi, IUHW, Narita, Japan

Presenter: Kazunobu Ishikawa, International University of Health and Welfare (IUHW), Narita, Japan

Background: Although medical students have strong motivation and interest to real world of clinical medicine, not a few of them lose their desire to learn because of long-term education curriculum consisted of natural science, human studies and art. This condition is currently leading increasing numbers of holdover and declining academic standards among junior medical students in Japan.
Method: After lifting 38 year-long ban establishing medical school in Japan, our medical school has approved to reinvent medical education in April 2017. We have launched educational practice to cultivate aspirational learners aiming a good doctor. To accomplish this, we have developed large-scale simulation-based education programs for year one medical students.
Results: We have installed a Simulation Center for Outstanding Professional Education (SCOPE), which spaces over 5,300 m2 with multi-functional training and debriefing rooms to conduct large scale simulation. One hundred forty medical students had the following simulation-based programs; "Welcome BLS (basic life support) training" soon after they enter medical school, "Case-based pharmacology exercise with advanced patient simulator to learn the relationship between vital sign and drug action", "Clinical anatomy training with labor and delivery patient simulator", "Basic medical interview skills with simulated patients", "Basic task trainings for physical assessment and auscultation in cardiovascular and respiratory medicine". All of these have come to fruition.
Discussion: A significant number of students commented that these simulation-based programs grow up with the sense of a doctor through the physical senses such as touch, hearing and eyesight. Students also answered that hands-on learning highly motivated passion to become a doctor.
Conclusion: To implement large-scale simulation-based programs, we needed to make considerable efforts to design a new curriculum, develop an appropriate track system, recruit significant numbers of teachers and facilitators, and install spacious facilities. However, these efforts seem to inspire a deeper commitment from novice learners.
Take-home message: A novel large-scale simulation-based education programs to foster aspiring doctors

accomplished early exposure to clinical medicine for year one medical students.

10JJ9 (1475)
Enhancing Clinical Competence of Novice Nursing Practitioners: Use of Interactive Situated and Simulated Teaching Program

Authors
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Presenter: Sue-Hsien Chen, Chang Gung Memorial Hospital, Taoyuan County, Taiwan

Background: Healthcare organizations require a proficient but less turnover nursing staff to maintain high quality of patient care. Novice nursing practitioners (NNPs) may have difficulty in practicing competently, consequently compromising the quality of care. It is therefore important to investigate if the program integrating interactive situated and simulated teaching (ISST) facilitates successful transition of NNPs to competent practitioners. We thus evaluate the effects of the ISST program on developing competency in NNPs, which may promote their self-confidence and reduce the number of work-related stressors.
Method: We randomly allocated 31 newly graduated NNPs into interactive situated and simulated teaching and non-ISST groups. The ISST program comprised six follow-up interactive face-to-face support sessions over a three-month period following the standard orientation training course. We assessed the participants' competency, stress, and confidence levels in professional competence before and at the end of the study.
Results: At the end of the three-month study period, the ISST group demonstrated superior nursing competency, as well as reported lower stress levels, and increased confidence in professional competence as compared with those in the control group. A multiple regression analysis revealed that clinical nursing competence was positively correlated with the use of ISST and negatively correlated with stress (p<0.05).
Discussion: The ISST program for NNPs significantly improved their clinical competence in terms of medical knowledge, physical assessment skills, and critical thinking abilities. Situation-based teaching can be a platform providing a valuable learning tool to mitigate care-related strains and resolve practical dilemmas in a controlled environment.
Conclusion: This study delivered a practical and useful strategy to nursing educators and healthcare

administrators. The ISST program may enhance the acquisition of knowledge, cultivate a positive attitude toward work, and motivate NNPs to take an active and collaborative role in teamwork.

Take-home message: The key to a successful interactive situated and simulated teaching approach is effective teaching materials and learning activities. Trainees can rehearse practical procedures and can receive feedback from facilitators and peers.

