

**AMEE 2016 Abstract Book**  
(Including dates and times of presentations)

**Contents**

Time	Session No.	Session type	Title
<b>Sunday 28 August</b>			
<b>1800-1900</b>	<b>Session 1</b>		
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<b>Monday 29 August</b>			
<b>0830-0930</b>	<b>Session 2</b>		
	2A	Plenary	Uncertainty in Healing and Learning: Finding the Simple in the Complex Glenda Eoyang

<b>1000-1200</b>	<b>Session 3</b>	<b>Simultaneous Sessions</b>	
	3A	Symposium	Medical Education and Health Systems in the 21st Century: In search of a new paradigm for “Wicked” Problems in healthcare
	3B	Symposium	Making feedback better: how can we innovate within a rigid professional culture?
	3C	Symposium	Big learning from small screens. Using mobile technology in medical education
	3D	Research Papers	Assessment
	3E	Research Papers	Self-Regulation and Self-Efficacy
	3F	Symposium	Teaching medicine in the clinical setting (Conducted In Spanish)
	3G	Short communication	Professional Identity
	3H	Short communication	Empathy
	3I	Patil Awards	Patil Awards 1
	3J	Short communication	Integration and Curriculum Development
	3K	Short communication	Competency-Based Education 1
	3L	Short communication	Teaching and Learning Theory
	3M	Short communication	Approaches to Clinical Teaching
	3N	Short communication	Prescribing
	3O	Short communication	Faculty Development 1
	3P	Short communication	OSCE
	3Q	Short communication	Postgraduate Education 1
	3R	Short communication	Teacher
	3S	Workshop	How to optimise a flipped classroom using Team Based Learning
	3T	Workshop	Enhancing Learning Using Clinical Case Scenarios and Concept Mapping as a Visual Strategy to Teach Critical Thinking in Medical School
	3U	Workshop	Setting defensible cut scores in a mastery-learning environment
	3W	Workshop	Integrating Simulated Patient Methodology into Your Educational Context
	3X	Workshop	Programmatic assessment of competency-based workplace learning: combining assessment for learning and assessment of learning
	3AA	Workshop	Cost Benefit Analysis of Healthcare Professional Education on Patient Outcomes

	3BB	Workshop	Regulating emotions in practice encounters with Standardized Patients (SPs) – How to get the emotional level just right
	3CC	Posters	Problem-Based Learning/Team-Based Learning
	3DD	Posters	Selection
	3EE	Posters	Curriculum 1
	3FF	Posters	Curriculum Evaluation 1
	3GG	Posters	Early Postgraduate Training/Training for Family Medicine
	3HH	Posters	Simulation
	3II	Posters	Lectures and Flipped Classroom
	3JJ	Posters	Career Choice

1330-1515	Session 4	Simultaneous Sessions	
	4A	Symposium	Should medical education be based in universities?
	4B	Symposium	Globalisation Of Medical Education: Can It Contribute To World Peace?
	4C	Symposium	The many faces of Postgraduate training- The future is here
	4D	Research Papers	Motivation and Other Predictors
	4E	Research Papers	Professional Identity and Leadership
	4F	Symposium	The Neglected Competencies in Undergraduate Medical Education in Spanish Medical Schools (Conducted in Spanish)
	4G	Workshop	Open-access scholarly publishing in the health professions: AAMC MedEdPORTAL™ and AMEE MedEdPublish™
	4H	PechaKucha™	PechaKucha™ 1
	4I	Patil Awards	Patil Awards 2
	4J	Short Communication	Community-Based Education
	4K	Short Communication	Competency-Based Education 2
	4L	Short Communication	Teaching and Learning Methods
	4M	Short Communication	Clinical Skills Training
	4N	Short Communication	Student Characteristics
	4O	Short Communication	Faculty Development 2
	4P	Short Communication	The Examiner/Standard Setting
	4Q	Short Communication	Continuing Professional Development 1
	4R	Short Communication	Teacher Evaluation
	4S	BarCamp	Informal Learning and Technology (continued in 5S)
	4T	Workshop	How to give negative feedback in medical education – Conceptual issues & best practices
	4U	Workshop	The Standardized/Simulated Patient Ready Checklist
	4W	Workshop	The Docent System of Medical Education: Apprenticeship learning enhanced by peer mentoring and longitudinal clinical experiences
	4X	Workshop	Meaningful evaluation of technology-enhance learning resources
	4Y	Workshop	How I can help you to take care of me: Patient involvement in teaching and the medical curriculum
	4Z	Workshop	Medical education in Difficult Circumstances: exposing difficulties, exploring solutions
	4AA	Workshop	Excellence in Social Accountability: how can we help support Medical Schools to improve the health of the communities they serve?
	4BB	Workshop	Evaluative Thinking to Enhance Innovation in Medical Education
	4CC	Posters	Transition
	4DD	Posters	Electives/Education Environment
	4EE	Posters	Clinical Reasoning/Reflection
	4FF	Posters	Curriculum Evaluation 2
	4GG	Posters	Anatomy
	4HH	Posters	Undergraduate Communication Skills
	4II	Posters	Simulation 2
	4JJ	Posters	eLearning

	4KK	Posters	Written and Computer-Based Assessment
<b>1545-1730</b>	<b>Session 5</b>	<b>Simultaneous Sessions</b>	
	5A	Symposium	Faculty Development in the Health Professions: From Skill Acquisition to Professional Identity Formation
	5B	Symposium	Exploring active learning strategies for large group settings
	5C	Symposium	Making the implicit explicit: Theories informing simulation-based education
	5D	AMEE Fringe	AMEE Fringe 1
	5E	Research Papers	Empathy, Caring, and Professionalism
	5F	PhD Reports	PhD Reports 1 ( <b>PhD Thesis Award Session</b> )
	5G	Workshop	AMEE MedEdPublish™ - An exciting new approach to publishing
	5H	PechaKucha™	PechaKucha™ 2
	5I	Short Communication	Transition 1
	5J	Short Communication	Education Environment/Curriculum Evaluation
	5K	Short Communication	Selection
	5L	Short Communication	Lecture/Flipped Classroom
	5M	Short Communication	Clinical Reasoning
	5N	Short Communication	Student Stress/Wellbeing
	5O	Short Communication	Online Learning
	5P	Short Communication	Clinical/Workplace-Based Assessment
	5Q	Short Communication	Trainee in Difficulty
	5R	Short Communication	International Medical Education
	5S	BarCamp	Informal Learning and Technology (continued from 4S)
	5T	Workshop	Tips for Demonstrating Methodological Rigour when using Consensus Group Methods (Delphi and Nominal Group) in Medical Education Research
	5V	Workshop	Sequential Testing Methodologies – A Practical Guide to Implementation and Measuring Benefits
	5W	Workshop	Global Health and Medical and Dental Education: understanding the role of the social determinants of health under difficult circumstances
	5X	Workshop	Tips on preparing ASPIRE award applications in student engagement
	5Y	Workshop	Young Medical Educator's Workshop: Speed Mentoring, Adaptive Action to Refine Mentoring for Young Medical Educators
	5Z	Workshop	Continuing Professional Development: the art of feedback and reflection
	5AA	Workshop	A Gentle Introduction to Psychometrics for the Medical Educator: Key Concepts and How to Apply Them to your Assessment
	5BB	Workshop	Getting strategic with research through priority setting exercises
	5CC	Posters	Interprofessional Education 1
	5DD	Posters	Professionalism and Professional Identity
	5EE	Posters	Patient Safety/Prescribing
	5FF	Posters	Continuing Professional Development
	5GG	Posters	Clinical Teaching 1
	5HH	Posters	Postgraduate Communication Skills
	5II	Posters	Student Engagement
	5JJ	Posters	Student as Teacher

## Tuesday 30 August

<b>0830-1015</b>	<b>Session 6</b>		
0830 - 0905	6A	Plenary	Stumbling blocks into stepping stones; celebrating medical education in Rwanda Phillip Cotton
0915 - 0950	6B	Plenary	Medical Education in Difficult Circumstances: a student perspective Ewa Pawlowicz

<b>1045-1230</b>	<b>Session 7</b>	<b>Simultaneous Sessions</b>	
	7A	Symposium	Medical Education in Difficult Circumstances: Finding solutions to problems
	7B	Symposium	Teaching Professionalism to Medical Students: A Cross-National Discussion
	7C	Symposium	Integrating Social and Behavioural Sciences in Medical Education
	7D	Research Papers	Program Evaluation
	7E	Research Papers	Quality Improvement and Patient Safety
	7F	Symposium	Issues in Recruiting, Training, Retaining and Rewarding Clinical Faculty Outside the University and Hospital
	7G	Short Communication	Simulation 1
	7H	PechaKucha™	PechaKucha™ 3
	7I	Point of View	Point of View 1
	7J	Short Communication	Subjects in Curriculum
	7K	Short Communication	Multiple Mini-Interviews
	7L	Short Communication	Social Accountability
	7M	Short Communication	Communication Skills
	7N	Short Communication	Student Engagement
	7O	Short Communication	eLearning Resources/Social Media
	7P	Short Communication	Assessment: Written/Computer Based
	7Q	Short Communication	Continuing Professional Development 2
	7S	Workshop	Didactic Dilemmas: How to handle differences in competence level in classroom education?
	7T	Workshop	Competency-based Clinical Supervision: Now or Never
	7U	Workshop	Students as educators: preparation, use and outcomes
	7V	Workshop	P-values, Perils, and Pitfalls: An Quick and Handy Introduction to Resolving Common Statistical Analysis Dilemmas
	7W	Workshop	Showing excellence in student engagement in your medical school
	7X	Workshop	Demystifying scoping reviews: Best practices and applications in health professions education
	7Y	Workshop	From Course Objectives to Entrustable Professional Activities: Developing Test Blueprints for Assessments that Matter
	7Z	Workshop	Exploring Cyborg Learners in the Health Professions
	7AA	Workshop	Demystifying professional support: a practical four box approach to students/doctors in difficulty
	7BB	Workshop	Five Techniques to Develop Safer Healthcare Professionals, Safer Practises and Safer Hospitals
	7CC	Posters	Interprofessional Education 2/Cultural competence
	7DD	Posters	Diversity
	7EE	Posters	Faculty Development
	7FF	Posters	Curriculum Evaluation 3
	7GG	Posters	Speciality Training - Paediatrics and Psychiatry
	7HH	Posters	Student Characteristics and Learning Styles
	7II	Posters	The OSCE
	7JJ	Posters	Feedback



1400-1530	Session 8	Simultaneous Sessions	
	8A	Symposium	Building the Community of Medical Education Scholars: Sharing lessons learned for developing and maintaining successful units for medical education scholarship & research
	8B	Symposium	The Role of Qualitative and Quantitative Feedback in the Context of a Competency-Based Curriculum
	8C	Symposium	Why diversity matters to health, health care and medical education
	8D	Research Papers	Simulation, Integration and Transfer
	8E	Research Papers	Power Relations
	8F	Short Communication	Leadership
	8G	Short Communication	Simulated Patients
	8H	Short Communication	Medical Education in Difficult Circumstances
	8I	Point of View	Point of View 2
	8J	Short Communication	Content Determining/Curriculum Mapping
	8K	Short Communication	Situational Judgement Tests
	8L	Short Communication	Best Evidence Medical Education - BEME
	8M	Short Communication	Longitudinal Clinical Clerkships
	8N	Short Communication	Students in Difficulty
	8O	Short Communication	Interprofessional Education – Undergraduate
	8P	Short Communication	Assessment: Progress Test
	8Q	Short Communication	Postgraduate Education 2
	8S	Workshop	20 Years of PBL: Challenges faced and lessons learnt
	8T	Workshop	Create interactive and engaging learning resources focusing on the use of biomedical images in your teaching
	8U	Workshop	Auditing residency programs aiming for continuous quality improvement and good governance: challenges and opportunities
	8V	Workshop	Understanding and Addressing Today's Wicked Problems
	8W	Workshop	Towards a More Efficient and Safer Global Flow of Well-Trained Medical Doctors
	8X	Workshop	A Practical Approach to Improving Institutional Professional Behavior
	8Y	Workshop	New Frontiers: Evaluation and Training Using Cognitive Simulations
	8Z	Workshop	How do we identify and foster talent in medical schools?
	8AA	Workshop	It's not the same everywhere: Designing hidden curriculum projects with culture in mind
	8BB	Workshop	Hacking MedEd Learning Spaces
	8CC	Posters	Humanities/Empathy
	8DD	Posters	Surgery
	8EE	Posters	International Medical Education
	8FF	Posters	Integration / Portfolios
	8GG	Posters	Outcome & Competency-Based Education
	8HH	Posters	Clinical Teaching 2
	8II	Posters	Learning Resources
	8JJ	Posters	Clinical & Work-Based Assessment
	8KK	Posters	Standard Setting

1600-1730	Session 9	Simultaneous Sessions	
	9A	Symposium	Fostering Innovation and Change in Medical Education: The Durable Impact of Awards and Grants
	9B	Symposium	Doctoral training & advancements in education, research and health education leadership
	9C	Symposium	Build Your Own: An environmentally accountable curriculum
	9D	AMEE Fringe	AMEE Fringe 2
	9E	Research Papers	Clinical Reasoning and Clinical Judgement
	9F	PhD Reports	PhD Reports 2 ( <b>PhD Thesis Award Session</b> )
	9G	Short Communications	The Patient
	9H	Short Communications	Team-Based Learning
	9I	Short Communications	Peer Assisted Learning
	9J	Short Communications	Rural and Remote Education
	9K	Short Communications	Diversity 1
	9L	Short Communications	Education Management
	9M	Short Communications	Problem-Based Learning
	9N	Short Communications	Students: Careers
	9O	Short Communications	Interprofessional Education: Postgraduate/Continuing Education
	9P	Short Communications	Feedback
	9Q	Short Communications	Assessment in Postgraduate Education
	9V	Workshop	Dealing with bias and other adverse examiner behaviours in live clinical assessments: How to minimise aberrant interactions between examiners, students, topics and standardized patients
	9W	Workshop	Developing inter institutional, reliable standards for assessing professional behaviour in medical undergraduates, and developing interventions for students breaching professional standards
	9X	Workshop	Simply Create, Edit, and Share Learning Videos Using iMovie (free iOS app)
	9Z	Workshop	Successfully Implementing Virtual Patients in the Curriculum
	9AA	Workshop	Communication Matters: blending a comprehensive series of e-learning courses and face-to-face workshops
	9BB	Workshop	Essential Leadership Skills for Emerging Leaders in Medical Education
	9CC	Posters	Medical Education in Difficult Circumstances
	9DD	Posters	Ethics/Care of the Dying
	9EE	Posters	Junior Doctor as Teacher
	9FF	Posters	Ultrasound and Imaging
	9GG	Posters	Virtual Patients and Simulated Patients
	9HH	Posters	Teaching and Learning
	9II	Posters	Student Wellbeing
	9JJ	Posters	Understanding Learning

## Wednesday 31 August

0830-1015	Session 10	Simultaneous Sessions	
	10A	Symposium	Creating Safe Spaces for Academic Innovation: Pushing the Boundaries of Medical Education Research and Scholarship
	10B	Symposium	Competencies, Outcomes and EPAs: A virtue or a plague for our learners?
	10C	Symposium	Creating (Global) Citizenship: Introducing students to community and the global playing field
	10D	Research Papers	Feedback and Learning
	10E	Symposium	XIV Iberoamerican Session: National and International Accreditation
	10G	Short Communications	Simulation 2
	10H	Short Communications	Ethics
	10I	Short Communications	Transitions 2
	10J	Short Communications	Behavioural & Social Sciences
	10K	Short Communications	Diversity 2
	10L	Short Communications	Medical Education Scholarship
	10M	Short Communications	Patient Safety
	10N	Short Communications	Cultural Competency
	10O	Short Communications	Blended Learning/Virtual Patients
	10P	Short Communications	Portfolios
	10Q	Short Communications	Professionalism
	10R	Workshop	How can we promote cultural diversity in medical education research?
	10S	Workshop	Continuing Medical Education: Innovative Approaches to Putting Theory into Practice for Curriculum Development
	10T	Workshop	Understanding the World Federation for Medical Education (WFME) criteria for recognising agencies that accredit medical schools
	10U	Workshop	PASREV (Closed)
	10V	Workshop	Migrating face-to-face courses to e-learning formats: A hands-on introduction to building e-learning elements
	10W	Workshop	Supporting the Educator - the new NACT UK guidelines
	10X	Workshop	Written feedback on assessment: making it effective for learning
	10Y	Workshop	Translating research findings from higher education research
	10Z	Workshop	Design, Practice and Assessment of Experiential Learning for Health Professions Education based on contextual needs and settings
	10AA	Workshop	Making sense of our mistakes: Exploring interpretative, narrative based pedagogy for professional identity development
	10BB	Workshop	Stories in Medicine ARE Medicine! A Healthcare StorySLAM Workshop
	10CC	Posters	Leadership/Management
	10DD	Posters	The Teacher and Faculty Development
	10EE	Posters	Teaching about Research
	10FF	Posters	Subjects in the Curriculum
	10GG	Posters	Speciality Training
	10HH	Posters	Teaching Practical Skills
	10II	Posters	Mobile Learning and Social Media
	10JJ	Posters	Student Stress
<b>1045-1230</b>	<b>Session 11</b>		
1045-1120	11A	Plenary	Professionalising teaching innovation in the digital age Diana Laurillard

## Session 1: Plenary

Sunday 28 August 2016: 1600-1900 hrs



### #1A Plenary: Creating Safe Spaces for Academic Innovation: Pushing the Boundaries of Medical Education Research and Scholarship

Location: Auditorium

**Graham Brown-Martin\*** (*Education Design Labs, UK*)

Graham Brown-Martin excels at stimulating new thinking and new ideas. Whether speaking on education, technology, digital learning, new futures, privacy, digital safety and entrepreneurship, he takes his audience on a journey and challenges them to think differently. Brown-Martin was the founder of Learning Without Frontiers, a global think tank that brought together renowned educators, technologists and creatives to share provocative and challenging ideas about the future of learning. He was responsible for some of the most provocative and challenging debates about education. He left LWF in 2013 to pursue new programmes and ideas designed to transform the way we learn, teach and live. His 30-year career has spanned the digital, education and creative sectors inventing and building new businesses that challenged the status quo. Always too early, he designed mobile computers in the 1980s, interactive digital music systems in the 1990s and cloud-based storage systems in the early 2000s. Brown-Martin's rich and varied experiences in the entertainment, education, digital and creative fields give him a unique perspective on innovative learning strategies for the new generation of learners.