10JJ10 (3607)
The Input-Output model: a simple tool to structure causes of clinical problems

Authors
Arnout Jan de Beaufort, LUMC, Netherlands
Moon J Spanjer, LUMC (formerly), Netherlands
Floris M van Blankenstein, LUMC, Netherlands

Presenter: Arnout Jan de Beaufort, LUMC, Leiden, Netherlands

Background: Application of basic science knowledge in the clinical setting remains a challenge for medical students. Medical disciplines teach their content differently, using a variety of organizing concepts. These variations make memorization of pathophysiological knowledge complicated for students. In addition, the pathophysiological concepts do not always fit patient problems in clinical practice.

The input-output model (IO-model) is a general applicable model that aims to organise causes of clinical problems pathophysiologically. The basic concept of the IO-model is the perturbation of an input- output balance. For example, in anaemia the imbalance is either the result of a decrease input, i.e. a decreased erythrocyte production, e.g. by iron deficiency, or an increased output, e.g. by internal or external erythrocyte loss. Similarly, obesity is due to an increased intake (too much food) or decreased output, resulting from various causes like inactivity, hypothyroidism etc.

We hypothesized that the input- output model, as a general organising principle of pathophysiologic knowledge, facilitates application of pathophysiological knowledge in clinical practice.

Method: Six interns applied the IO-model in a voluntary session. They used the model on anaemia (provided clinical problem), and a self-selected clinical problem.

Results: The IO-model helped the interns to organize causes of anaemia. Use of the model yielded even an additional cause, earlier not identified. They could use the model in most self-selected clinical issues, low weight, swollen testis and actinic keratosis. They found the model less suitable for incontinence, hypertension and stomach ache.

The interns described their first experiences with the IO-model as 'an useful tool to organize and memorize causes of clinical problems pathophysiologically', and 'it stimulated to think deeply on the problem'.

Discussion & Conclusion: The participating interns found the IO-model an useful tool to effectively organise causes of clinical problems, although it may be not applicable to every clinical problem. This may be in part explained by unfamiliarity with the model.

Take-home messages: Interns considered the IO-model an useful tool in organizing causes of clinical problems pathophysiologically. The IO model may not be applicable to every clinical problem. Future studies will show the effect on knowledge retention.

10JJ11 NOT PRESENTED

10JJ12 (3115)
Examining the characteristics of the diagnostic justification among residents and medical students and the effect of scheme-inductive learning

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Presenter: Kuo-Inn Tsou, Fu Jen Catholic University, School of Medicine; Catholic Tien Hospital, Department of Pediatrics, New Taipei City, Taiwan

Background: In a previous study, we found that medical students and residents differed from experts in the process of problem-solving. We further examining the characteristics of their diagnostic justification abilities.

Method: Six clinical vignettes from three common clinical presentations in Neurology (cognitive impairment, dizziness/vertigo, weakness) were presented to residents in Neurology and medical students in clinical and pre-clinical years, for think aloud task. The diagnostic justification questionnaire was adopted to analyze the transcripts of the interview recordings. Data from attending physicians in Neurology were also obtained as the standard.

Results: Residents did not differ from attending physicians in either component scores or total score. As comparison, medical students had lower component scores and total scores. Clinical training could improve medical students' diagnostic justification abilities. Scheme-inductive learning in the pre-clinical education was also noted to improve the diagnostic justification abilities, but not to a great extent.

Discussion: Clinical reasoning is essential for the daily practice of a physician. Both content knowledge and clinical experiences are important for clinical reasoning. It remains a challenge of teaching knowledge that is integrated, organized and usable for clinical reasoning. Scheme-inductive learning maybe used to scaffold students' structure of knowledge and diagnostic reasoning strategies. However, identifying the student's deficit in knowledge and gaps in clinical reasoning might make the cultivation of clinical reasoning ability more effective.

Conclusion: Although it is important to develop medical trainees' clinical reasoning ability, there is still a lot to be done. Using appropriate tool to identify deficit in medical knowledge and gaps in clinical reasoning in medical

students is important for the cultivation of medical students' clinical reasoning ability.