## Session 2: Plenary

Monday 29 August 2016: 0830-0930 hrs



### #2A Plenary: Uncertainty in Healing and Learning: Finding the Simple in the Complex

Location: Auditorium

**Glenda Eoyang\*** (Executive Director  
Human Systems Dynamics Institute, USA)

Uncertainty is a fact of life in the medical professions, but it seldom appears in educational programs for health care professionals. The theory & practice of dealing with uncertainty have long been relegated to the world of intuition & luck. Recent developments in the sciences of chaos and complexity introduce rigorous and disciplined approaches to deal with uncertainty. In this session, Dr. Eoyang will share the two fundamental principles of human systems dynamics and three core distinctions that will inform theory and practice to improve educational outcomes for your students, performance outcomes for their organizations, & health outcomes for their patients.

## Session 3: Simultaneous Sessions

Monday 29 August 2016: 1000-1200 hrs

### #3A Symposium: Medical Education and Health Systems in the 21st Century: In search of a new paradigm for “Wicked” Problems in health



Location: Auditorium

**Stewart Mennin\*** (Mennin Consulting & Associates, Albuquerque, New Mexico, USA and Sao Paulo, Brazil)

**Ian Curran\*** (Education & Professional Standards, General Medical Council, UK)

**Glenda Eoyang\*** (Human Systems Dynamic Institute, Minneapolis, Minnesota, USA)

**Lambert Schuwirth\*** (Flinders University, Australia) (Chair)

Health care services around the world are struggling to meet rising demand and shrinking resources. Medical education, responsible to provide a relevant and adaptive health workforce, finds itself both challenged by innovation and constrained in a traditional education framework. Health and the preparation of future professionals faces profound and numerous “wicked” problems, defined as ones that are impossible to solve because of complexity, incompleteness, contradiction or changing requirements that cannot be anticipated or controlled. We propose that a new way of thinking is required. We will explore these ‘wicked’ challenges, promote dialogue and discover new paradigms that offer the hope, scope and capacity to face the current and emerging challenges of health and education in the 21st century.

### #3B Symposium: Making feedback better: how can we innovate within a rigid professional culture?

Location: 211 – P2

**Anna Ryan\*** (University of Melbourne, Australia)

**Chris Watling\*** (Schulich School of Medicine and Dentistry, Western University, London, Canada)

**Chris Harrison\*** (Keele University School of Medicine, UK)

**Lorelei Lingard\*** (Western University, London, Canada) (Discussant)

Expectations for feedback have never been higher. Current approaches to feedback are often disappointing, and innovation is required. But improving feedback in medical education is as much a cultural challenge as an individual one. Medicine requires its teachers to play multiple roles (assessor, coach, supervisor, care provider), complicating the feedback conversation. Medicine values confidence and independence, complicating learners’ feedback-

seeking behaviour. And medicine blurs the lines between summative and formative assessment, creating uncertainty about feedback’s purpose.

Feedback innovations must acknowledge and understand institutional cultures and values whilst pushing the boundaries to create improvement. In this symposium, a group of feedback and assessment researchers will explore the cultural considerations that influence how feedback succeeds or fails. Rather than making a glib call for “culture change”, the presenters will challenge the audience to consider medicine’s learning culture and the professional values that sustain it, and to problem-solve to support meaningful feedback innovations.

### #3C Symposium: Big Learning from Small Screens: Using mobile technology in medical education

Location: MR 112 – P1

Organised by AMEE eLearning Committee (Coordinator: **Peter GM de Jong, Netherlands**)

Several current and future developments in mobile learning for teaching the health sciences will be discussed. Members of the audience are encouraged to bring their own mobile devices to actively participate in the symposium.



### **3D Research Papers: Assessment**

Location: MR117 – P1

#3D1 (126765)

**Perceptions of purpose, value and process of mini-CEX following implementation in anaesthesia training in Australasia – intended and unintended consequences**

**Damian Castanelli\*, Monash University, Melbourne, Australia**

*Tanisha Jowsey (University of Auckland, Auckland, New Zealand)*

*Yan Chen (University of Auckland, Auckland, New Zealand)*

*Jennifer Weller (University of Auckland, Auckland, New Zealand)*

**Introduction:** Workplace-based assessment (WBA) is integral to programmatic assessment in a competency-based curriculum. One such assessment, the mini-Clinical Evaluation Exercise (mini-CEX), became compulsory for Australia and New Zealand College of Anaesthetists (ANZCA) trainees in 2013. WBAs promise more authentic assessment and provide the opportunity for observation and feedback to facilitate learning while informing decisions on progression through training. However, difficulties have been reported in implementation, where assessment of learning and compliance with administrative requirements may dominate the experience of learners and supervisors. We explored trainees' and supervisors' understanding, experiences and use of mini-CEX, and its influence on learning and supervision.

**Methods:** We selected a stratified random sample representing diverse geographic locations and training stages. A non-medical researcher conducted semi-structured telephone interviews of approximately 30 minutes duration. Eighteen supervisors and 17 trainees had participated before data saturation. We developed an iterative coding scheme, and two researchers coded all data, using QSR NVivo10, with periodic checking for consistent coding. We analysed the frequency of coding to each code and associations between codes, synthesised key messages into descriptive findings, and subsequently developed themes. We then refined the themes by comparison with the data until we agreed that they expressed the meaning in the data.

**Results:** Inter-related themes concerned the perceived purpose, value for trainee learning and process of performing mini-CEX. Some participants saw the mini-CEX primarily as an administrative burden while most recognised positive impacts on feedback, trainee learning, and supervision. Finding time for scheduling assessments and feedback delivery in busy clinical workplaces was difficult. Disparate views on case selection were apparent, driven by contrasting goals of receiving useful feedback on challenging cases or scoring highly with lenient assessors or easy cases. The intended use of multiple mini-CEXs in programmatic assessment was poorly understood

with confusion over their potential for both formative and summative assessment.

**Discussion:** Our key findings are that the purpose of the assessments is variously perceived and this confusion affects their assigned value and feasibility. At one extreme, where perceptions align with the underlying 'assessment for learning' philosophy, difficulties are seen as surmountable, case selection and scoring is guided by educational value, and the potential for feedback provision and trainee learning can be realised. In contrast, at the other extreme, where this purpose is not understood or acknowledged, the mini-CEX is seen as an administrative burden, leading to the strategic selection of case or assessor, with the risk of meaningless 'tick box' assessments.

**Conclusion:** The intention to use the mini-CEX not only for trainee learning but also in aggregate to inform decisions on trainee progression appears to have generated a paradox where the perception of the assessment as summative can compromise its use for both purposes. Our results have implications that extend beyond the implementation of mini-CEX within ANZCA. The introduction of assessment for learning in a competency-based curriculum may require greater engagement by trainees and supervisors in education and an increased sophistication in their understanding of educational practice. A rebalancing of priorities of service and training may be required to allow this.

#3D2 (127619)

**How Do Clinical Competency Committees Use Different Sources of Data to Assess Residents' Performance on the Internal Medicine Milestones? A Mixed Methods Study**

**Andem Ekpenyong\*, Rush University Medical Center, Chicago, USA**

*Elizabeth Baker (Rush University Medical Center, Chicago, USA)*

**Introduction:** Although CCCs play a critical role in the assessment of residents' milestones achievement, little is known about how they make these decisions or define learning trajectories. The purpose of this study is to explore how Internal Medicine CCCs use assessment data and their actual milestones ratings (outcomes). Using the conceptual framework formulated by Hauer and colleagues<sup>1</sup>, we examine how CCC's use data to work both within the "problem identification" and "developmental" models.

**Methods:** This mixed methods study uses a convergent design approach. A purposive sample of Internal Medicine CCC members at Rush University Medical Center, Chicago, IL was used. 7 of 16 members chose to participate. A questionnaire focused on CCC goals and usefulness of assessment data was administered after each reporting cycle. Qualitative data analysis was performed using the constant comparative analysis approach associated with grounded theory. Milestones ratings for all 99 categorical residents over 2 reporting cycles

(December 2014 and June 2015) were uploaded to SPSS-22. A series of paired sample t-tests was performed between reporting periods at each PGY level and a linear regression model was developed to determine the extent to which performance on a specific milestone (e.g. PC2) is influenced by PGY level and reporting period.

**Results:** From the qualitative data two primary themes emerged: 1) insights regarding the assessment data (e.g. lack of data, reliability issues, difficulty using the milestones rating scale, need for more direct observations) and 2) recommendations for improving the CCC. There was strong support for the use of qualitative data (e.g. end-of-rotation faculty comments) over quantitative data such as milestones summary scores. There was no significant difference in average scores between the 2 reporting periods for 13 of the 22 milestones at the PGY1 level (PC1-4, SBP2-4, PBL1-2, PROF1-4), 6 milestones at the PGY2 level (PC4-5, MK2, SBP2, PBL2, PROF3) and 7 milestones at the PGY3 level (PC4-5, SBP2, PBL1, PROF3-4, ICS1). The linear regression model revealed the large effect of PGY level (beta 0.637) compared to reporting period (beta 0.166) on the PC2 ratings.

**Discussion:** Themes from the qualitative data revealed various problems with the assessment data and the use of the milestones. Despite problems with the milestones, participants did not identify setting expectations for clinical performance as part of their role nor did they make recommendations to this effect. A focus group interview is planned to further explore their perspectives. The results highlight the difficulty CCC faculty have distinguishing performance at 6 month intervals, raising the question of whether there is a curriculum gap regarding those milestones, where no significant improvement was noted at all PGY levels, or another reason why CCC faculty had this difficulty.

**Conclusion:** In this study, the qualitative and quantitative data are concordant in confirming difficulty in distinguishing performance at 6-month intervals. Several questions are raised: What scores should residents attain at each PGY level and reporting period, and more importantly, what meaning do we attach to these scores? Do learning trajectories vary with different milestones? Faculty development for CCCs will be crucial moving forward.

**References:** 1) Hauer K, Cheuslek B, Iobst W, Holmboe E, Baron R, Boscardin C, ten Cate O, O'Sullivan P. Reviewing Residents' Competence: A Qualitative Study of the Role of the Clinical Competency Committee in Performance Assessment. *Acad Med* 2015. April 17 (Epub ahead of print)  
2) The Internal Medicine Milestone Project. A joint initiative of The Accreditation Council for Graduate Medical Education and The American Board of Internal Medicine.

[www.acgme.org/acgmeweb/portals/0/pdfs/milestones/internalmedicine\\_milestones.pdf](http://www.acgme.org/acgmeweb/portals/0/pdfs/milestones/internalmedicine_milestones.pdf). Accessed January 6, 2016.

#3D3 (128025)

### Inter-rater variability in performance assessments: Identifying raters' divergent points of view

**Andrea Gingerich\***, Northern Medical Program-UBC Medicine, Prince George, Canada

Susan E. Ramlo (University of Akron, Akron, USA)

Cees P.M. van der Vleuten (Maastricht University, Maastricht, Netherlands)

Kevin W. Eva (University of British Columbia, Vancouver, Canada)

Glenn Regehr (University of British Columbia, Vancouver, Canada)

**Introduction:** Whenever multiple observers provide ratings, even of the same performance, inter-rater variation is prevalent. The resulting 'idiosyncratic rater variance' is considered to be unusable error of measurement in psychometric models and is considered a threat to the defensibility of our assessments. Prior studies of inter-rater variation in clinical assessments have found physicians give conflicting descriptions of behaviors, emphasize different aspects of performance, and leave social inferences unchecked. These investigations used open response formats to identify features that influenced raters. This has the limitation that responses might omit influential features or exaggerate features' influence, skewing subsequent analyses. In this study we explored rater variability using the structured response format of Q methodology.

**Methods:** From 317 open-text responses, provided by physicians assessing 4 video-recorded clinical performances in an earlier study(1), a subset of 44 statements containing salient clinical features were selected. At the website QSortOnline, physicians viewed the videos, provided Mini-CEX ratings, and then sorted the statements according to Q methodology procedures(2) from MOST CONSISTENT to MOST CONTRARY with their impressions of the performance. A by-person factor analysis was used to group raters based on the similarity of their Q-sort configurations. For each video, the Q-factors were interpreted(2) and the content of the resulting points of view were compared. To determine if differing points of view were related to the assignment of ratings, we conducted a separate one-way ANOVA for each video using raters' Q-factor membership as the independent variable and Mini-CEX ratings as the dependent variable.

**Results:** 46 physicians submitted 128 Q-sorts by sorting the same set of 44 statements in response to 1-4 clinical encounter videos. For each of the four videos, two Q-factors could be used to group participants based on the similarity of their Q-sorts. The Q-factors represented distinct points of view on the performance that were shared by multiple physicians. For each video, the points of view diverged with 1-2 aspects of the performance receiving opposing interpretations and several aspects being differently emphasized within physicians' impressions of the performance. The comparison of the points of view revealed conflicting judgments of rapport and/or

clinical competence. These are summarized, respectively for each video, as: 'disinterested' & 'diligent competence'; 'compassionate competence' & 'incomplete attempt'; 'competent rapport' & 'inexperienced incompetence'; 'no rapport' & 'friendly competent' & 'incompetent'. Accounting for the different points of view for each performance explained 21-53% of variance in Mini-CEX ratings.

**Discussion:** Previous rater cognition findings of rater disagreement, differing salience and multiple shared impressions persisted when a structured response format was used. The identified points of view reflected differing assessment judgments between groups of physicians that corresponded with the ratings they assigned and may not simply be error of measurement.

**Conclusion:** Physicians' divergent points of view on a given clinical performance cannot be easily reconciled into a single coherent assessment judgment. This is problematic for our current measurement models and poses challenges for how we are to adequately collect and analyze performance assessment ratings.

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### #3D4 (128050)

#### A BEME Review of the Psychometric and Edumetric Properties of Assessment Instruments for the Medical Consultation for Undergraduates

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**Introduction:** Communication is a core competence. Competency-based medical education has to address complex problems: it has been questioned if instruments were testing the right elements and could discriminate reliably (classical psychometrics), so competence-based education using clinical problems has become increasingly relevant. This requires other criteria for addressing integrated competencies: edumetrics [1] focuses on quality properties of a programme of competency assessment holistically e.g. fairness, educational consequences, cognitive complexity and authenticity when competence is considered in other contexts i.e. consequential validity. This study has extended the examination of psychometric characteristics of tools to the consequences of assessment in educational terms.

**Methods:** The overarching inclusion criteria were that articles must include undergraduate medical students,

and that a tool must have been applied to evaluate communication skills. We assessed study characteristics, tool characteristics and then psychometric and edumetric features. An interactive template was developed and used to review identified articles, performed independently by 2 reviewers, if disagreements occurred a third was called upon, until a consensus was reached. Additionally all core instruments were fed back into key databases to cross-check capture. The list was also checked against an independently compiled source (tEACH, the teaching subcommittee, European Association for Communication in Healthcare).

**Results:** 8236 articles were retrieved: 91 accepted (1.10%), with 55 tools. A significant number of studies identified tools used in the assessment of medical undergraduate students but they did not have either psychometric or edumetric properties and therefore could not be included. Psychometric qualities considered: Content validity, construct validity, face validity, criterion validity, concurrent validity, internal consistency, reproducibility, interpretability, inter-rater reliability, intra-judge reliability [2]. Edumetric qualities: Authenticity, cognitive complexity, meaningfulness, fairness, transparency, educational consequences, directness, reproducibility, comparability, costs and efficiency [1].

**Discussion:** The area under review needed conceptualization of the "fuzzy boundaries" e.g. kind of tools, definition of construct. We were able to set out characteristics of identified core tools and their utility and outlined some challenges: Tools are shortened in papers, which complicates cross-validation in different settings. Most tools are structured according to skills and a consultation model and are in a checklist or rating scale format which doesn't always leave room for narrative feedback. The scoring format is not always described in development or validation papers. Raters are required (simulated patients, faculty, clinical supervisors or trained actors).

**Conclusion:** Tools for undergraduates are mainly generic, with some examples of context specific application e.g. delivering bad news. The focus in papers is often on application of tools in an educational setting, and only a few are concerned with development and/or validation of a tool. The assessment purpose is most often formative, sometimes also selective, or aimed at curriculum reforms evaluation, and most often comparison of scores at group level. Also Authors on the review team please include: Jane Burns (1) Samantha Johnson (2) Kathleen Van Royen (3) Frank Doyle (1) Paul Ram (4) Part funded by EGPRN and our universities.

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### #3D5 (127967)

#### The Consequential Validity of Resident Ratings of their Clinical Teachers

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**Introduction:** Resident generated clinical teaching assessment data is used for faculty development and for high stakes purposes such as promotion. Despite this, it remains an underappreciated area of the rater-based assessment discourse. We sought to unpack the complexity surrounding the impact of these ratings on faculty teachers, informed by Sargeant's feedback framework in which she describes three key steps that need to be considered in the process: assessing the performance, provision of feedback, and reflection and uptake of feedback.[1] We explored how clinical faculty react to, reflect upon, and incorporate resident-driven teaching assessments into their teaching practice.

**Methods:** We used a grounded theory approach. Clinical teachers were invited to participate in individual, semi-structured, interviews during which they were asked to reflect upon the role of residents as assessors of their teaching performance, the departmental instrument(s) used for clinical teaching assessment (CTA), their own assessment reports, and their reactions to eight representative narrative comments from authentic CTAs.[2] We reviewed interviews successively, refined our interview guide to focus on emerging content, conducted open coding by reviewing written transcripts, and then imported the data into an analytic software program to afford more detailed coding and analysis.

**Results:** We interviewed twenty clinical teachers. Although they were uncertain about what residents conceptualized as 'clinical teaching' when they approached their ratings tasks, Medical faculty emphasized that ratings depended in part on their residents' perceptions of "didactic teaching" while Surgical faculty described the importance of "cut time". Both groups asserted that "fun" aspects of the workplace impacted their ratings. Although faculty viewed narrative comments as having greater potential for delivering helpful feedback than numerical ratings, the nonspecific nature of most of the comments on their own assessments led them to question their usefulness in affecting meaningful change in their teaching practice.

**Discussion:** At each point in Sargeant's framework of feedback, we have identified and described potential threats to the process. Our results suggest that faculty prefer residents' narrative comments to the scaled items on rating forms, but that they rarely receive behaviorally-based or actionable comments on their annual teaching reports. More importantly, teachers expressed skepticism that residents are assessing workplace-based teaching when they complete their end of rotation assessments. Faculty suspected that ratings are influenced by factors reflecting residents' perceived learning needs, rather than teaching skills. This suggests that teaching assessment instruments

may not be measuring what they are intended to measure.

**Conclusion:** Our analysis showed that there are a number of obstacles standing in the way of faculty reflection and uptake of resident feedback captured by clinical teaching assessments, limiting their consequential validity. These findings illuminate the challenges of "closing the feedback loop" in the evaluation of clinical teachers. Educators must revisit traditional teaching assessment processes and develop innovative ways to measure teaching effectiveness to provide faculty with more meaningful feedback about their competencies as teachers.

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### #3D6 (128371)

#### A cautionary tale of ensuring the quality of multiple-choice exams administered to small cohorts

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**Introduction:** Multiple-choice questions are a cornerstone of assessment in medical education, and monitoring item properties (such as difficulty and discrimination) is one means of investigating examination quality. However, most guidelines were developed for use on large cohorts of examinees, and little empirical work in medical education has investigated the suitability of applying these guidelines to item difficulty and discrimination coefficients estimated for the cohort sizes typically found in medicine. As first steps in this line of research we investigated: 1) the extent to which item properties vary across multiple small clerkship cohorts, 2) the amount of item property variance across cohorts of different sizes, and 3) the impact of item property variance on exam length, difficulty, and reliability.

**Methods:** Three studies were conducted. Study 1: Discrimination and difficulty coefficients calculated for 22 cohorts (n=10-15 students) having completed 32 items from a MCQ-exam were categorized according to Ebel & Frisbie's discrimination guidelines (1991) and three difficulty guidelines proposed by Laveault & Gregoire (2014). Descriptive analyses examined variance in item discrimination and difficulty coefficients across cohorts. Study 2: A completely crossed Monte Carlo Simulation study was conducted to investigate the effect of sample size on item properties estimation (sample size range:10 to 200) Study 3: Using a population of 341 examinees we

created cohorts of various sizes (from  $n=10$  to  $n=300$ ) and estimated difficulty and discrimination for the 116-items for each new sample. Abovementioned guidelines were applied, and correlations were used to examine the relationships between cohort size and exam length, difficulty, and reliability.

**Results:** Study 1: A large amount of variance in item properties was found across small student cohorts. Discrimination coefficients for individual items varied greatly across cohorts, with 29/32 (91%) of items occurring in both Ebel & Frisbie's "poor" and "excellent" categories and 19/32 (59%) of items occurring in all 5 categories. For item difficulty coefficients, the application of different guidelines resulted in large variations in examination length (number of items removed ranged from 0 to 22). Study 2, the amount of variance in observed item discrimination and difficulty increased significantly as cohort size decreased. Study 3: when applying any discrimination or difficulty guidelines, we an increasing number of items removed with decreasing cohort size ( $r$  range = -.4 to -.5). As the number of items removed increased, reliability tended to decrease and difficulty increased.

**Discussion:** Findings from these studies are in-line with what is expected when estimating statistics from small cohorts – although it had not been empirically documented for item properties for assessments in health profession education. We observed 1) a large amount of variance in item properties in small cohorts, 2) increases in variance in item properties as cohort size decreases, and 3) variance in item properties significantly influenced exam length, difficulty, and reliability

**Conclusion:** Although it seems to be common practice to rely on item analysis guidelines to support item and exam quality, this research demonstrates that item properties vary greatly in small cohorts. As such, the application of guidelines with small examination cohorts should be approached with caution.

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### 3E Research Papers: Self-regulation and self-efficacy

Location: 212 – P2

#3E1 (127087)

#### From pinball to snowball: How others affect clinical students' self-regulated learning

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**Introduction:** Undergraduate medical students are prone to struggling with learning in clinical environments. One of the reasons may be that they are expected to self-regulate their learning, which often turns out to be difficult. Students' self-regulated learning is an interactive process between person and context, and consequently a supportive context is imperative.<sup>(1)</sup> Social factors are part of a context and according to Lave and Wenger's Situated Learning theory, learning happens through social processes. Therefore, we studied how other people in the clinical environment influence medical students' self-regulated learning.

**Methods:** We conducted a constructivist grounded theory study using semi-structured interviews. These interviews were facilitated by the addition of the visual Pictor technique, to allow for a more holistic approach to the research question and make the intangible, tangible.<sup>(2)</sup> Fourteen medical students were purposively sampled based on age, gender, experience, and current clerkship to ensure maximum variety in the data, until theoretical saturation had been reached. The interviews were transcribed verbatim and were, together with the Pictor charts, analyzed iteratively, using constant comparison and open, axial and interpretive coding while using the self-regulated learning theory as sensitizing concept.

**Results:** We found that many students expressed how their self-regulated learning and the roles of others in this process, changed whilst progressing through the clerkships. These changes can metaphorically be envisioned by imagining novice students as a pinball being shot into a pinball machine. Novice students bounce back and forth through interactions with others and have no clear trajectory. Most important for their learning are the interactions with residents and peers as they are the ones novice students spend most of their time with. More senior students on the other hand had transformed into a snowball rolling downhill towards a certain goal with increasing momentum. They strategically use all others in the clinical environment to support their learning and to help them achieve their goals.

**Discussion:** Our results confirm the idea that self-regulated learning requires context-specific support. Especially novice students experience a hectic period when transitioning into the clerkships. They require others, especially residents and peers, to actively help them to navigate and understand their new learning environment. Many students described transforming into a more senior student gradually in the first 3 to 6 months of the clerkships. However, not all students experienced such a transformation and showed limited engagement in self-regulated learning. We therefore argue that supporting novice students' self-regulated learning may be improved by better equipping residents and peers to support novice students' learning. This might be achieved by faculty development initiatives aimed at residents and by facilitating peer learning opportunities.

**Conclusion:** Students' self-regulated learning is influenced by many others in the clinical environment. Many students experience a transition from novice to more senior learner by gaining the strategies to effectively involving others in their self-regulated learning in the clinical environment.

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#3E2 (127725)

#### Development and validation of a measurement tool for Self-Efficacy in Clinical Teaching

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*Professor Nigel Stocks (The University of Adelaide, Adelaide, Australia)*

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**Introduction:** Increasingly a General Practitioner (GP) is involved in teaching and training undergraduate and postgraduate students. The GP clinical teacher role is complex, demanding, and at times potentially conflicting. International literature identifies the attributes of an excellent clinical teacher, though the impact of non-cognitive attributes like self-efficacy in medical education has rarely been researched. Self-efficacy has been correlated positively with a broad range of positive student outcomes, including teaching practices, teacher behaviours, and positive learner outcomes. We developed an instrument to measure the self-efficacy of the doctor's clinical teaching

**Methods:** Extensive literature search of measurement tools showed that there is no suitable tool to measure self efficacy in the GP clinical teacher. The literature informed the 25 item formation and guided the requirements for the development of the Self-Efficacy in Clinical Teaching (SECT) tool. The SECT survey was



constructed through consultation with expert clinicians, involved a self reporting seven point Likert response scale, and exploratory factor analysis was performed. Pilot testing of SECT with 50 clinical teachers, confirmed the development of an appropriate measuring tool for doctors who clinically teach in a community based General Practice setting. Further validation studies were conducted across the Adelaide to Outback General Practice Training program with 86 community based GP clinical teachers. This was evaluated with Kaiser-Meyer-Olkin sampling adequacy, item uniqueness, exploratory factor analysis with oblique rotation and factor structure testing.

**Results:** The SECT pilot showed excellent reliability (Cronbach's alpha = 0.92), content validity, internal consistency, construct validity, and significant item uniqueness. In the validation study, 86 out of 97 invited clinical teachers in General Practice answered the questionnaire. The median of clinical teaching time was 9.5 years, with a rate of participation in external teacher development activities (conferences or university courses) lower than 10%. Statistical analysis showed excellent sampling adequacy (KMO=0.91), indicated three different factors, with an excellent reliability (Cronbach alpha=0.95). Each item loaded strongly with score uniqueness < 0.60. The first factor and second factor included nine items each, and explained 53.7% and 49.2% of variance respectively. The third factor included six factors, with a total scale performance of 48.4%. There was a positive trend between the first factor (customized teaching) and second factor (teaching prowess) with the larger number of years of clinical teaching. Factor three (impact on learner) showed a positive significant association with the professional teacher development activities undertaken by the clinical teacher. (p=0.003)

**Discussion:** The development and validation testing of the SECT scale provided an accurate measuring tool. It is authentic, robustly aligned to Bandura's psychological self efficacy construct,, reflective of clinical teaching practice, realistic, and convenient to use. It enables further research into the self-efficacy of clinical teachers in medical education through accurate measurement, impact of teacher development professional activities, and interventions to improve the self-efficacy of clinical teachers.

**Conclusion:** In a world first, the development and validation testing of the SECT instrument confirmed an appropriate measuring tool for doctors who clinically teach in a community based General Practice setting.

#3E3 (127859)

### An innovative intervention to develop the Self Efficacy of Clinical Teachers in Australian General Practice

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**Introduction:** The clinical teacher role in General Practice is complex, demanding, and underpins all the learning that occurs. International literature identifies the attributes of an excellent clinical teacher, though scant research about the impact of non-cognitive attributes like self-efficacy of the clinical teacher in medical education. Applying Bandura's psychological construct of self-efficacy to the educational act of teaching in a clinical medical environment leads to the compelling notion that a teacher's belief in their ability to impact student learning makes a difference in their teaching and in their students' learning. Medical Education has not yet determined the concept, value, effect or professional development implications of clinical teacher self-efficacy. This research used the intervention of mental imagery to improve self efficacy among GP educators

**Methods:** An extensive literature review around self-efficacy in teaching and mental imagery informed and guided the development of the intervention. This intervention was then tested using the following protocol with the specific aim to test whether mental imagery would enhance the self efficacy and quality of clinical teaching in General Practice. The protocol included:-

- baseline and followup surveys, using previously tested Self Efficacy in Clinical Teaching tool
- control and intervention groups with pertinent participant's information
- interactive short workshop learning visualization with a mental imagery script, applied to clinical teaching situation, practiced and shared with peers for feedback and refinement
- triangulation of learners experience of clinical teaching in General Practice

**Results:** General Practitioners, who were active clinical teachers within the Adelaide to Outback General Practice Training network were invited to be involved. Voluntary participation resulted in an intervention group(n=47) who attended the professional development workshop and an control group (n=39) who did not. No differences between groups in individual or teaching characteristics. There was an increase in the self-efficacy in clinical teaching of both the control and intervention groups after twelve months. Further analysis of three subscales showed the largest increase in factor one (customized teaching) over the twelve months, followed by factor three (impact on learner) and then factor two (teaching prowess). The timeline effects on the three self-efficacy of clinical teaching subscales were highest

one month after the intervention and then gradually decreased.

**Discussion:** Visualisation and use of mental imagery scripts were shown to increase the self efficacy of the clinical teacher, especially in the first months. The intervention was authentic to Bandura's psychological construct providing a proxy mastery experience to real life, vicarious colleague modeling, social persuasion through peer feedback, and managing affective states like own anxiety.

**Conclusion:** This innovative study shows that mental imagery can be an effective intervention to develop the self-efficacy of clinical teachers in General Practice.

### #3E4 (128061)

**How do high self-regulated learners study? The study-monitor-regulate (SRM) approach**

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**Introduction:** A review on students' learning strategies (Dunlosky et al., 2013) revealed that self-testing knowledge and spacing learning sessions are the most effective ways to improve comprehension of learning material. Survey research, however, showed that 11% of students actually implement these strategies, and the majority relies on ineffective strategies as underlining or rereading (Kornell & Bjork, 2007). This asks for research that examines how use of learning strategies can be improved. Moreover, a focus on high self-regulated learners can lead to 'best-practice examples'. Finally, relating learning strategy use to metacognitive monitoring and regulation shows how students reflect on these strategies.

**Methods:** To address these issues a focus group approach was chosen, in which students share their approach to and experiences with (monitoring and regulation of) learning strategies. First-year medical students' mentors were asked to identify students with effective learning strategies. Sixteen mentors identified 42 students, 26 of which participated in the current study. In four focus groups, students were asked to explain how they prepared for tutorial meetings (within a problem-based learning setting) and exams. The interviews were transcribed and analyzed based on Grounded Theory. Open coding, axial coding, and synthetic analysis were applied.

**Results:** Analyses of the focus group transcripts revealed that high self-regulated learners differed to a large extent in the actual expression of learning strategies (e.g., making a summary or watching Youtube clips), but underlying these strategies they generally expressed to use the study-monitor-regulate approach (SRM): While and after studying, they focused on comprehension and continuously monitored whether they had achieved comprehension of the study material. When they noticed not

understanding something, they had a set of regulatory strategies to increase their understanding (e.g., asking a peer student or Googling the answer).

**Discussion:** High self-regulated learners are very much aware of and confident in their learning strategies. Students were adaptive in their actual use of learning strategies depending on circumstances. They explicitly use the SRM approach in which self-testing plays a continuous role. Our findings show diverse expressions of self-testing that are not immediately recognized as self-testing by students.

**Conclusion:** Future research should focus on how students can be trained and persuaded to use more effective learning strategies and implement the SRM approach. Making them aware of the diversity of these strategies and having them practice several of them to determine which one fits them best is one way to do so. Moreover, making students aware of the ineffectivity of some of their commonly applied strategies early on in (higher) education is at the very least needed but hardly done. This possibly starts with convincing students of the importance of gaining comprehension during learning.

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#3E5 (128412)

**Instructional Videos Inducing Process-Goals Increase Novices' Performance, Compared to Traditional Video Design - A Randomized Trial**

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**Introduction:** Instructional videos are gaining increasing popularity, and might provide a conceptual understanding of clinical procedures. However, research in the design and effect of instructional videos is scanty and shows divergent results. Application of Self-regulated-Learning (SRL) principles in Simulation Based Education can be beneficial, but the effect of integrating SRL principles in instructional videos is unknown. This study explored the effect of integrating SRL principles with process-goals in instructional videos for the Lumbar Puncture (LBP) procedure.

**Methods:** Randomized, single blinded trial. Newly graduate doctors without LBP experience had 15 minutes with one of three interventions: 1) Intervention-video (IV): Based on SRL-principles inducing process-goals 2) Control-Video (CV): Based on traditional design and storyline. 3) Written control (WC): Text-instruction including illustrations. Before performance the participants self-assessed confidence on a 7-point Likert-scale. Participants performed the procedure in a standardized, simulated, ward-like setting with a standardized patient (SP). Participants handled the procedure as in a clinical setting with communication and positioning of the SP before a phantom was introduced. Two content experts, using a validated LBP Assessment Tool, blindly assessed performances.

**Results:** We randomly allocated 110 doctors to the groups: IV: 30; CV: 43; WC: 34. Performance mean score: IV-group: 42.65 (SD 6.4), CV-group: 40.5 (SD 5.8) and WC-group: 38.3 (SD 6.7). We found a significant difference between IV and WC ( $p=0.01$ ); Cohen's  $d$  effect size 0.66. We found no significant difference between CV and WC ( $p=0.13$ ) or IV and CV ( $p=0.16$ ). Self-assessed confidence: IV-group mean 4.03 (SD 1.4); CV-group mean 4.35 (SD 1.3); and WC-group mean 3.15 (SD 1.3). We found significant differences between IV vs. WC ( $p=0.012$ ); and CV vs. WC ( $p<0.001$ ), but not when comparing IV and CV ( $p=0.33$ ).

**Discussion:** This study demonstrates that the design of an instructional video impacts clinical skills performance and self-assessed confidence differently.

Instructional videos based on SRL principles inducing process goals significantly benefits performance compared to text-instruction. Although this finding is according to previous studies on SRL based pre-training interventions, it's a novel finding for design and content of instructional videos. Both Instructional video designs significantly increased self-assessed confidence compared to text-instruction. The traditional designed video had a greater effect on confidence than our SRL-based video. This finding is of interest, as the CV groups' increase in self-assessed confidence did not reflect performance.

**Conclusion:** Instructional videos based on SRL-principles with process goals leads to superior performance compared to traditional instructional videos. Both video designs leads to superior self-assessed confidence compared to text-instruction. These findings indicate a need for careful choices when designing instructional videos as it might lead to false high assessment of own qualifications. More attention towards design and content of instructional videos for clinical procedures is needed.

#3E6 (128320)

# **Simulation-based camera navigation training in laparoscopy and motivational factors**

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**Introduction:** Surgical novices are often challenged with the task of camera navigation during laparoscopic surgery. Lack of training and preparation can cause stress and demotivation towards a task. Simulation-based camera navigation training is beneficial, but little is known regarding the optimal structure of a training program for operating assistants. In general education, motivation in learning behavior is well proven, but less researched in medical education. Objective: to examine if skills are transferable to the operating room after practicing either camera navigation or a procedure, and if motivation towards the task as an operating assistant are dependent on type of training.

**Methods:** A randomized, single-center superiority trial with three arms. The first group practiced camera navigation tasks (camera group), the second group practiced performing a cholecystectomy (procedure group), and the third group received no training (control group). Participants were novices without prior laparoscopic experience. The primary outcome was assessment of camera navigation skills during a laparoscopic cholecystectomy. The secondary outcome was technical skills tested immediately after training using the Laparoscopic Skills Testing and Training model, measuring time, path length, and angular path length. The exploratory outcome measured participants' motivation towards the task as an operating assistant, using a 22-item Intrinsic Motivation Inventory.

**Results:** 36 participants were randomized. No significant difference was found on the primary outcome between the groups ( $p=0.279$ ). The secondary outcome showed that total time for the camera-group (167seconds; 95%CI, 117-216) was significantly faster ( $p=0.018$ ) than the control-group (307seconds; 95%CI, 202-412). The angular path length for the camera-group (3686 degrees; 95%CI, 2943-4429) was significantly lower ( $p=0.016$ ) than that of the control-group (5300degrees; 95%CI, 4161-6441). The total time for the procedure-group (194seconds; 95%CI, 152-236) was significant faster ( $p=0.045$ ) than that of the control-group (307seconds; 95%CI, 202-412). On the exploratory outcome interest/enjoyment the control-group (6.4; 95%CI, 5.9-6.9) scored significantly higher ( $p=0.030$ ) compared to the camera-group (5.5; 95%CI, 5.2-5.9). On perceived choice the control-group (6.7; 95%CI, 6.5-7.0) scored significantly higher ( $p=0.033$ ) compared to the camera-

group (6.3; 95%CI, 5.9-6.6). No significant difference was found on pressure/tension and perceived competence.

**Discussion:** The improvement of technical skills after simulation-based training is previously replicated, but the lack of transfer of skills to the operating room contradict previous results. It could possibly be explained by the overwhelming nature of change of environment, and first encounter with an operating room. The control-group scored highest on interest/enjoyment and perceived choice, and could possibly be explained by no previous training and exposure to laparoscopy, and therefore lack of expectations.