10JJ13 NOT PRESENTED

10JJ14 (3668)
How can approaches of different medical systems be made visible, brought into dialogue, and reflected? - Real Patient Study Days Integrative Medicine

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Presenter: Diethard Tauschel, Integrated Curriculum for Anthroposophic Medicine & Institute for Integrative Medicine, Faculty of Health, Department of Medicine, Witten/Herdecke University, Witten, Germany

Background: Integrative Medicine (IM) is regarded as a potential solution for health care challenges and to contribute to patient-centered care (Maizes 2009). Within its definition, IM "(…) focuses on the whole person, is informed by evidence, and makes use of all appropriate therapeutic and lifestyle approaches, (…) to achieve optimal health and healing" (The Consortium of Academic Health Centers for Integrative Medicine 2017). Yet, care providers and students do often neither know how different medical systems approach patients, nor are aware of underlying principles like concepts of anthropology, disease, health and healing, type of relationship to the patient, or usage of patient´s resources.
Method: Real Patient Study Days Integrative Medicine (RPSD IM) with a present patient were developed as a teaching and learning model for undergraduate medical education. To promote the above mentioned awareness on approaches of different medical systems and their methodologies, didactic means like observational and reflective tasks and interactivity with expert groups and group puzzle were applied in order to allow deep learning. A mixed-methods evaluation was conducted.
Results: Implementation was carried out as an elective course in the clinical phase of the medical model curriculum of Witten/Herdecke University. From 2008-2017, N = 8 RPSD were conducted. Usually, Conventional, Homeopathic, Anthroposophic, and Traditional Chinese Medicine were represented.
N = 166 students evaluated overall judgment, promotion of understanding of IM and positive changes in attitude to different medical systems with median scores between 5.0 and 6.0 [6-point scale: 1 = does not apply; 6 = fully applies].

A focus group discussion pointed out adjustability and transferability to different settings.
Discussion & Conclusion: In contrast to the Casuistic Case Conferences Integrative Medicine (Brinkhaus 2011), RPSDs IM enable live experiences of approaches of different medical systems to a present patient. RPSDs IM seem to be a suitable experiential teaching and learning model for promoting awareness and reflection of different approaches in Integrative Medicine. Adjustment to e.g. an interprofessional setting is yet to be tested.
Take-home message: Real Patient Study Days Integrative Medicine enable high-rated live experiences of approaches of different medical systems with a present patient.

10JJ15 (1524)
Final year medical students' perceptions of hospital ward rounds and the implications for teaching and learning

Authors
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Mumtaz Patel

Presenter: Ibrahim Ali, University of Manchester, Manchester, UK

Background: The hospital ward round is a potential treasure trove for learning clinical medicine. However, many factors can inhibit the educational experience. This study sought to explore final year medical students' perceptions of ward rounds, the factors that impact on their learning and how the learning experience can be improved.
Method: Final year students based in a UK hospital were recruited to complete a validated questionnaire and participate in a 1-hour focus group. Qualitative data was subjected to an inductive thematic analysis. Eleven out of thirty students completed the questionnaire (37% response) whilst ten participated in the focus group.
Results: Students' preferred methods of participation included being asked questions and presenting patients on ward rounds. A lack of time was the most inhibitory learning factor. Three positive factors were identified: firstly, a final year student identity exists that results in a better experience compared with earlier clinical years; secondly, organisation of final year placements results in better learning opportunities; finally, and most importantly, were the doctors' ability to teach and foster learning.
Discussion & Conclusion: A differential learning experience exists for final year students compared with their younger counterparts who face liminality in the clinical environment. Firstly, final year students perceived themselves as knowledgeable, self-directed learners. Secondly, hospital placements in final year provided students with increased time on ward rounds and in smaller numbers. Both these factors allowed final year students to better integrate within the clinical team and assume roles and responsibilities, which promoted learning. Ultimately, however, students acknowledged the dependency of doctors' attitudes to teaching and their ability to create a positive learning environment that supports student participation.