**Conclusion:** Simulation-based training improves the technical skills required for camera navigation, and training on camera navigation tasks is superior to practicing a procedural task. However, transfer to the clinical setting could not be demonstrated. Surprisingly, the control group had a higher level of interest/enjoyment and a higher level of perceived choice for the task as an operating assistant than the two training groups.

**References:** Franzek FM, Rosenthal R, Muller MK, Nocito A, Wittich F, Maurus C, et al. Prospective randomized controlled trial of simulator-based versus traditional in-surgery laparoscopic camera navigation training. *Surgical endoscopy*. 2012;26(1):235-41. Kusurkar RA, Ten Cate TJ, van Asperen M, Croiset G. Motivation as an independent and a dependent variable in medical education: a review of the literature. *Medical teacher*. 2011;33(5):e242-62.

**#3F Symposium: Teaching Medicine  
in the Clinical Setting (In Spanish)**

**Location:** MR 111 – P1

*Organised by Spanish Society for Medical Education  
(SEDEM) (Coordinator: **Jesús Millán Núñez-Cortés**)*

A global view of teaching medicine in clinical settings,  
defining their characteristics and principal traits  
affecting the structure, the process (including the  
actors involved in the teaching) and the outcomes.



### 3G Short Communication: Professional Identity

Location: MR113 – P1

#3G1 (133974)

**Participation in faculty development programs and students' development of professional identity**

**Jehanne de Grasset\*, Geneva university hospital (HUG), Geneva, Switzerland**

Marie-Claude Audétat (HUG, Geneva, Switzerland)

Nicole Jastrow Meyer (HUG, Geneva, Switzerland)

Hélène Richard Lepouriel (HUG, Geneva, Switzerland)

Mathieu Nendaz (UDREM & HUG, Geneva, Switzerland)

Noëlle Junod Perron (UDREM & HUG, Geneva, Switzerland)

**Background:** Medical students develop their professional identities through various activities and relationships within different settings. As students are being increasingly involved as simulated residents in objective structured teaching encounters (OSTEs) for Faculty development purposes, we were interested to explore if taking part in OSTE influenced their actual and future professional identity development (PID).

**Summary of Work:** A Faculty development program was developed at the Geneva University Hospitals (Switzerland) to train faculty members in clinical teaching skills on domains such as clinical reasoning, communication, professionalism, inter-professional collaboration. Medical students who participated in OSTEs were invited to take part into focus groups. They were asked about what they learnt and how this experience influenced their vision of being student, resident and educator. Discussions were analysed using a framework based on personality and social structure perspectives (PSSP model).

**Summary of Results:** Focus groups took place with 25 medical students from 4th to 6th years. PID emerged at three levels. On the institutional level, faculty members, as learners, became more “human” and accessible for students. On the interactional level, students realised they could become actors of change by actively seeking or giving feedback. On the personal level, they discovered that mistakes could become sources of learning rather than blaming and felt better prepared to cope with faculty feedbacks. Finally, experiencing the role of “evaluator” allowed them to enter further into the community of practice.

**Discussion:** Taking part in OSTEs has a positive impact on students' perceptions regarding the institution as a learning environment, their role as actors of change and their own position towards mistakes.

**Conclusion:** Including students' participation in OSTEs seems to be a way to support their PID while sustaining faculty development.

**Take Home Messages:** The OSTE is creating a formative environment promoting PID and institutional development.

#3G2 (135300)

**A qualitative study on how students develop their professional identity during various clinical rotations**

**Marieke Adema\*, UMCG - CEDAR, Groningen, Netherlands**

Janet Raat (Hanze Hogeschool, Groningen, Netherlands)

Gerard Bos (Maastricht University, Maastricht, Netherlands)

Diana Dolmans (Maastricht University, Maastricht, Netherlands)

Fedde Scheele (VU University, Amsterdam, Netherlands)

Debbie Jaarsma (University Medical Center Groningen, Groningen, Netherlands)

**Background:** Medical students develop their professional identities in a series of different clerkships. The aim of this cross-sectional study, which is part of a research project that investigates how students construct their professional identity over time, is to explore the nature of the experiences that made students think about themselves and the future doctor they want to be.

**Summary of Work:** Sixteen fifth year medical students, from a six year undergraduate Dutch medical program, kept audio diaries over a period of 20 weeks in which they participated in at least five different clerkships of four weeks each. Every third week of the clerkship, students recorded a minimum of two experiences that made them think about themselves as a future professional. All diary entrees were transcribed verbatim and thematically analyzed.

**Summary of Results:** All experiences that made students think about themselves as a future professional does concern some kind of interaction. These interactions are as much with supervisors as with patients, peers and residents. The experiences itself are negative rather than positive, while students' reflections on the experiences are almost all contributive to their development.

**Discussion:** We asked students to share experiences when thinking about their future role as a professional. How they recorded the experiences was refined in what they have learned from the experience.

**Conclusion:** Students construct their professional identity by interacting with healthcare workers. Students bend negative interactions into positive reflections when thinking about their future role.

**Take Home Messages:** When thinking about themselves and their role as a future doctor, students tend to reflect on learning opportunities rather than reflection on who they are as a person.



#3G3 (135435)

**"Medical Stories through the Looking Glass". An Innovative Medical Student-Led Program for Fostering Humanistic Professional Identity Formation**

**Ranu Boppa<sup>\*</sup>**, *American University of the Caribbean, Cupecoy, Saint Lucia*

Shannon Nanna (*American University of the Caribbean, Cupecoy, St Maarten*)

Shirmela Rambally (*American University of the Caribbean, Cupecoy, St Maarten*)

Hedy S. Wald (*Warren Alpert Medical School of Brown University, Providence, RI, USA*)

Mark Quirk (*American University of the Caribbean, Cupecoy, St Maarten*)

**Background:** There is increasing attention in medical education to the dynamic, constructive process of professional identity formation (PIF), including the development of empathy. Medical humanities including reflective writing (RW)-enhanced reflection support a transformative PIF process.

**Summary of Work:** An Integrative Medicine series organized by student leadership (years 1,2) included a program emphasizing personal illness narrative as a powerful learning strategy. Stimulus for this student-led program was a student's Doctoring course reflective writing about his own journey coping with autoimmune hepatitis and a desire to share his story. Innovative programming included the student's story presented as a clinical case. Additional shared stories included another student's experience of living with a congenital heart defect and a faculty member's improbable story of surviving Stage 4 cancer.

**Summary of Results:** Qualitative analyses conducted on data from a convenience sample of 69 attendee respondents to a post-program survey revealed that 77% felt this program changed or influenced their practice of medicine. Thematic analysis of open-ended reflection-inviting questions revealed that students were inspired by the courage and openness of their classmates and developed a greater sense of ability to view the patient's perspective in relation to their own. One student enthusiastically responded that "...this is the wave of the future of education in medicine."

**Discussion:** A student-led personal illness narrative program can foster empathy within the learning community and humanize PIF, ideally also leading to competent, compassionate patient care.

**Conclusion:** Interweaving of personal narrative medicine and evidence-based medicine in medical education is a powerful platform for promoting humanism in medicine.

**Take Home Messages:** This novel student-led personal illness narrative program can foster humanistic PIF. Promoting empathic responses in an authentic learning community can potentially help learners "walk in the shoes" of their patients. This program will be conducted again this semester and further studies are planned.

#3G4 (135404)

**Who are medical students? Implicit theories of the self and the implications for medical education**

**Judy McKimm<sup>\*</sup>**, *Swansea University, Swansea, UK*  
Hester Mannion

**Background:** Effective service provision in the clinical environment may be impeded by the personality types that choose medicine, evidenced by poor team-working and communication and failure to take responsibility for mistakes. Deeper understanding of students' self-perception and identity-formation may provide a theoretical basis on which to address these issues in the formative years of medical school.

**Summary of Work:** We conducted a literature search on social and professional identity formation, including literature on medical students and doctors. Our hypothesis was that a certain type, 'entity theorists', (characterised by inflexible perceptions of self) predominates in medical student cohorts.

**Summary of Results:** Implicit theories of the self could be applied to medical students. This well-established theoretical framework with clearly defined parameters led to our hypothesis that the 'entity theorist' predominates in medical school cohorts and that reward and assessment culture in medical education may reinforce inflexible ways of thinking.

**Discussion:** Understanding medical students' perceptions of self is vital to understanding how doctors behave in the clinical environment. Entity theorists have domain-specific rigid perceptions of their position, informed by an inflexible professional and social identity, closely connected to self-esteem. If our hypothesis is proved, then scrutiny of assessment and reward culture in medical education may shed light on whether students are adequately psychologically prepared for the challenges of clinical working.

**Conclusion:** Our research has resulted in the formulation of the hypothesis that 'entity theorists' predominate in medical school cohorts. We are now ready to take the next step towards conducting a study to prove this.

**Take Home Messages:** Hypothesis: that there is a predominant 'type' in medical student cohorts that may help us to understand some of the difficulties encountered in clinical practice after qualification.

#3G5 (133409)

**The Challenge of Evidencing Self-Authorship Development**

*Joshua Kroll\*, University of Sheffield, Sheffield, UK  
Oliver Giles (University of Sheffield, Sheffield, UK)  
John Sandars (University of Sheffield, Sheffield, UK)  
Deborah Murdoch-Eaton (University of Sheffield, Sheffield, UK)*

**Background:** Three areas underpin self-authorship pedagogy: maintaining mutual and meaningful relationships, establishing personal and professional identities, and critically analysing information. Chronologically, self-authorship concepts begin to develop during late adolescence, when individuals transition from a strong reliance on external authority figures (e.g. parents or teachers), to stability within their own internal core values and judgement. Becoming self-authored is clearly advantageous to future practitioners working within the increasingly complex and challenging healthcare environment. A robust quantitative measure of self-authorship has potential for understanding the impact of educational interventions within healthcare.

**Summary of Work:** After modification, a US developed questionnaire was administered to UK medical students, sampled across a 5 year undergraduate programme (n=535, 43% response rate). The factor structure was identified through Exploratory Factor Analysis.

**Summary of Results:** The four factors identified represented two phases and two constructs of self-authorship. Questions contributing to factors one and two measured the external and early phases of self-authorship respectively, reflecting reliance on authority figures, and emerging stability within their own internal core values. Factors three and four measured self-authorship constructs of identity creation and critical analysis.

**Discussion:** The questionnaire provided a mechanism to determine where learners are on their self-authorship journey through the process of calculating factor scores. This knowledge can help evaluate educational practices and inform potential interventions designed to promote self-authored growth.

**Conclusion:** With further work and reliability testing, this tool could support development of self-authored graduates. It could also provide a valuable tool for purposive sampling within aligned qualitative research.

**Take Home Messages:** - Assessing self-authorship in learners is complex, resource and time intensive - A quantitative tool has potential for evaluation of both individual longitudinal development, from admission to graduation, and the impact of strategic interventions

#3G6 (133833)

**Complexities of (inter-)professional identity formation: The voices of dental hygienists**

*Rintaro Imafuku\*, Gifu University, Medical Education Development Center, Gifu, Japan  
Yukiko Nagatani (Hiroshima University, Graduate School of Biomedical & Health Sciences, Hiroshima, Japan)  
Tetsuji Ogawa (Hiroshima University, Graduate School of Letters, Hiroshima, Japan)*

**Background:** Interprofessional collaboration is considered an essential approach to providing a comprehensive patient care. For instance, in anticipation of the oncoming super-aging society, the Japanese government has attached much importance to medical and dental collaboration for perioperative oral functional management. Given this context, the roles and responsibilities of dental care professionals in the interprofessional practice have been further clarified.

**Summary of Work:** Drawing on Wenger's social theory of identity formation that views identity as a nexus of multimembership, this narrative inquiry aims at exploring how dental hygienists (re-)construct their professional identities through on-going participation in interprofessional oral healthcare. Interview data obtained from five dental hygienists were qualitatively analysed by following an inductive approach to thematic analysis.

**Summary of Results:** Through participation in interprofessional practice, they could emphasise a holistic view of patient care (e.g., the relationship between oral health, general health and well-being); further development of dental expertise; and effective collaboration/communication with patients and other professionals. In turn, within a dental care team, they noticed the importance of becoming educator who leads novice dental hygienists to be "interprofessionals".

**Discussion:** Dental hygienists' experiences show that their identity is relational as well as experiential, and a dynamic relationship between intra- and inter-professional communities of practice. They were able to make new connections across the communities of practice (i.e., a dental care team and an interprofessional team) and open new possibilities of meaning, such as clinical expertise, collaborator and educator.

**Conclusion:** This study suggests that Wenger's social theory of identity formation has provided a powerful conceptual framework for making sense of the complex processes involved. Furthermore, the findings in this study can be useful for designing interprofessional education programme.

**Take Home Messages:** A better understanding of complexities of (inter-)professional identity formation is essential to develop interprofessional education in alignment with actual practice.

#3G7 (135268)

**eProfessionalism: Developing a curriculum that promotes a #positive\_online\_identity**

**Michael Fox\***, *University of Bristol, Bristol, UK*

*Dr Jane Williams*

**Background:** Advocates of social media highlight its role in facilitating communication, community and freedom of expression. However these same virtues also make information easily accessible to the public, employers and professional bodies. People are increasingly held to account for content they have published online.

**Summary of Work:** This project assessed the type of 'high risk' material medical undergraduates share publicly in social media and their understanding of managing their privacy online. The public Facebook profiles of a cohort of medical undergraduates (n=41) were looked at and for each student a personal profile was created. Pre and post-intervention questionnaires and focus groups were used to establish barriers to changing online behaviour and identify additional needs. This informed a practical workshop covering managing privacy online and creating a positive media presence.

**Summary of Results:** All 41 students used Facebook. 71% were found and their public profile assessed; 69% of these had unprofessional content. Following each intervention there was a significant reduction in unprofessional content in the public domain. Feedback from the workshops was positive requesting further practical support on enhancing their professional use of social media. A new curriculum theme enabling students to manage and navigate online socially and professionally and to be effective online participants has been developed and partially implemented.

**Discussion:** Students and doctors recognise the need for online professional behaviour but many do not limit public access to their personal data online. Social media interactions are seen as ephemeral and the implications of their digital footprint not realised.

**Conclusion:** Unsurprisingly, social media guidance for healthcare professionals focuses on the risks rather than the benefits of online engagement. Students require additional support managing a professional digital identity.

**Take Home Messages:** Digital presence is an asset that needs managing. Support students in creating the kind of digital identity that will support their future lives as doctors.

### 3H Short Communication: Empathy

Location: MR 114 – P1

#3H1 (133067)

**The Physician Healer Track: a longitudinal approach to developing compassion and avoiding compassion fatigue**

**Loretta Lee Grumbles\***, *The University of Texas Medical Branch/Galveston, Galveston, Texas, USA*

Steve Lieberman, MD

**Background:** The essence of healing is the practice of compassion, but caring for others in emotional and physical pain can result in “compassion fatigue.” Compassion fatigue is characterized by a reduction in empathy and potentially other physical, psychological, and social signs and symptoms. Because patients expect caring and compassion from physicians, maintaining and enhancing students’ natural compassion is a valid concern of medical educators.

**Summary of Work:** The UTMB School of Medicine created a longitudinal curriculum, the Physician Healer Track (PHT), which integrates training in being a healing presence throughout the four-year curriculum. The components of this voluntary program include monthly readings and reflections in preparation for small group meetings with faculty members (years 1-4), a 2-month clinical and mindfulness experience between years 1-2, and a month of structured activities plus 1-2 elective months in year 4. Topics include self-focused training (e.g., mindfulness, self-discovery and self-compassion, shame resilience) and other-focused training (e.g., cognitive behavioral therapy, seeing bias, motivational interviewing, and non-violent communication).

**Summary of Results:** Enrollment in the PHT has increased to approximately 25% of the medical class. Evaluation of the first two student cohorts (n=63) show improvement in empathy and self-care indicators in over 90% of students.

**Discussion:** Equipping students to provide compassionate care and to manage compassion fatigue is pivotal to their development as healers. This curriculum requires extensive mentoring by skilled, dedicated faculty members.

**Conclusion:** The PHT is well received by students and self-report has documented a positive impact on improving their skill sets for development of empathy and prevention of compassion fatigue

**Take Home Messages:** Recognition of and knowledge for treatment for compassion fatigue is imperative to a healthy profession of medical healers.

#3H2 (132305)

**Cultivating compassion in undergraduate students: an interprofessional study**

**Julia Montgomery\***, *Brighton & Sussex Medical School, Brighton, UK*

Charlotte Ramage

Angela Glynn

Susan Wheatley

Claire Martin

**Background:** Compassionate behaviour is an integral part of delivering good outcomes in healthcare however this behaviour is not always enacted. We developed a compassion toolkit that could be used to initiate discourse around this area of practice. Using the compassion toolkit we explored whether promoting positive acts of compassion to undergraduate students across four health professions (medicine, physiotherapy, occupational therapy and nursing) would impact on their professional and compassionate care practice

**Summary of Work:** Students were asked to record acts of compassion seen within their clinical placements. The students then came together for a research workshop to analyse the themes and write a narrative around the effect of witnessing these acts had on their practice.

**Summary of Results:** The results of the workshop will be presented at the conference. The results will focus on what the students were recording, what impact that witnessing these acts had on their own professional practice and whether the acts of compassion seen were different by the different health professionals.

**Discussion:** At this stage of the research it is apparent that many students, although committed to the project initially, failed to upload acts of compassion. We aim to clarify the reasons for this apparent non engagement. We have noted that many students who did not upload any acts of compassion were still actively seeking out these acts on a daily basis and reflecting on their own practice.

**Conclusion:** Compassionate practice is complex area and although a very important aspect of all health professionals’ curricula is often difficult to teach. We moved away from the concept of teaching compassion to the witnessing of compassion in practice as a possible model for the integration of compassion within curricula.

**Take Home Messages:** This model of promoting compassionate practice is cheap, simple and hopefully effective and could be used across all health professionals’ practice.

#3H3 (135987)

**What goes up, must come down? Comparing longitudinal changes in medical student empathy, patient-centeredness, and tolerance of ambiguity**

*Jeffrey Cheung\*, University of Toronto, Toronto, Canada*

*Kulamakan M. Kulasegaram*

*Leslie Nickell*

**Background:** The erosion of medical students' empathy over the course of training is well-documented. Understanding of how this change relates to specific transitions (e.g., pre-clinical vs. clinical training) and to other student attitudes is incomplete. This longitudinal study characterized changes in medical student empathy, patient centeredness, and tolerance of ambiguity over the course of 4 years.