Take-home messages: Strategies to improve learning on hospital ward rounds include:
1. Incentivising doctors to teach.
2. Embedding a few students within each clinical team.
3. Routinely assigning roles and responsibilities to students.

10JJ16 (1300)
How might medical teachers enhance the transfer of basic physiological knowledge into clinical applications? A Case Analysis of SWU Medical Students' Fluid Therapy in Paediatric Patients

Authors
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Stuart Cable, CME, University of Dundee, Dundee, UK

Presenter: Achara Wuttiprasittipol, Panyananthaphikkhu Chonprathan Medical Centre (PCMC), Srinakharinwirot University (SWU), Nonthaburi, Thailand

Background: Transferring knowledge from theory to practice is a historical challenge in medical education, however, evidence of recommended strategies to enhance knowledge transfer in medical education is limited. Students' and teachers' perspectives on transferring theory to practice were explored to identify key challenges and derive potential strategies to enhance knowledge transfer.
Method: To elicit experiences in knowledge transfer on fluid therapy, three focus groups were performed to five higher-scored students, six lower-scored students, and nine clinical instructors at Panyananthaphikkhu Chonprathan Medical Centre (PCMC) campus of Srinakharinwirot University (SWU). Additionally, the other two teachers from other campuses were individually interviewed. A thematic framework analysis was undertaken of participants' experiences in transferring preclinical knowledge to clinical application and of their insights of potential strategies to enhance knowledge transfer.
Results: Knowledge retention, ability to apply preclinical concepts into clinical contexts, and learning skills in a clinical clerkship, were major issues in transferring theoretical knowledge to clinical application. Suggested strategies to enhance knowledge transfer included revising current curriculum design, developing faculty collaborations, modifying content delivery, and enhancing learning skills in a clinical clerkship.
Discussion & Conclusion: Students and teachers reported similar key influences on knowledge transfer, i.e. knowledge retention, ability to apply preclinical concepts into clinical contexts, and learning skills in a clinical clerkship. However, there were gaps of these influences between students' experiences and teachers' expectations. Major issues to narrow these gaps, i.e. curriculum design, development faculty collaborations, content delivery, and enhancing learning skills, could articulate strategies to enhance knowledge transfer.

There is a disparity between students' experiences and teachers' expectations regarding knowledge transfer. Medical teachers might enhance the transfer of theoretical knowledge into clinical applications by developing strategies to bridge these gaps.
Identifying gaps between students' experiences and teachers' expectations helps address key challenges in knowledge transfer.
Take-home message: Narrowing these gaps through strategies identified might enhance knowledge transfer. Further study is required on the implementation of knowledge transfer strategies in different contexts.

10JJ17 (1544)
Centennials arrived! The challenges of teaching anamnesis to the digital native student through active methodologies

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Presenter: Bruna Leite Moreira Alves, Faculdades Pequeno Príncipe, Curitiba, Brazil

Background: The digital natives (born after 1995) are now our medical students. They are proactive online and want the educator to teach what they cannot find quickly on Google. On the teaching of anamnesis it is fundamental knowing how to communicate with patients in order to obtain precise information. To favour students' motivation and learning, without jeopardizing the verbal communication, is necessary to perfect the teaching dynamics allying active methodologies to the online student.
Method: Aiming to attract the students by making the teaching of anamnesis more interesting they were encouraged to research, by digital means, different ways of performing anamnesis on selected clinical cases. The research results were presented by the students through simulations in pairs (physician and patient). A debriefing session addressed the correct and incorrect ways, considering the ideal structure of anamnesis described in the literature.
Results: The students felt instigated by the way of approaching the topic, as the digital world is part of their daily lives. Watching videos showing different anamnesis models made the perception of right and wrong wider and easier. They reported that simulating the physician or the patient helped the ethical-professional development improving theoretical-practical learning and the critical view over medical assistance.
Discussion & Conclusion: Generation Z's medical student was born immersed in the digital world, a click away from answers. While treating a patient, the first step is being capable of gathering accurate information, which can only be obtained through a careful anamnesis, face-to-face, creating a good link and empathy. Instead of tiring lessons

about the topic, an active research of anamnesis models on digital means and a discussion after role-playing showed the importance of formulating an adequate question and organizing information to get to a diagnostic hypothesis, thus improving the capacity of synthesis and analysis of collected data on anamnesis.

Take-home messages: Associating active methodologies to the digital world optimizes the training of communication skills. This approach is well accepted by digital native medical student, turning the learning process more interesting and closer to their reality without diminishing the doctor-patient bond

10JJ18 NOT PRESENTED

10JJ19 (2274)
Digital Pedagogy Using Digital Classroom Response System (DCRS) with Poll Everywhere is an Effective Method in Teaching Oncology Module for Undergraduate Medical Students: Experience from Singapore

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Presenter: Hon Lyn Tan, Department of Hematology-Oncology, National University Cancer Institute, Singapore

Background: The use of personal mobile devices (phones, tablets, laptops) is prevalent in medical education classes in Singapore. We aim to capitalize on this with teaching of the Oncology Module for undergraduate medical students using a novel digital pedagogy.
Method: National University of Singapore Yong Loo Lin School of Medicine (NUS YLLSOM) started utilizing Poll Everywhere, a digital classroom response system (DCRS), in 2017 to enhance teaching and interactivity with students. A pilot study using Poll Everywhere to teach second-year medical students the Oncology Module was conducted. Each student was given an individual unique Poll Everywhere account to participate actively. We aim to evaluate the effectiveness of teaching via digital pedagogy using DCRS with Poll Everywhere.
DCRS using Poll Everywhere was conducted for the cohort of 100 Phase II medical students. 85-90% responses were recorded. All students had web-based live access to Poll Everywhere via personal mobile devices.
Results: 74% of students reported that they were able to maintain their concentration during the teaching sessions. 95% agreed that Poll Everywhere promotes active participation and 93% felt it provided a safe space for active participation. 92% agreed that it is an effective pedagogy and helps them understand the subject matter better. 86% agreed that Poll Everywhere allows instant

feedback on their knowledge gaps. 88% reported that the facilitator was able to summarize important points with Poll Everywhere and 87% of them would recommend DCRS as a tool for teaching.
Discussion & Conclusion: DCRS using Poll Everywhere is shown to be an effective pedagogy in the Oncology Module for second year medical students in Singapore in this pilot study. Students feel safe to participate actively and appreciate instant feedback on their understanding of the subject matter. Majority of students would recommend this as part of teaching in the future.
Take-home message: Poll Everywhere is a useful digital pedagogy in the Oncology Module for second year medical students.

10JJ20 (443)
Framing effects on medical student diagnostic testing and therapeutic decision-making judgements

Authors
Jennifer Stojan
Michelle Daniel
Helen Morgan
Laurie Whitman
Rajesh Mangulkar
Larry Gruppen

Presenter:
Michelle Daniel, University of Michigan, Ann Arbor, USA

Background: Research demonstrating the way in which a decision is framed, as a loss or a gain, can bias response. This study examines the impact of framing bias on decisions students make under conditions of uncertainty.
Method: 175 fourth year medical students were presented a patient with viral pneumonia and a possible superimposed bacterial infection. Students were told they could either empirically treat with antibiotics, not treat, or order a test prior to deciding. Students were randomly allocated to two versions of the case. Version A asked students to indicate the range of disease probabilities for which they felt it WOULD be necessary to order a test prior to deciding. Version B asked students to indicate the range of disease probabilities for which they felt it would NOT be necessary to order a test prior to deciding.
Results: Framing manipulation had no effect on mean threshold values that students estimated. The threshold for treating without additional testing was 74.9% (version A) vs. 72.6% (version B) and the threshold for not treating vs. wanting additional testing was 17.5% (version A) and 20.0% (version B). The framing condition was associated with a difference in testing decisions when an actual patient probability (20%) of having the superimposed infection was provided. Students given Version A were significantly more likely to request a test (78.1%) and less likely to forego treatment (11.0%) than students given Version B, where 62.8% requested a test and 29.1% decided to forego treatment.
Discussion & Conclusion: Focusing student attention on the range of uncertainty versus the range of certainty did not alter the testing and treatment thresholds. Framing manipulation did influence actual treatment vs testing