**Summary of Work:** 316 medical students from the University of Toronto completed a series of surveys at four time points: T1) beginning of year 1, T2) end of second year, T3) end of third year, and T4) end of fourth year. These surveys included the Jefferson Empathy Scale (JES), Patient-Practitioner Orientation Scale (PPOS), and Tolerance of Ambiguity Scale (TAS). Multilevel linear modeling were used to assess changes over time with Bonferroni adjusted pairwise comparisons made between time points.

**Summary of Results:** JES, PPOS, and TAS scores were significantly different across time, all  $p < .001$ . From T1 to T2, there was a significant increase in JES, PPOS, and TAS, followed by a significant decrease from T2 to T3, and no significant change from T3 to T4, all  $p > .05$ . Compared to baseline scores (T1), JES scores at clerkship were significant lower at T3,  $p = .001$ , but not T4,  $p = .105$ . PPOS and TAS scores at T3 and T4 were not significantly different than scores at T1,  $p > .05$ .

**Discussion:** JES, PPOS, and TAS increase at the end of pre-clinical training and subsequently decrease during the clinical training. However, only JES scores were lower than measures taken at the beginning of training.

**Conclusion:** Though student empathy, patient-centeredness, and tolerance of ambiguity increase during pre-clinical training, these measures drop back down during clinical training.

**Take Home Messages:** The clinical training environment appears to be most deleterious to student empathy.

#3H4 (135191)

**'To err on the side of coldness' - the hidden curriculum at work ...**

*Lorna Davin\*, University of Notre Dame, Fremantle, Australia*

*Jill Thistlethwaite, University of Technology, Sydney, Australia*

*Emma Bartle, University of Queensland, Brisbane, Australia*

**Background:** This study asked 4th year medical students at the University of Queensland how they learned to express compassion in the clinical context.

**Summary of Work:** An email linked to survey monkey invited Year 4, UQ SOM students ( $n = 400$ ) to participate in the following reflection, "What have been the main influences (positive and or negative) in how you have learned to express compassion for your patients when working in the clinical context"? A text-box was provided for free text responses. Fifty six students responded. A thematic analysis was undertaken.

**Summary of Results:** Reflecting the tacit, unwritten rules of their community of practice the medical students defaulted to 'act on the side of coldness' rather than to be seen as too emotional.

**Discussion:** This study illustrates how the hidden curriculum and its implied message of detached concern continue to shape affective learning. Extending beyond the influence of the clinical role model, the students' reflections highlighted disconnect between - what they brought to medicine, what they aspired to be and what they feared they would become.

**Conclusion:** Many participating students felt strongly that they came to medicine with compassionate attributes shaped through personal experience. What they aspired to learn is how to express these appropriately in a clinical context.

**Take Home Messages:** - What is taught - is only a small part of what is being learned - you are being closely observed. - The notion of detached concern needs to be challenged, redressed and reframed. - The conversation needs to change. Permission needs to be given to openly discuss not only how you think but also how you feel, in a safe, non-judgement environment, where emotional vulnerability is perceived as strength rather than fragility.



### #3H5 (128049)

**A pilot study to evaluate the utility of the 'care' measure to assess care and empathy in medical students**

**Emily Pender\***, School of Medicine, University College Dublin, Dublin, Ireland

Rory Plant UCD Medicine Student, Dublin, Ireland  
Emmaline Ashley, UCD Medicine Student, Dublin, Ireland  
David Crampton, UCD Medicine, Dublin, Ireland  
Suzanne Donnelly, UCD Medicine, Dublin, Ireland

**Background:** Empathy is an essential component of medical care. Most studies on medical student empathy use self-report instruments eg Jefferson Scale of Empathy (JSE) or third party assessments in OSCEs. The CARE measure (CARE) is a patient administered 10-item internationally validated tool for workplace assessment of general practitioners (GPs) care and empathy in practice.

**Summary of Work:** We aimed to (i) investigate the validity, reliability and utility of CARE as a measure of medical students' empathy (ii) adapt CARE for use with medical students. Medical students and experienced patient educators (PEs) took part in consultations "to establish the impact of chronic disease on the patient's life". PEs rated students' empathy using (1) CARE and (2) Global Rating. Students completed the JSE and Interpersonal Reactivity Index (IRI).

**Summary of Results:** Three items were rated 'not valid' for use with students and were deleted, yielding a valid 7-item Student CARE (CARE-S). For CARE-S, Cronbach alpha = 0.944 (excellent). CARE-S generated a broad range of scores, without floor/ceiling effect. Standard deviation of a student's CARE scores was 4.38-7.11 and we note 'hawk' and 'dove' PEs. No correlation was found between CARE-S and JSE or IRI scores. All PEs preferred CARE-S to global ratings.

**Discussion:** The original 10 item CARE score is not valid for use with medical students as 3 items are considered not applicable by patient educators. The modified CARE-S has excellent validity, generates a good scoring range but has poor inter-rater reliability. This may be related to the subjective nature of patient-experienced empathy rather than a limitation of the instrument. IN keeping with this, dove and hawk PE assessors are found.

**Conclusion:** The modified CARE Measure (CARE-S) is a valid and psychometrically sound patient assessment of medical student empathy. We establish its potential for use in training and formative assessment of medical students, but note low inter-rater reliability as a limitation to use in summative assessment.

**Take Home Messages:** Clinical empathy is difficult to assess and is most validly judged by the patient, however there is no instrument designed or validated for use with medical students. The 7 item CARE-S measure is valid, has excellent scale internal consistency and was acceptable to both students and patient educators as an assessment of student empathy.

### #3H6 (133189)

**Assessing Empathy among Medical Students: A Comparative Analysis using two different scales in a Brazilian Medical School**

**Graziela Moreto\***, UNINOVE - University 9 de Julho, São Paulo, Brazil

Pablo González Blasco (SOBRAMFA - Medical Education & Humanism, São Paulo, Brazil)  
Janette Samaan (AAMC - Association of American Medical Colleges, Washington, USA)

**Background:** Some studies suggest that a drastic change takes place in the medical student during their training. In the early years, most students are thrilled with the idea of becoming a physician, and are more sensitive to patients' suffering. However, during training, this idealism can decrease, in which the patient takes a secondary role in the medical practice. The aim of this study was to evaluate the degree of empathy among medical students in different years of study at a private university in São Paulo, Brazil.

**Summary of Work:** In this cross-sectional study a sample of 296 students was evaluated. The empathy evaluation was performed using a version of the Jefferson Scale of Physician Empathy (JSPE) for medical students, and Davis's multidimensional Interpersonal Reactivity Index (IRI-Brazilian version), applying both to each student simultaneously. Students were divided into three groups, according to their academic year: Basic Group (1st and 2nd years); Clinical Group (3rd and 4th years); and Clerkship Group (5th and 6th years). The empathy scores, for both scales, were compared between these three groups using the Chi-square test and the Kruskal-Wallis test, as applicable.

**Summary of Results:** The JSPE scores were similar among the students from the Basic, Clinical and Clerkship groups ( $p=0.53$ ). On the other hand, the affective dimension of IRI-Brazilian version revealed a significantly lower score in the Clerkship Group ( $p < 0.01$ ).

**Discussion:** The results of this study demonstrate an important and challenging point in medical education, which is the medical student's affection. When the student does not have the opportunity to work through their emotions, and to reflect on their feelings, they may develop emotional detachment.

**Conclusion:** This study suggests that the level of empathy can change, and in this case, the affective dimension was most affected during medical school. The exercise of self-critical reflection on the encounter with the patient, together with an understanding of one's own emotions, is a prerequisite to understanding the feelings of others, and is therefore an indicator of empathic ability.

**Take Home Messages:** The identification of affective erosion strengthens the need to develop effective educational strategies that contribute to a good training medical for the professional future.



#3H7 (134068)

**Gender and personality effect on empathy growth: a study with four sample moments**

*Alexandra Ferreira-Valente\*, Life and Health Sciences Research Institute, University of Minho, Braga, Portugal*

*Manuel João Costa  
Patrício Costa*

**Background:** Previous longitudinal research about empathy development in undergraduate medical students indicates that self-reported empathy scores during undergraduate medical training: decline or are stable; are higher in female students; are associated with personality traits of openness to experience and agreeableness. This study aims at longitudinally modeling empathy during medical school at four time points (admission, end of pre-clinical phase, beginning of clinical training, and end of medical degree).

**Summary of Work:** Data collected with the Portuguese Jefferson Scale of Empathy (student version) and the Portuguese NEO Five-Factor Inventory were obtained from three cohorts of students attending one Portuguese medical school. Complete data set was available for 112 students (78% women). Data were analyzed with latent growth modelling, conditioned by gender, openness and agreeableness.

**Summary of Results:** Empathy at all times was higher for female students, but only significantly at admission and at the end of medical degree. The quadratic growth model presented better fit than the linear growth model. Empathy maintained stable over time. Empathy development was affected by gender. Male students reported lower empathy at admission, greater rate of change during the pre-clinical phase than female students, and evidenced a decline in empathy from the third to the fourth assessment. Openness and agreeableness were positively associated with empathy at admission, but not with empathy rate of change and acceleration.

**Discussion:** The stability found in JSE scores is consistent with previous findings in Portuguese medical students, but contradicts previous findings of decline.

**Conclusion:** The most original finding was a differential growth of empathy for male and female students. Our findings defy the prevailing view of empathy decline during medical school.

**Take Home Messages:** Empathy growth has different trajectories in male and female students. The decline in empathy in the transition to clerkships is more important in male students. Personality affects baseline empathy scores, but not its growth.

#3H8 (135566)

**Empathy and learning styles amongst Chilean medical students: a multi-center cross-sectional study**

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*Denisse Zúñiga  
Oslando Padilla  
Marcela Bitran*

**Background:** Empathy has been described as the ability to feel compassion and concern for others; it is an essential part of professionalism and a key component for a successful patient-doctor relationship. Studies have shown that empathy can be linked to variables such as gender and often declines during medical training. This study was conducted to explore relationships between empathy and learning styles among medical students.

**Summary of Work:** We used the Jefferson Empathy Student Scale (JSPE-S) to measure empathy and the Kolb learning style inventory test to determine students learning styles. Ethical approval was obtained and the anonymity was kept. Tests were administered and completed by 818 students (465 men; 363 women) from third and fourth-year at eight Chilean Medical Schools across the country in the spring of 2015 (mean response rate 70%).

**Summary of Results:** Total empathy score on the JSPE-S was 117; women scored significantly higher than men (mean score 122 vs 115,  $p < 0.01$ ). 46% of the students were classified as assimilators (abstract-passive learners); 38% as convergers (abstract-active), whereas divergers (concrete-passive) and accommodators (concrete-active) accounted for 7% and 9%, respectively. In men, assimilators and convergers scored significantly lower on the JSPE-S score than accommodators and divergers (114 and 112 vs 121 and 120). In women, the JSPE-S score among learning styles had no significant differences.

**Discussion:** We need further studies to confirm whether empathy declines during medical training in Chilean medical students and if it related with their learning styles.

**Conclusion:** In this multi-center Chilean study, regardless their learning style, we found higher empathy scores among female medical students than in male. In men, we found differences in empathy scores according to their learning style, with lowest scores in convergers.

**Take Home Messages:** As medical students empathy level seems to be amenable to educational interventions and to prevent a decline during medical training, we should monitor learning styles and consider a variety of teaching methods to meet the diverse learning needs, especially in male students. Funded by grant FONDECYT115340

### 3I Patil Awards 1

Location: MR 115 – P1

#3I1 (134244)

**Medical student preparedness for transition to internship improves after simulation-based ‘ward calls’ course**

**Tzu-Chieh Yu\***, University of Auckland, Auckland, New Zealand

Tanisha Jowsey (University of Auckland, New Zealand)

Gihan Ganesh (University of Auckland, New Zealand)

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**Background:** For newly-qualified doctors, attending to acute medical problems in ward patients is a significant cause of anxiety and many report feeling inadequately prepared. To address this, a compulsory 2-day simulation-based course (‘WardSIM’) was introduced in 2014 at the University of Auckland. Teams of medical, nursing, and pharmacy students are immersed in simulated ‘ward calls’ scenarios requiring application of clinical expertise and effective interprofessional teamwork under time pressure. WardSim’s impact on medical student confidence and retention of knowledge and skills 8-15 months after attendance was prospectively evaluated using a mixed-methods approach.

**Summary of Work:** In 2014, 207 Year 5 medical students attended WardSIM. In 2015, as Year 6 students, they were invited to complete an anonymous online questionnaire and/or participate in a focus group concerning their attendance and involvement in real-life ward calls, confidence, and preparedness for clinical practice. Responses from these questionnaires were compared to responses from a control group of Year 6 students in 2014, prior to WardSIM. Focus group transcripts underwent thematic analysis.

**Summary of Results:** Seventy-seven completed questionnaires were collected from WardSIM participants in 2015 (response rate 37%) and 87 from controls in 2014 (response rate 45%). WardSIM participants reported higher confidence levels when asked about reviewing patients described in two clinical vignettes ( $p=0.025$ ,  $p=0.001$ ) and also higher frequencies of attending real-life ward calls to review patients, both with and without direct supervision ( $p<0.001$ ,  $p=0.004$ ). Twenty-eight focus group participants described improved confidence and clearer expectations around attending ward calls, leading to more real-life opportunities being sought out by students.

**Discussion:** Transition into internship remains challenging for medical students who have limited real-life opportunities to manage acute medical problems on the ward.

**Conclusion:** WardSIM improved medical student confidence around attending ward calls and changed their behaviour towards future real-life clinical learning opportunities.

**Take Home Messages:** A simulation-based interprofessional course for medical students can assist with transition into internship.

#3I2 (135367)

**Challenge-based learning. Interprofessional students teams to prevent complications of hospitalizations in elderly patients**

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**Background:** There is a growing need for training health workers, who are aware of special needs of geriatric patients, and are excellent interprofessional team players. Coming from there, we invented a project, where two needs meet in – on the one hand evidence-based extra care for patients, which is not yet routinely implemented in the hospital, on the other – a challenging, exciting training opportunity for medicine, nursing and psychology students. The program was initiated in 2012, first as Students’ Scientific Association, 2015/2016 was introduced as an optional course.

**Summary of Work:** All the students took part in initial, structured education sessions, before working with the patients. The protocol of the planned multifactorial intervention, consisted of daily visits in interprofessional students teams and targeting following risk factors of hospital complications: disorientation, psychological stress, immobility, dehydration, malnutrition, sensory deprivation, sleep deprivation.

**Summary of Results:** In the retrospective study, length of hospitalization and introducing antipsychotic medication during hospitalization were significantly decreased in intervention group compared to the control group. Initial findings from questionnaires and interviews from the students show their satisfaction from the course and participating in interprofessional team.

**Discussion:** Effectiveness of the intervention regarding the patients was similar to obtained in several other studies of this topic. Education-wise, the program is innovative and difficult to compare, but there are studies showing students satisfaction on interprofessional education.

**Conclusion:** Our study shows, that it is possible to combine an exciting training opportunity with patients’ benefit.

**Take Home Messages:** Interprofessional students teams, given the challenge to prevent complications

of hospitalization in elderly patients, are an innovative way to handle difficult topic of interprofessional education and geriatrics, with possible significant benefit for the hospitalized elderly patients.

#313 (133012)

**From Textbook to Tablet: Developing a Peer-Led, Open Access, E-Resource**

**Oliver Jones\***, *University of Leicester Medical School, Leicester, UK*

**Background:** Peer teaching has long been recognised as a valuable form of education. E-resources have rapidly emerged to become a mainstream part of undergraduate medical education, yet few of these resources are peer-led. We applied a peer-to-peer structure to develop an anatomy e-resource for medical students.

**Summary of Work:** The e-resource was set up as a WordPress website, entitled TeachMeAnatomy. Medical students were invited via social media to be involved in the website; students were responsible for writing content, production of illustrations, and website design. Site growth was measured via Google Analytics, using page views as a metric. User feedback was obtained via SurveyMonkey, with additional qualitative feedback collected via a contact form on the website.

**Summary of Results:** In 2015, the resource received over 7.5 million views from more than 170 countries, and was used for a total of 122,966 hours.

Demographic surveys indicated that the main users were medical and healthcare students (55.1%). Other site visitors included doctors, nurses and patients. Feedback obtained via the website indicated that users value the concise and structured nature of the resource. The majority of survey respondents (92%) described the site as more effective in aiding their learning than other anatomy e-resources.

**Discussion:** There is currently no published research on the benefits of peer-developed resources.

However, extrapolating from the known benefits of peer teaching, the popularity of this resource may be attributable to factors such as cognitive congruence. A lack of accuracy and detail are potential pitfalls of this peer-led model, yet this does not seem to be evident in the feedback.

**Conclusion:** TeachMeAnatomy is a user-generated resource which has been used extensively amongst the healthcare student demographic. Further evaluation is required to assess the effects of peer-developed resources on student learning.

**Take Home Messages:** The principles of peer teaching can be applied to the development of undergraduate medical e-resources.

#314 (134863)

**Post Take Ward Rounds: Preparing to Lead**

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*Dr Colin Mitchell*

*Dr Geoff Smith*

**Background:** There is a renewed emphasis on general internal medicine internationally (1–4), and ward rounds and training (5). Medical ward care remains a source of error and mistakes (6–8). High profile reports have highlighted the need for a focus on patient safety (9,10). Ward rounds rely on clinical acumen but also on non-technical skills (NTS) to successful. NTS are critical for patient safety (11–15). Better clinical supervision leads to better patient outcomes (16). Post take ward rounds (PTWR) are challenging (17) because they involve the skills new consultants feel under prepared for (18,19).

**Summary of Work:** A formative appraisal tool for assessing NTS in leading a PTWR was developed, alongside a simulated PTWR day concentrating on human factors for senior registrars/residents. Grounded theory methodology involved interviews, observation, experience, a formal literature review of non-technical skills tools and another narrative review on training and ward rounds. The tool is based on the NOTECHS tool (20–23) and was validated using the simulation. The simulation day consists of 4 ward rounds of 4 ‘patients’ (professional actors) and a real inter-professional team.

**Summary of Results:** 41 doctors passed through the simulation over 12 days. The data collected shows that the more senior you are, the better you perform in all domains except communication. The feedback for the training has been positive; - 99.5% answered ‘good/very good’ to all feedback questions.

**Discussion:** This tool works well in a simulated setting; real life use will maintain sustainability. Further research is needed to ensure ward rounds are maximally beneficial to all stakeholders.

**Conclusion:** Results show that our tool has face and content validity. The development process involved good triangulation of resources. The tool and simulation were well received.

**Take Home Messages:** • A validated appraisal tool for NTS and a novel simulation training for senior doctors were developed with good feedback. (References available on request)

#315 (135794)

**Reflective Practice in medical education: a trainee-led Balint group scheme for University of Bristol medical students**

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*Ami Kothari (Avon and Wiltshire Mental Health Partnership NHS Trust, Bristol, UK)*

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*Steve Arnott (Avon and Wiltshire Mental Health Partnership NHS Trust, Bristol, UK)*

**Background:** Balint groups provide a reflective space for clinical case discussion focussing on the doctor-patient relationship, central to medical practice. The literature demonstrates benefits to medical student participation including supporting professional growth and improving understanding of the doctor-patient relationship. We established a trainee-led Balint scheme for University of Bristol medical students.

**Summary of Work:** Since 2014 our project has offered a Balint group to all third-year students on medical/surgical placements, led by trainee psychiatrists (CT1-ST6). Trainees receive group supervision, formal training and support working towards Balint Society leadership accreditation. The project won 2015 Health Education England funding to facilitate expansion and sharing of expertise.

**Summary of Results:** The programme has been offered to 500 students over 2 years with 70% participating, 78 groups run by 26 trainee-leaders. 2014-2015 data indicates benefits to participating students, 90% choosing to continue in a group and describing enhanced reflective capacity. Trainees reported increased confidence in Balint theory, teaching and leadership skills.

**Discussion:** Novel aspects include involvement of trainees-leaders, location in the acute hospital and the number offered groups. Results demonstrate high uptake and benefits in-line with the literature. Supervision and training of trainee-leaders ensures project sustainability. We have offered consultation on setting up similar schemes in London, Birmingham, Manchester, Kent/Surrey/Sussex and Australia.

**Conclusion:** Our scheme offers an effective and sustainable method for increasing Balint group provision through a trainee-led model, with mutual benefits for students and trainees, offering trainee-leaders invaluable developmental opportunities and students an opportunity to reflect on the doctor-patient relationship. Development of a similar trainee-led programme for Foundation-Year doctors is underway.

**Take Home Messages:** We have successfully established a trainee-led Balint group scheme for all Bristol third year medical students during their medical/surgical placements. Students and psychiatry trainees have described significant gains from

participation. This scheme has scope to be replicated at other medical schools in the UK and further afield.



### 3J Short Communication: Integration and Curriculum Development

Location: MR 116 – P1

#3J1 (135374)

**Early Clinical Experience Specific for Entering Medical Students from High Schools: A Qualitative Study**

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*Thy-Sheng Lin (Medical School of National Cheng Kung University, Tainan, Taiwan)*

*Wei-Jen Yao (Medical School of National Cheng Kung University, Tainan, Taiwan)*

*Chyi-Her Lin (Medical School of National Cheng Kung University, Tainan, Taiwan)*

**Background:** Early clinical experience (ECE) has been advocated and widely adopted for entering graduate students in many medical schools. Their On Doctoring (OD) course mainly focuses on clinical skills, such as history taking and physical examination. However, some medical schools, such as in Taiwan, enrolled entering students graduated from high schools. To offer ECE for them, we have created a longitudinal course from Year 1 to Year 4. In the first two years, it aims to facilitate students' understanding of physicians' career, medical humanity and professionalism. Since little has been investigated in this issue, we will report our Year 1-2 students' experiences based on a preliminary qualitative study.

**Summary of Work:** We conducted semi-structured interviews with 3 third-year and 5 fourth-year students who completed the first two years OD. They narrated one impressive event in Year 1 or 2 ECE. The data were transcribed verbatim and analyzed by using grounded theory approach to explore the meaning within the context and to emerge themes within.

**Summary of Results:** The following themes were emerged: (1) various personalities of physicians, (2) emotional expression, (3) doctor-patient relationship, (4) ethical dilemma, and (5) clinical uncertainty. Our students perceived ECE through comparison among experiences in multiple sources and making connection with their own life experiences. Furthermore, they puzzled over these themes without clear answers and expressed vague physician identification.

**Discussion:** OD course provided students opportunities to realize the phenomena in authentic workplaces, and help them to promote better insight into not only disciplinary knowledge learning but also personal and professional development in their lifelong learning journey. To nurture these competencies, mentoring and establishing self-directed learning habit are paramount important.

**Conclusion:** Applying ECE can help entering students from high schools aware, critical think and achieve their learning needs.

**Take Home Messages:** ECE is significant for entering medical students graduated from high schools.

#3J2 (133499)

**Exploring the effects of self-explanation on cognitive integration of basic and clinical sciences in novice diagnosticians over time**

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*Anne M.R. Agur*

*Nicole N. Woods*

**Background:** Several studies have shown that cognitive integration of basic and clinical sciences during learning supports novices' conceptual understanding of disease categories and enhances diagnostic performance over time. It has been proposed that educational strategies such as self-explanation might promote and support the development of cognitive integration. However, this has not been empirically explored. In this study we examined the relative impact of two basic science instructional approaches (integrated instruction and segregated instruction) and a learning strategy (self-explanation) on novices' diagnostic accuracy over time.

**Summary of Work:** Students from several health disciplines (N=71) were taught the clinical features of 4 musculoskeletal pathologies. Students assigned to 'integrated learning' (IL) were presented with descriptions that explicitly integrated the clinical features with basic science mechanisms. In the 'segregated' (SG) group, the basic science mechanisms and clinical features were presented separately. The self-explanation (SE) group received the same learning materials as the IL group, but were also prompted to engage in a self-explanation task immediately after learning each pathology, requiring that they articulate why certain clinical features arose. All participants completed a diagnostic accuracy test immediately after learning and 1-week later.

**Summary of Results:** The IL group had superior diagnostic performance compared to the SE ( $p=0.045$ ) and SG ( $p=0.011$ ) groups. While diagnostic accuracy declined across all 3 learning groups after a 1-week delay, the largest drop in performance was observed in the SE group.

**Discussion:** Generating self-explanations while learning with integrated basic science materials did not positively impact novices' diagnostic performance.

**Conclusion:** We hypothesize that the structure of the self-explanation task may not have supported the development of a holistic conceptual understanding of each disease.

**Take Home Messages:** These findings highlight the importance of carefully considering how self-explanation activities are designed in order to optimize learning of the basic and clinical sciences.



#3J3 (135174)

**How the ability to integrate learning develops - a phenomenographic study**

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*Rosemary Crouch (University of the Witwatersrand, Johannesburg, South Africa)*

**Background:** In response to calls for curriculum reform to improve medical education, some undergraduate medical programmes contain a rich variety of features designed to advance integrative learning. However, the ways in which students and teachers experience these kinds of integration are not known. The aim of this study was to reveal these experiences and contribute to the improvement of integrative learning in medical education.

**Summary of Work:** The study used phenomenography and collected data from 25 students and 10 teachers purposively sampled, providing information through in-depth interviews and focus group discussions. Excerpts that conveyed the most significant information were selected, de-contextualised and compared, followed by grouping and re-grouping of them until the outcome space was formulated.

**Summary of Results:** Using as a guide the framework of the anatomy of awareness and the structure of experience, three categories that emerged represent the qualitatively different experiences of the students and teachers who were interviewed. The understanding of the meaning and processes of integration, how to integrate learning and development of integration ability; and the links between integration ability and educational experiences revealed a model of how students develop the ability to integrate learning.

**Discussion:** The lowest level of conception is that integration of learning is a vague and abstract concept while an ability to integrate learning is conceived of as an atomistic acquisition of fragmented facts. The most sophisticated conception is that integration of learning happens automatically as it becomes an unconscious competence that enables functioning in an integrated career.

**Conclusion:** Students embark on a journey of integration of learning through taking steps that increase in complexity and hierarchical inclusivity of their conceptions. The effectiveness of the journey depends on their perceptions of the teacher and the curriculum.

**Take Home Messages:** Often integration of learning is left as a student activity since some teachers are not cognisant of their central role in promoting it.

#3J4 (133621)

**Improving students' use of a deep approach to learning: Should we focus efforts on integrating our curricula?**

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*Margaret Gerbase (University of Geneva Medical School, Geneva, Switzerland)*  
*Marie-Paule Gustin (University of Lyon Department of Public Health, Lyon, France)*

**Background:** Socio-constructivist learning environments such as problem-based-learning (PBL) should theoretically improve students' perception of the educational environment, which in turn could promote students' use of deep approaches to learning. This has not yet been confirmed. Thematically coordinating and integrating the content of curricula might be another way to induce a deeper learning.

**Summary of Work:** Three groups of medical students (total n=1040), taught respectively by traditional not-integrated lecturing (Lyon Medical School year 1), thematically integrated lecturing (Geneva Medical School year 1) and thematically integrated PBL (Geneva Medical School years 2 and 3) completed a survey including the Dundee-Ready-Educational-Environment-Measure (students' perceptions of the educational environment) and the Revised-Study-Process-Questionnaire (learning approaches) questionnaires. Structural equation modeling was used to test a first model hypothesizing that students' perception of the educational environment influences their learning approaches, and a second model adding 2 co-variables, "not-integrated vs integrated" and "lecturing vs PBL".

**Summary of Results:** Model 1 (RMSEA=0.026, CFI=0.997) confirmed that students' use of a deep learning approach increases when they perceive a favorable learning environment and have a high academic self-perception. Model 2 (RMSEA=0.006, CFI=0.999) indicated that integration, but not PBL format, increases the use of a deep approach to learning.

**Discussion:** Our study supports the hypothesis that students' perception of the educational environment influences their learning approach. As opposed to a traditional lecture-based curriculum, the integrated curricula, either lecture- or PBL-based, seem to be similarly effective in improving the perception of the learning environment and in inducing the use of a deep approach to learning.

**Conclusion:** Thematically coordinating and integrating a curriculum improves students' perception of learning in a favorable environment. This in turn drives them to use deeper approaches to learning.

**Take Home Messages:** If efforts are focused on integration, lecture-based curricula can significantly induce students' use of deep learning approaches.

#3J5 (131820)

**Student-centered tutoring as a model for patient-centeredness and empathy**

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**Background:** Curriculum planners and medical teachers attempt to enhance medical students' empathy and patient-centeredness (PC). Despite educational efforts, there is stability in medical students' empathy and PC during the pre-clinical stage, and a decline in both throughout the clinical years. Student-tutor relationship plays a key role in students' learning. This study tests the effect of student-centred tutoring on students' empathy, patient-centeredness and behaviour.

**Summary of Work:** The 55-student-cohort was divided into groups of 8. The experimental group's tutors underwent Student-Centered mentoring. Empathy was assessed with the JSPE-S, Patient-centred attitude was assessed with PPOS. Behaviour, was assessed by simulations of doctor-patient encounters with 32 students at the end of the third year via RIAS-coded audiotapes.

**Summary of Results:** The experimental group (EG) was significantly higher than that of the control for: 'building a relationship' and 'PC'. A significant negative correlation was found for the EG between PPOS and 'negative talk' and 'DC'. Two significant negative correlations were found for the control group.

**Discussion:** The SC approach expands the students' components, which are similar to three of the six components of the patient-centred care model of Stewart et al. It requires a shift in curricular focus and faculty development. Tutoring style alone is not the sole component influencing empathy, PC and behaviour of the students.

**Conclusion:** The student-centred approach supports two of the RIAS categories, corresponding to clinical empathy and patient-centred care, and the link between certain behaviours and the PPOS.

**Take Home Messages:** The main innovation of our study is the attempt to influence students' empathy and patient-centeredness by faculty development. It seems important that facilitators be "enriched" in the SC teaching approach, a concept which acknowledges the student-teacher relationship.

#3J6 (133583)

**Thinking outside the square: Changing from an MBBS to a Doctor of Medicine using innovation in an Australian Medical School**

**Janie Smith\***, Faculty of Health Sciences and Medicine, Bond University, Gold Coast, Australia

Patricia Johnson

Elizabeth Edwards

**Background:** There is a trend globally to change from the traditional Bachelor of Medicine, Bachelor of Surgery (MBBS) program to a Doctor of Medicine program. Many Australian Universities have made the shift, mostly from graduate entry programs.

**Summary of Work:** For the past decade, Bond University in Australia has conducted an MBBS program with undergraduate entry at the Australian Qualifications Framework (AQF) Level 7. In 2015, Bond University Medical Program was accredited by the Australian Medical Council to implement a Doctor of Medicine program, 3+2 model where the first three years of the program are at undergraduate level and the following two years of the program at masters level (AQF level 9 extended).

**Summary of Results:** The MD model is innovative in that it walks students through the whole research process from developing a research question to finishing with an end of year medical student conference. It is a flexible program allowing students to choose from a variety of projects to undertake in their final year: a research project, or a professional project or a capstone experience. The program uses a points system whereby students have to achieve a total of 100 points, collected in an electronic portfolio. The structure is fully integrated with the existing curriculum and assessment process.

**Discussion:** This paper provides an overview of the innovative Bond University Medical Program and the processes involved in its successful implementation.

**Conclusion:** This innovative model is breaking new ground in the way in which an undergraduate program could be developed to result in a masters level medical education program.

**Take Home Messages:** There are different ways to develop and implement an MD without using just the traditional research project approach.

### 3K Short Communication: Competency-Based Education 1

Location: MR 118 – P1

#3K1 (135116)

**Medical students' professional development during clinical courses**

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*Tomas S Bexelius, Karolinska Institutet, Stockholm, Sweden*

**Background:** A modern competency-based medical education is well implemented but less is known how it contributes to students' professional development over time. This study aimed to explore medical students' experiences of their professional development during clinical courses and the learning activities students experienced as important for their development as defined by CanMEDS roles.

**Summary of Work:** A mixed method study where all medical students on 6th semester in fall 2012 (n=136) were invited; 72% agreed to participate and 54% filled in for inclusion required questionnaires. These questionnaires regarding students' experience on their learning activities, in relation to CanMEDS roles, collaboration, positive and negative emotions and feelings of flow was sent every third week via mobile phones during 3 consecutive semesters, in total at 19 occasions. In addition, there were open-ended questions which were analyzed by inductive qualitative content analysis.

**Summary of Results:** Three CanMEDS roles, i.e. Medical expert, Scholar and Communicator, were most common. The role Communicator was most frequent during the semester when the students worked with their scientific projects. Positive emotions were most common during learning activities in clinical environments. Negative emotions were most often reported when learning activities were connected to teaching and learning about theory. The experience of "flow" followed a similar pattern.

**Discussion:** Our results imply that the roles Medical expert, Communicator and Scholar were experienced as most frequent learning activities. Surprisingly, the role Communicator was most often connected to research project semester. Positive emotions and "flow" were related to learning in the clinical environment.

**Conclusion:** Three CanMEDS roles (Medical expert, Scholar and Communicator) were prominent in learning activities connected to professional development whereas the rest of the roles were less evident.

**Take Home Messages:** Students halfway in their medical education do not seem to connect all 7 CanMEDS roles to their learning activities and their professional development.

#3K2 (136323)

**Online Checklist for Competency Assessment based on Course Competencies (meeting the Medbiquitous Standard) in the Tufts University Sciences Database for Medical and Veterinary Competencies**

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**Background:** The TUSK (Tufts University Sciences Knowledgebase) Competency Checklist tool, available on mobile devices, uses the course competencies (using the Medbiquitous Competency and Competency Framework) and allows faculty to further define skills for assessment. This is used in the year-long Competency-based Apprenticeship in Primary care (CAP) Course in the Medical School and the year long clinical competency assessment course at Cummings Veterinary School.

**Summary of Work:** Students are required to complete self, partner and faculty assessment sequentially. Faculty and partners can find the student competent or lacking, and provide feedback and then later reassess the skill if necessary. When ready, the student sends a link to the assessor who clicks the link on any device to assess the student and provide feedback. Faculty may choose to make skills assessment required or optional.

**Summary of Results:** This tool has been successfully used for two years. It provides to consistency in direction for teaching and student progress. Using Tableau – data is analyzed as needed including, which competencies are assessed earliest, which competencies students fail to pass most frequently on the first attempt or other data as requested.

**Discussion:** Students and faculty appreciate the simplicity to track progress over the year. Clinical competencies are standardized. A reports page shows percentage completion of mandatory and optional competencies simplifying course administration. Students see a summary of their progress and do not have to worry about losing their deck of cards. The specific microskills that make up each competency are available to the faculty without a password in real time while they are assessing the student.

**Conclusion:** Providing a single place to track completion of clinical competencies has been successful in two health sciences schools at Tufts University.

**Take Home Messages:** Online competency checklist meets the needs of teaching and learning for faculty and students and provides administrative support for course directors and school administrators.

#3K3 (136178)

## CanMEDS 2015: Development of a renewed competency framework for Health Professions

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**Background:** Competency frameworks are a method to describe the required abilities of graduates in outcome-based education. The CanMEDS framework was originally designed in the 1990s as a novel, needs-derived, socially-responsive framework for physicians. CanMEDS has been adopted in 50 jurisdictions worldwide. However, there are many important changes to medical education and medical practice since the last update to CanMEDS in 2005.

**Summary of Work:** We describe the rationale, methodology and findings of the nearly 4-year CanMEDS 2015 project. We set out to update and restructure the CanMEDS framework, its wording, its content, and its utility for the latest competency-based curricula. We commissioned thematic expert working groups, surveys, focus groups, and advisory bodies from around the world that identified, proposed, debated, and revised CanMEDS content in 4 iterations.

**Summary of Results:** 220 contributors from 14 countries contributed to the process via 18 teams. 2,500 comments and >10,000 survey data points were synthesized from 7 surveys & 14 focus groups. 5 major content changes were adopted: patient safety, quality, & stewardship; ehealth; handover; leadership; and physician wellness. The framework was streamlined by a third, and a complete set of milestones were written to reflect CanMEDS competencies across the continuum of medical education.

**Discussion:** The CanMEDS 2015 project represents a methodology to develop competency frameworks that engage a wide community, including patients and educators. The new content in 2015 reflects new important aspects of medical competence.

**Conclusion:** The essential new competency framework of CanMEDS 2015 promises to be an influential document in medical education worldwide.

**Take Home Messages:** Competency frameworks are a simple method to reflect essential abilities. CanMEDS 2015 has completely revised the CanMEDS framework with new content. The CanMEDS milestones provide a new resource for educators across the continuum of meded.