decisions when a specific pretest probability of disease was defined. The dynamics of the framing effect are complex, but often involve changes in risk tolerance. Care must be taken to understand how learners interpret such cases, because seemingly trivial word changes may have a major impact on decision making.

Take-home message: These results suggest that the framing of a decision may affect how students respond to choices they are given.

10LL: Workshop: Reviewing for AMEE MedEdPublish – enhancing scholarship

Location: MCH Lounge, Event Hall
Date: Wednesday 29th August
Time: 0830-1015 hrs

Presenters:
Richard Hays (Editor)
Trevor Gibbs (Associate Editor)
Ken Masters (Associate Editor)
Subha Ramani (Associate Editor)
Kerrie McKay (MedEdPublish Administrator)
Elizabeth Beattie (Technology Administrator)

Background:
AMEE MedEdPublish is an exciting new venture in academic publishing, combining post-publication review, rapid processing, low submission costs and academic mentoring for AMEE members wishing to contribute to learning within the medical education community. Reviewing papers is an important academic task, but how to compose a review is a skill that needs to be developed. This workshop will introduce AMEE conference attendees to the process of conducting a review, aiming to improve skills and confidence as we expand our pool of reviewers.

Who should attend
All conference participants who would like to learn about how to conduct a review of an academic paper are welcome to attend. We are particularly keen to welcome new potential reviewers, as well as to meet with those who have already provided some reviews.

Structure of the workshop
The session will begin with a brief overview of the requirements of a review for a paper published in AMEE MedEdPublish. We will then work either in small groups or individually to write a review of a recently published paper that we will provide. You may bring your laptops and tablets with you as you will be able to compose and submit reviews during the workshop.

Intended outcomes
Participants should gain a better understanding of how to write a review of an academic paper and should feel more confident in doing this.

SESSION 11: Plenary/PechaKucha™ Presentations

Wednesday 29th August

1045-1245 hrs

11A: Plenary: Broadening the Curriculum Beyond Bioscience

Location: Event Hall
Date: Wednesday 29th August
Time: 1045-1245 hrs

Ayelet Kuper
Wilson Center, University of Toronto, Canada

Summary: Medical curricula have traditionally been comprised of bioscientific knowledge but widely-accepted competency frameworks now require physicians to be trained in areas beyond biomedical knowledge and technical skills. The roles that physicians are now being called upon to perform depend on concepts, theories, and ways of knowing from the social sciences and humanities. Is it any wonder that medical educators continue to express uncertainty about what and how to teach in these areas?

Biography: Ayelet Kuper is a Scientist and Associate Director at the Wilson Centre as well as a Clinician-Scientist and Associate Professor in the Department of Medicine at the University of Toronto. She obtained her DPhil from Oxford University as a Rhodes Scholar in 1997 and her MD from the University of Toronto in 2001. She has authored over 50 peer-reviewed publications and regularly presents her research nationally and internationally. Her research program focuses on the legitimacy of different forms of medical knowledge, with a particular interest in challenging taken-for-granted assumptions and in foregrounding ways of knowing that promote equity and reflexivity.

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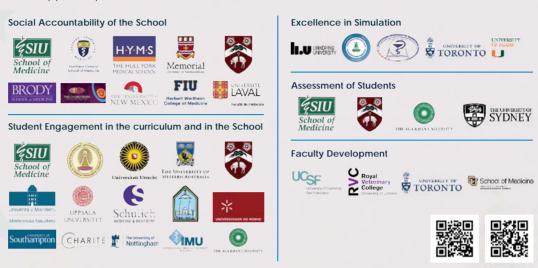
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