#3K4 (135012)

## Cleaning up CanMEDS. 9 laws for future development of competency frameworks

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**Background:** There is something rotten in the way we develop our educational programs. They are usually based on a competency framework such as CanMEDS. But if you look from a conceptual perspective, you will discover that CanMEDS is quite... muddy. This reveals itself in the difficulties we encounter when developing concrete educational programs (teaching and assessment of professionalism – anyone?). This foundational malfunction of CanMEDS is problematic, but maybe, to a certain degree inevitable. The real problem is our reaction.

**Summary of Work:** Usually, we do not go back to the root of the problem, but we add all kinds of superficial modifications, extensions and extra's. This is extremely costly in terms of resources, and in the end, it won't help. We should therefore change our way of working. In order to improve the quality all future competency frameworks (including those on medical leadership), I drew up 9 laws each framework-designer should adhere to, in order to minimize the risk of foundational problems.

**Summary of Results:** Examples of these laws are: one should properly define all central concepts by using the same format, all concepts should fall into the same ontological category, all distinctions between roles should be mutually exclusive, and one should never let interviews and focusgroups take the place of sound thinking. After discussing these 9 laws, I will show what happens when we would 'rebuild' CanMEDS according to them. The result, CanMENNO, is a model that is theoretically more stable, coherent and consistent, and better fitted to practice than the original framework.

**Discussion:** An important controversy is the place of field experts in the whole designing process; I think it should be limited.

**Conclusion:** We should take conceptual problems in the theoretical foundation of our education programs very seriously. They cost a lot of money. The quality of foundational competency-frameworks can be enhanced by applying a standard set of 9 design rules.

**Take Home Messages:** We should really be more critical about our starting assumptions...



#3K5 (132585)

# **How Entrustable Professional Activities Relate To Traditional Performance Assessments of Early Medical Students**

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*Olle ten Cate (University Medical Center Utrecht, Utrecht, Netherlands and University of California San Francisco, San Francisco, USA)*

*Patricia O'Sullivan (University of California San Francisco, San Francisco, USA)*

*Arianne Teherani (University of California San Francisco, San Francisco, USA)*

**Background:** Entrustable Professional Activities (EPAs) are proposed for learner assessment, yet little validity evidence exists. We previously showed content validity evidence for clerkship-entry EPAs. This study provides validity evidence regarding relationship to other performance assessment variables.

**Summary of Work:** In 2014-2015, preceptors assessed first-year students on four clerkship-entry EPAs: OBTAIN medical history/physical exam, INTEGRATE information for differential diagnosis/plan, COMMUNICATE information with healthcare team, and SHARE information with patient, using entrustment levels: (1) observe only, (2) perform only when performing task together, (3) perform with student taking lead, preceptor present and ready to step in as needed, (4) perform with preceptor outside room but immediately available, all findings double-checked, and (5) perform with preceptor outside room but immediately available, key findings double-checked.

**Summary of Results:** Summary of work continued Preceptor workplace-based EPA ratings and general ratings of student ability to contribute to patient care (1=not at all, 5=exceptionally) were compared to small group leader (SGL) classroom ratings of students' patient care, medical knowledge, communication skills, and professionalism competencies based on observations with real and standardized patients (1=below, 2=at, 3=above expectations) and to OSCE scores.

**Discussion:** Summary of results We obtained data on 132 (94%) of 141 students. Preceptors rated >60% of students at  $\geq 4$  on all EPAs except Integrate, where students' scores were equally distributed across 3, 4 and 5. Correlations with general ratings of patient-care contributions were significant ( $p=.01$ ); Obtain ( $r=.3$ ), Communicate ( $r=.4$ ), Integrate and Share ( $r=.5$ ).

**Conclusion:** Summary of results continued SGL and EPA ratings did not correlate. Small correlations existed between OSCE communication scores and EPA Communicate, and OSCE Data-gathering scores and EPA Obtain (both,  $r=.2$ ,  $p=.05$ ).

**Take Home Messages:** Discussion/Conclusion We provide evidence that EPA ratings can correlate with

other performance variables. The lack of agreement with SGL ratings may relate to limited range, or potentially highlight different observable aspects of performance related to workplace versus classroom context. Take-home message EPAs might provide different information on student abilities.

#3K6 (133646)

# **Medical students' perception of the EPA concept: a focus group study at the Charité - Universitätsmedizin Berlin**

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*Ylva Holzhausen (Charité-Universitätsmedizin Berlin, Germany)*

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**Background:** The concept of "Entrustable Professional Activities" (EPAs) is increasingly applied in medical education. EPAs define the outcomes of a curriculum, i.e. what trainees or students have to acquire by the end of a specific training period. However, it is rarely known how this concept is perceived by trainees or students.

**Summary of Work:** A focus group study with medical students in their final clerkship year was conducted at the Charité – Universitätsmedizin Berlin. Twelve EPAs, which have previously been defined as outcome for the medical curriculum by faculty members at Charité, were presented to the students to obtain their views.

**Summary of Results:** Students rated the completeness and comprehensibility of the twelve EPAs and judged how achievable they are as outcomes for the undergraduate curriculum. The students discussed whether EPAs could help to structure the curriculum, and whether the concept of entrustment is suitable and practical to assess students' progress.

**Discussion:** Students of the final clerkship year discussed both advantages and disadvantages of integrating EPAs in the curriculum. They provided ideas on how to improve the content of the end-of-training EPAs and indicated potentially missing EPA elements. They discussed potential links with the curriculum and its assessment.

**Conclusion:** The focus group study with medical students yielded valuable results on the content validation of under-graduate EPAs. Complementary to the faculty members' vision on end-of-training, students can estimate which EPAs are realistic to accomplish and can offer ideas how to integrate them in the curriculum.

**Take Home Messages:** Participation of medical students noticeably adds to the definition and implementation of EPAs in undergraduate education. Their unique expertise builds on a multi-dimensional experience with current curriculum and their intrinsic motivation to improve it.



#3K7 (135849)

**Globalization of milestone project: a qualitative study of the contextualization process for implementing milestone project in a non-western country**

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**Background:** Specialty-specific milestones are an emerging hot topic in competency-based medical education (CBME). Although global standards could be applied worldwide, medical education is context dependent and is a social construct within a sociocultural context. It is important to know how non-western countries implement this global trend of CBME with contextualization process to fit local context and to know the pattern of what has been contextualized.

**Summary of Work:** Taiwan Society of Emergency Medicine had successfully implemented the milestone project that was modified from ACGME Emergency Medicine Milestone Project through series of consensus method including nominal group, Delphi method and focus group method from 2012 to 2014. Eventually, 59 milestones were modified. We conducted qualitative content analysis based on the documentations through this contextualization process to explore why and how of what was modified.

**Summary of Results:** Two themes and 7 sub-themes emerged through the qualitative content analysis. Forty of the 59 modifications was explained by the first theme "Contextualization for local expression" that included 'localization of syntaxes,' 'completeness of milestone' and 'milestone repositioning' three sub-themes. The other nineteen modifications were explained by the second theme "contextualization for local needs" that included 'Adjustment of difficulty level,' 'Policy of specialty,' 'Differences of healthcare system' and 'Culture differences' four sub-themes.

**Discussion:** Although majority of modification efforts focused on contextualization for local expression, those significant modifications were for fitting the local needs on specialty policy, healthcare system and culture differences. Globalization of milestone project is possible with adequate consideration for localization. These themes and sub-themes might serve as the framework.

**Conclusion:** Through this study we know that with considerations of local expression and local needs, non-western countries are possible to adapt and implement milestone project from western country.

**Take Home Messages:** When trying to implement milestone project into your own social-cultural context, you may take these two themes and 7 sub-themes as a framework for contextualization.

### 3L Short Communication: Teaching and Learning Theory

Location: MR 119 – P1

#3L1 (132579)

**“What I really sort of struggled with...” The use of audio-diaries to identify threshold concepts and troublesome knowledge in a Year 1 Problem Based Learning programme**

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Hilary Neve

Helen Lloyd

**Background:** Problem Based Learning (PBL) cases are usually designed to contextualise learning and ensure that core disciplinary concepts are covered. Less thought tends to be given to which concepts are transformative, fundamental to the grasp of a subject and troublesome for learners. Indeed we lack evidence about this. Threshold concepts (Meyer and Land, 2003) can offer such insights. They are transformative, integrative, irreversible, often troublesome and key to achieving mastery of a subject.

**Summary of Work:** This paper describes an audio-diary research project. Over 6 months, Year 1 medical students and PBL tutors recorded, on Smart phones, relevant experiences occurring during PBL sessions, including a) “aha” moments b) struggles and c) oscillations in learning. Reflections were analysed, using Nvivo, to identify threshold concepts, troublesome knowledge and factors which facilitated learning.

**Summary of Results:** We will summarise the likely threshold concepts, areas of struggle and the nature of this troublesomeness and discuss the ‘enabling factors’ that appeared to facilitate learning of these concepts.

**Discussion:** In 2014, the Open University, UK, identified threshold concepts as a new pedagogy that could transform educational practice, yet they have been little explored within medical education. We will discuss how the findings can inform: • curriculum development, including the introduction, timing and ordering of these concepts. • how we can facilitate students to cross these important thresholds in learning.

**Conclusion:** The use of audio-diary methodology to explore threshold concepts can reduce hindsight bias and the illusion of memory. The findings can help tutors support students more effectively, by anticipating and recognising, from students’ use of language, where thresholds have been crossed and where learning is troublesome.

**Take Home Messages:** Threshold concept theory offers new insights to teachers and curriculum designers. This study helps educators and teachers recognise which concepts are ‘threshold’ for Year 1 medical students and how, within a PBL setting, to facilitate learning around these.

#3L2 (125994)

**Learning by Osmosis: Can student-created content and a spaced-repetition formative assessment technology augment a collaborative student-driven curriculum?**

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Rishi Desai (Stanford University, Palo Alto, USA)

**Background:** When students can google anything and information is everywhere, how can medical schools evolve to make use of these technologies? Core guiding principles include 1) maximizing engagement in the classroom, 2) increasing information retention, 3) providing frequent formative assessment opportunities, and 4) optimizing student learning.

**Summary of Work:** Osmosis is a collaborative formative assessment tool that facilitates medical student peer-to-peer learning by leveraging a spaced repetition algorithm and serving as a central repository for content not created by faculty. We embedded Osmosis into our learner-led Problem-Based Learning (PBL) medical curriculum. We assessed 1) use and penetrance, and 2) variation in “user-only” vs. “content-contributor” students.

**Summary of Results:** During one semester (4 months) our 48 students were encouraged to engage with Osmosis. In aggregate, 36 students (75%) contributed content as follows: 1,104 questions, 2,405 flashcards, and 688 learning documents. Acknowledging wide variation across individual students, 35 students (73%) spent 1,068 minutes (17.8 hours) answering the 1,104 peer-created questions a total of 11,955 times (average of 342 times/student).

**Discussion:** Via informal “curbside” queries, students described their favorite features, including: 1) mobile accessibility, 2) quiz customization and filtering, and 3) immediate and frequent formative feedback.

**Conclusion:** Today, content creation is only as good as the tools and technologies used for aggregation, curation and dissemination.

**Take Home Messages:** These preliminary results have larger implications for how medical schools might leverage crowd-sourcing, peer-education, and spaced-repetition to optimize their students’ content learning and long-term retention.

#3L3 (135658)

**Voucher Education: students as leading change agents in personalized medical education**

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Jasper Hollenbeek Brouwer

Fransje Okker

**Background:** Leadership is an important factor in our Medical Curriculum G2020, in which the student is educated to become a change agent (Frenk et al, lancet, 2012). The University Medical Centre of Groningen has created an online platform for personalized education together with students. The online platform facilitates motivated students and passionate professors to unite their creativity concerning medical education.

**Summary of Work:** All students of the bachelor G2020 year one and two were facilitated with an online platform, built by students. During the pilot period they were provided with one voucher for one semester. With this voucher they were allowed to "buy" education from professionals during the semester. The education was to be designed and organized by students.

**Summary of Results:** Approximately 40% of all students activated an account on the platform. Of those, 48% signed up for, or created an activity. All stakeholders proved content in evaluation, rating Voucher Education and its platform between 8-9/10. The faculty has decided to grant voucher education a permanent place in the curriculum. The platform also generates data regarding the content of the curriculum and thereby functions as a feedback loop offering insights for the new bachelor curriculum.

**Discussion:** Originally, the system was created to facilitate the demands of students, to improve their leadership skills. However, not many students have organized their own activity yet. Most students (76%) with an account were first year students, and did not have much experience with medical education.

**Conclusion:** The shift towards student-organized activities is already noticeable. Best practices from other students will possibly provoke their curiosity towards medical education.

**Take Home Messages:** Students and professors are very positive on Voucher Education. Students are invited more and more in the curriculum to act as a critical thinker- also when concerning their education. Awareness of the possibilities is vital and enhances the development of leadership skills.

#3L4 (135663)

**Personalised adaptive learning - Is this the future of feedback?**

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Jane Kirby

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**Background:** Increasingly, university students are 'digital natives', using personalised technology which adapts to their online behaviour to help them to navigate every-day life. At the University of Leeds, we are developing a personalised adaptive learning platform (myPAL) to optimise students' learning and feedback and guide them through their undergraduate training. Similar to the way in which we use existing innovative technology as consumers, myPAL harnesses educational data and applies it in an educational context.

**Summary of Work:** Our concept proposes using multiple collected data strands such as assessment, digital footprint, placement progress and timetabling information, and applying data analytics techniques to provide a personalised and adaptive resource that is tailored to an individual student's learning needs.

**Summary of Results:** Co-design is a critical element of the development process, so student focus groups and semi-structured interviews with staff were undertaken to inform the concept model. Co-design and user testing will continue throughout the process. The platform will be accessible on any device, anywhere, anytime, and staff and students will be offered support and training to maximise engagement. Feedback on the results of the student and staff focus groups will be followed by a demonstration of the prototype and evaluation data that has been collected.

**Discussion:** A 'proof of concept' demonstration has been designed to enable development of the next phases of the project. A learning analytics scientist has been recruited to the team to guide the challenging adaptive element of the project that will be a key distinction from a traditional dashboard.

**Conclusion:** The development of myPAL is centred on finding ways of harnessing existing innovative technology to adapt to and personalise student learning.

**Take Home Messages:** This is a major development that offers an opportunity to future proof education using the available advancements in technology. Working with students will improve the use and usefulness of the myPAL platform

#3L5 (134652)

**Using differentiated instruction to enhance clinical thinking and English communication skills of Chinese interns with overseas clinical rotations**

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**Background:** International clinical rotations enrich the experience and insight of interns. Success in these rotations is partly dependent on preparation interns have before leaving. Feedback from our returning interns suggested the conduct of a pre-departure training course for interns with overseas rotations.

Time, training personnel, and workload were identified as constraining factors for the course. In this study, differentiated instruction was used to meet the learning needs of interns matched to rotate in six English-speaking locations outside of mainland China.

**Summary of Work:** 34 interns were screened and enrolled in a 12-week pre-rotation training course that involved on-the-spot clinical roleplays with discussion, case presentations, and written quizzes – all given in English. These activities were designed to improve clinical thinking and communication (CTC) skills, values integration, and independent collaborative learning. Formative assessments through peer and trainer evaluations were done. Quizzes were used to gauge self-learning of medical language and reading of assigned case reports. The final assessments included a post-test and survey.

**Summary of Results:** Post-test scores of all interns were higher compared to their pre-test scores. They reported improvement in confidence and CTC skills; a deeper understanding of values required in clinical work; and realization of the need to do independent and collaborative learning. Overall, they rated the course as helpful for their incoming overseas rotations.

**Discussion:** Differentiated instruction (DI) allows teachers to develop various skills of diverse students. In our case, the utilization of DI principles was key to implementing a training course for interns with varied needs.

**Conclusion:** Offering a tailored CTC training course through a DI model allows scaffolding of skills and development of values of Chinese interns with overseas rotations.

**Take Home Messages:** Differentiated instruction is good for enhancing CTC competencies of interns undergoing overseas rotations.

#3L6 (136034)

**Strategies to enhance Self-directed learning (SDL) in medical education – an analytical review**

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Bhanumathi Lakshminarayanan

**Background:** Self-directed learning is most frequently discussed in educational literature. It is a continuous developmental process, and key learning style in medical education to maintain lifelong competency.

**Summary of Work:** Learners can develop SDL competencies on their own as well as being taught. SDL should be tailored to learner characteristics and based on factors, such as educational interventions, learning tasks, facilitating strategies, and assessments methods, which affect such development.

**Summary of Results:** Many measures have been adopted in medical education to enhance student self-direction skills, focusing on various educational activities. This evidence-based review was undertaken to identify approaches and strategies utilised in medical education to promote SDL. All sources were thoroughly searched from 1900 to 2015 to identify key skills of self-directed learning, and a substantial number of heterogeneous papers (164 articles) were scrutinised for relevance.

**Discussion:** Encouraging SDL in medical education prepares the medical professional to be a life-long learner, to provide quality health care, and to reinforce the trust of the society in the medical profession. This review will explore the implications for practice and pave way for further research avenues in SDL in medical education.

**Conclusion:** Competencies for SDL prepare medical students to 'learn to learn' and to adapt to become the future adept medical professional.

**Take Home Messages:** Self-directed learning is a skill every medical professional should acquire for life long learning and to maintain competency.



#3L7 (134576)

**The Delphi technique: developing an instrument for emotional behavior aspects of Meaningful Learning in Healthcare Professionals**

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**Background:** Meaningful Learning is an active process that promotes a wider and deeper understanding of concepts. It is the result of an interaction between new and prior knowledge and produces a long-term change. This includes many dimensions: cognitive, meta-cognitive, behavioral, emotional, and disposition or style. To measure Meaningful Learning capability it is very important in the education of health professionals, to identify problems or special learning needs. The aim of this study is to identify items for a new instrument that measures emotional behavioral aspects of Meaningful Learning, according to Fink's Taxonomy.

**Summary of Work:** A Delphi Study technique in four phases was completed using e-mails. It was conducted from April to September 2015. An expert panel consisting of ten researchers experienced with Fink's Taxonomy was established to identify the items of the instrument. Data were analyzed for conceptual description, and the rating of item characteristics and attributes was conducted. Expert consensus was sought in each of these phases. A >75% consensus cut-off was established.

**Summary of Results:** After four rounds consensus was obtained for validation of the content of the "Assessment of Meaningful learning Behavior and Emotional Aspects" (AMBEA). This instrument consists of 56 items evaluated with a 5 point Likert scale. Foundational Knowledge, Application, Integration, Human Dimension, Caring and Learning how to learn, were the six dimensions explored.

**Discussion:** This validated tool can help educators to identify and to improve strategies to support the learning capability of students and could increase their awareness and/or responsibility in the learning process.

**Conclusion:** Meaningful and Deep Learning approach is essential for the government and the clinical efficacy in a health care environment. This means promoting conceptual understanding and supporting the development of clinical reasoning.

**Take Home Messages:** Meaningful and Deep Learning approach is essential for the government and the clinical efficacy in a health care environment. AMBEA can be useful to identify learning problems or special needs among students or health professionals, in order to structure targeted interventions to develop Meaningful learning.

#3L8 (136403)

**Bringing back medical students to seminars and lectures: Optional Continuous Assessment as a potential solution**

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**Background:** Medical Education has been using lectures/seminars for hundreds of years. Despite the appearance of new teaching methods they still keep their high value to transfer knowledge namely with large groups. As students' attendance is (usually) not compulsory students 'disappeared' from seminars as a consequence of increased pressure (overloaded curricula, assessment in other areas, etc.) At FMUL, the first year Module III-I: 'Clinical Medicine: the doctor, the patient and the person' is not an exception and during the last decade students vanished from the 6 weekly non-compulsory seminars. From 300 students only a very low number (around 70) attended each seminar. From them, 60 had been selected to participate in the Discussion Forum and therefore were anyway forced to attend one seminar per year. This means that in each seminar just 6-10 students participated voluntarily.

**Summary of Work:** To bring students back to Seminars, this year we offered them the option for continuous assessment. Students might choose to reply to a short question at the end of each seminar worth 0.50/20.00. Those who gave a correct answer in the 6 seminars obtained 3.00 which means their final written exam would be assessed for 7.00 instead of 10.00/20.00. The objective of this study was to identify the impact of this option on seminar attendance

**Summary of Results:** In 2015-16 all students except two decided for 'Continuous Assessment' with 140 students attending all seminars. Students' average grade was 2.30. Attendance was as follows: Seminar Oct/21 - 208 Students Seminar Oct/28 - 235 Students Seminar Nov/18 - 229 Students Seminar Nov/25 - 245 Students Seminar Dec/02 - 253 Students Seminar Dec/09 - 231 Students

**Discussion:** Continuous assessment not only brought students back to seminars but they were also globally more attentive and participative as they knew they would be assessed at the end of the seminar.

**Conclusion:**

**Take Home Messages:** We recognize the importance of using the assessment power as an external motivation factor to bring students back to seminars.



### 3M Short Communication: Approaches to Clinical Teaching

Location: MR 120 – P1

#3M1 (132159)

The role of the peer-group in medical student transition from classroom to clinical learning environment

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Lorelei Lingard, (Western University, London, Canada)

**Background:** The transition to clinical training is a seminal point in medical student education. While existing research has provided insight into the individual experience of student transition, less is known about social factors shaping transition.

**Summary of Work:** This constructivist qualitative study explored medical students' experiences of the first week of transition from classroom to clinical environment. Following IRB approval, 27/54 third-year students participated in interviews and photo elicitation, which required submission of photos with narrative captions representing positive and challenging transition experiences. A content analysis of all photos was conducted to identify recurring themes, which were elaborated and refined through analysis of interview data.

**Summary of Results:** The dataset included 162 photos and 27 post-transition interviews. A central theme was the role of the peer group in transition experiences, with four sub-themes: 'learning in a group', 'support from peers', 'normative comparison of oneself with perceived group standard' and 'shared pain of being thrown in together'.

**Discussion:** Collective dimensions of the transition experience indicated students not only draw on their peer group for support, but use the group to understand their own relative positioning and progress. They draw on a collective sense of difficulty which may serve to ease the process of adjustment. Themes of 'normative comparison' and 'shared pain' warrant further study, as they may strongly influence students' developing professional identity as novice clinicians.

**Conclusion:** Our findings add to the existing knowledge regarding student transition to clinical learning environments, by identifying the multi-faceted role of the medical student peer group in the early transition process.

**Take Home Messages:** The medical student peer-group plays an important, multi-faceted role in student transition from classroom to clinical environment.

#3M2 (134840)

Role playing clinical scenarios to appreciate diagnostic uncertainty

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**Background:** Medical students, during their clinical training, consistently see patients who are extensively investigated to establish the most likely diagnosis for subsequent treatment. While some patients have classical presentations for their medical conditions, many have an array of symptoms that do not specifically conform to a particular diagnosis. In this era of rationalisation of health care costs, we need to educate our future doctors on how to systematically investigate a patient and decide when more tests are not necessarily going to lead to change in clinical care.

**Summary of Work:** This exercise was triggered by a case of a young female patient who presented with intermittent high fevers but with no other localising symptoms or signs. The costs of multiple tests and a prolonged hospital stay made the students aware of how expensive diagnostic certainty can be in some patients. They also appreciated how this uncertainty affected the patient and her family.

**Summary of Results:** Each student had to role play different specialists, asked to consult on a specific problem without a clear diagnosis as listed here: Cardiologist- atypical chest pain; Respiratory Physician- shortness of breath on minimal exertion; Endocrinologist – morbid obesity; Rheumatologist – widespread body pain; Neurologist – headache; Gastroenterologist – diffuse abdominal pain with altered bowel habit; Dermatologist – unexplained itch; Geriatrician – memory loss. The students had to think of all possible diagnoses and then plan how they were going to approach investigating this patient.

**Discussion:** The students learned the importance and value of eliciting an accurate history and physical examination. They appreciated in these role plays, the sensitivity and specificity of tests as well as their positive and negative predictive values, so that they could rationalise ordering these to improve diagnostic certainty. Students also appreciated clinical reasoning and concept mapping skills as they developed their own clinical algorithms to approach each of these broad clinical problems.

**Conclusion:** Innovative teaching methods can be fun and produce caring, ethical, cost-conscious, knowledgeable medical practitioners.

**Take Home Messages:** This type of activity is easily translatable to different cultural environments and potentially can be delivered through both face-to-face and synchronous electronic communication.

#3M3 (132555)

**Role modelling of clinical tutors: a focus group study among medical students**

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**Background:** Role modelling by clinicians assists in development of students' professional competencies, values and attitudes. Three core characteristics of a positive role model include 1) clinical attributes, 2) teaching skills, and 3) personal qualities. This study explored first year medical students' perceptions of their bedside clinical tutors as role models.

**Summary of Work:** The study was conducted with one cohort (n=301) of students who had completed Year 1 of the Sydney Medical Program in 2013. A total of nine focus groups (n=59) were conducted with medical students following completion of Year 1. Data were transcribed verbatim. Thematic analysis was used to code and categorise data into themes.

**Summary of Results:** Students identified both positive and negative characteristics and behaviour displayed by tutors. Those students would like to emulate as medical practitioners in the future included: a good knowledge base and history taking skills; ability to demonstrate skills at the appropriate level; empathy, respect and compassion for patients; understanding of the curriculum and assessment requirements; immediate and useful feedback; provision of patient interaction; respectful staff interactions; preparedness for tutorials; and enthusiasm.

**Discussion:** Role modelling plays a critical role in influencing students' motivations and choices in what behaviours to engage in.

**Conclusion:** Our findings reinforce the important function of clinical bedside tutors as role models, which has implications for faculty development and recruitment.

**Take Home Messages:** Clinical tutors play an important part in socialising and supporting new students.

#3M4 (132293)

**Learning from Ward Rounds – Capturing the Educational Potential in Paediatrics**

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Paul Monagle, *Department of Paediatrics, University of Melbourne, Melbourne, Australia*

**Background:** Consultant led ward round education in a busy paediatric setting is a complex process. Whilst ward round education is prioritised in our hospital, there is little understanding of the teaching and learning that occurs. We wanted to verify whether the actual educational outcomes matched the perceived outcomes as expressed by participants.

**Summary of Work:** Drawing on principles from Developmental Evaluation, we used an ethnographic approach to observe 30 General Medical ward rounds over two months. We observed learning opportunities, what is explicitly taught, methodological approaches used, ward round structure and whether educational pedagogy underpins practice.

**Summary of Results:** Whilst elements of excellent teaching and learning could be seen, education was largely teacher centred, implicit, unsystematic and lacked pedagogical basis. Teaching and learning content was often clinical, while opportunities to address communication and professionalism were lost and potentially impacted on patient care. Observation of registrars occurred on occasion, junior residents infrequently, and timely, specific feedback was rare. Agenda setting and clear expectations around learning were not discussed.

**Discussion:** Our findings highlighted significant missed educational potential in the ward round environment as well as a need for a major shift in educational focus. Consultants are ill equipped for the educational complexity required to facilitate multi-level ward round teaching and would benefit from educational support. This must be balanced against the time and burden of service delivery.

**Conclusion:** Ward round education is a priority that benefits from observation, reflection and development of new models of practice. We will use our findings to develop, implement and evaluate the impact of an educational framework for quality education for all trainees and the quality care of our patients.

**Take Home Messages:** Observing ward rounds and reflecting on what we do is essential for continuing quality educational practice and care.

### #3M5 (135203)

**Clinical shadowing enables junior medical students to know more about physicians' work and the core competencies**

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Fen-Yu Tseng (National Taiwan University College of Medicine, Taipei, Taiwan)

**Background:** To let medical students know more about what physicians do, we have implemented a one-year clinical shadowing (CS) course for the second-year students since 2013. All students have to choose two one-hour CS classes to observe two different physicians of different specialties in various settings at different times in two subsequent semesters, respectively.

**Summary of Work:** To evaluate if CS could increase students' knowledge about physicians' work and the six core competencies, namely patient care (PC), medical knowledge (MK), practice-based learning and improvement (PbLI), interpersonal and communication skills (IPCS), professionalism (P) and systems-based practice (SbP), a 5-point Likert scale questionnaire was distributed to students both before and after CS in two subsequent semesters. Questionnaire responses were analyzed using chi-square tests with 'strongly agree' and 'agree' as one category and other choices as the other category. Comments about CS were also collected.

**Summary of Results:** About 90% of students strongly agreed or agreed that CS had increased their knowledge about physicians' work both before and after CS in the two semesters. In terms of CS competencies enhancement, the percentages of 'strongly agree' or 'agree' dropped after CS in the first semester, although only SbP showed a significant decrease (64.4% to 45.5%,  $p=0.0023$ ). After CS in the second semester, 65.4% of students strongly agreed or agreed that CS had increased their IPCS competency, followed by PbLI (54.1%), SbP (51.9%), P (48.8%), PC (42.1%) and MK (33.8%). All students considered CS to be beneficial.

**Discussion:** Students' expectations about CS were initially high. A longitudinal follow-up of their self-assessments can help to implement continuous curriculum improvement.

**Conclusion:** CS enables junior medical students to know more about physicians' work and the core competencies.

**Take Home Messages:** CS is beneficial to junior medical students and may help teaching the core competencies, especially IPCS.

### #3M6 (130700)

**Operationalized patient centeredness skills and feedback models**

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Charlotte Hedberg (Karolinska institute, Stockholm, Sweden)

**Background:** Medical students have been taught a method for patient centeredness (PC) with easily recognised content and tools. There is a need to develop instruments for feedback on these PC skills. Medical students in term nine filmed a consultation with a patient and then three different models of feedback were studied.

**Summary of Work:** The students were randomized into three groups; either the video was watched and discussed with a peer, or with a teacher, or just by the students themselves. A template for reflection was filled in. One year later the students' skills were assessed on a final exam with a new video.

**Summary of Results:** After collecting about 300 written reflections, preliminary results show that many reflections are of a high quality regarding insights in PC skills. Students appreciated oral feedback from a teacher most, 8/10 on a VAS scale. Getting feedback from a peer or from oneself was rated somewhat lower, 6/10.

**Discussion:** A new promising template for more accurate and discriminating assessment of PC is now tried out. In a couple of months definite results will be present and can then be discussed. Focus group interviews will be held with students and content analysed.

**Conclusion:** For shared decision-making and understanding a PC approach is required. Medical students show insight in what consultation tools to use to reach such an outcome. Their actual skills and possible differences depending on given feedback are to be investigated further.

**Take Home Messages:** Tools for feedback and assessment on operationalized patient centeredness skills have been developed and tried out in practice for medical students. A dichotomized rating scale is being worked out. Self-regulated learning and / or peer learning in this field will be further elucidated.

#3M7 (133512)

**Health Care Systems Not Medical Knowledge:  
Trainees' experiences of complexity in clinical  
training**

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**Background:** The ability to handle complex situations may be considered a critical competency of twenty-first-century physicians. Current medical education however, tends to focus on organ-based teaching and clinical scenarios featuring single-system diseases. This has led to concern that medical trainees may be unprepared to deal with complex patients and may develop problematic attitudes towards them. We sought to explore how medical trainees conceptualize and navigate clinical complexity.

**Summary of Work:** In an international constructivist grounded theory study, 29 trainees engaged in a 2-part interview process. First, they drew two Rich-Pictures representing complex patient scenarios: 1 exciting and 1 frustrating. Second, they participated in semi-structured individual interviews about their experiences.

**Summary of Results:** Students recognized a range of features contributing to clinical complexity, but complexity associated with the healthcare system was more prominent than medical complexity in trainees' pictures and interviews. System complexity included human interactions (e.g., negotiating conflict with families or team members), transitions in care, uncertainty and ambiguity, resource availability, time pressures, and divergent values. Trainees usually represented medical complexity as exciting, while system complexity was more commonly described as frustrating.

**Discussion:** Students appear to enjoy medical complexity, but may struggle when complexity is based in social and systems factors. Education about complexity should explicitly address the range of sources, in order to better prepare students for navigating the complex systems that modern medicine involves. More medical knowledge is not the solution to preparing students for complexity; we must address issues of collaboration, management and leadership.

**Conclusion:** Complexity in medicine is a multi-faceted phenomenon. Complex systems are perceived by trainees as more difficult and frustrating than complex patients, suggesting that we need to better prepare

trainees to navigate system complexities in clinical work.

**Take Home Messages:** System complexity appears to present more challenges to medical trainees than medical complexity. Undergraduate medical curricula should better support medical trainees' preparedness for such complexity.



### 3N Short Communication: Prescribing

Location: MR 121 – P1

**#3N1 (132785) (Postgraduate Travel Award Winner)**  
**837 European nearly graduates: a first multinational study of essential knowledge, skills and attitudes in clinical pharmacology and therapeutics**

**David Brinkman\***, VU University Medical Center,  
Amsterdam, Netherlands

Jelle Tichelaar, VU University Medical Center,  
Amsterdam, The Netherlands

Tim Schutte, VU University Medical Center, Amsterdam,  
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Theo de Vries, VU University Medical Center,  
Amsterdam, The Netherlands

Milan Richir, VU University Medical Center, Amsterdam,  
The Netherlands

Michiel van Agtmael, VU University Medical Center,  
Amsterdam, The Netherlands

**Background:** In order to prescribe safely and effectively, European medical graduates should have acquired a minimum set of prescribing competencies (knowledge, skills, attitudes) at the point of graduation. However, it has never been investigated whether this requirement is being met. Therefore, the aim of this multinational is to evaluate the essential knowledge, skills and attitudes in CPT of final-year medical students across European medical schools.

**Summary of Work:** In this descriptive, cross-sectional study, a formative standardized assessment and survey was conducted of 827 final-year medical students from 17 medical schools across 14 European countries (BE, DE, ES, GR, FR, HR, IT, LT, NL, PT, RS, RO, SE, UK). The assessment (web-based) consisted of 24 MCQs and 5 patient case descriptions. The assessment and survey were developed and validated by all participating European medical schools and reflected knowledge, skills and attitudes in CPT that graduates should possess. University are equally weighted in reported results.

**Summary of Results:** Overall, students had a mean knowledge score of 69.2% (SD 15.1), with lowest score in subdomain interactions and contraindications (49.8% [SD 21]). Regarding skills, 73.2% (61-82) of students' therapy choices was inappropriate, with 9.4% (6-15) being potentially harmful and 2.2% (1-4) potentially lethal. Higher rates of inappropriate choices were associated with traditional curricula ( $p < 0.001$ ). At least one prescribing error was found in 69.4% of the items prescribed. Students showed a general lack of confidence about essential prescribing skills. Only 33% of the students felt adequately prepared for their future prescribing task as a doctor.

**Discussion:** Although there exists variation between the medical schools, our findings show an overall lack of prescribing competencies among European nearly graduates. This suggest that the undergraduate CPT education throughout Europe is insufficient leading to incompetent prescribers and potentially unsafe

medical care. There is an urgent need to develop a core curriculum in CPT that should be used throughout European medical schools.

**Conclusion:** This first multinational study shows that nearly graduated doctors in Europe lack essential prescribing competencies in clinical pharmacology and therapeutics which needs further attention.

**Take Home Messages:** - Nearly graduated doctors in Europe lack essential prescribing competencies. - Urgent need to develop a European core curriculum in clinical pharmacology and therapeutics.

**#3N2 (133181)**

**Multidisciplinary teaching – an approach to prescribing education that works**

**Lauren O'Brien\***, School of Medicine, University of  
Liverpool, Liverpool, UK

**Background:** Safe and appropriate prescribing presents a major challenge for qualified doctors, who are expected to practice this core clinical skill from day one in their first foundation post. From 2016, all F1 doctors are expected to pass the Prescribing Safety Assessment (PSA) before starting at their foundation schools.

**Summary of Work:** The University of Liverpool, School of Medicine implemented a new curriculum in 2014. As part of this, a pharmacist-led safe prescribing programme was designed for medical undergraduates. This focussed on the core competencies identified by the General Medical Council in preparation for the PSA and becoming an F1 doctor.

**Summary of Results:** A prescribing teaching programme that includes a range of lectures, small group workshops and ward based activities is now delivered by pharmacists at all NHS base hospitals affiliated to the University of Liverpool. The teaching focusses on high risk drugs assessed in the PSA (anticoagulants, antibiotics, insulin, opiates and fluids).

**Discussion:** Medical undergraduates were previously expected to develop the core knowledge, skill and clinical judgement that prescribing encompasses in a restricted amount of time without sufficient opportunity to practice their skill and obtain appropriate levels of feedback.

**Conclusion:** Pharmacists possess a unique skill set in relation to medicines management. However, the profession was previously under-utilised in the development of undergraduate training programmes involving safe and effective prescribing. Feedback from students indicates that pharmacist-led teaching forms a vital component of their preparation towards becoming an F1 doctor.

**Take Home Messages:** As a greater emphasis is placed upon the importance of multidisciplinary learning, prescribing education and patient safety, the role of a pharmacist within medical education should be re-defined.



#3N3 (133375)

**E-learning: autonomous motivation required?**

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Martine Caris (VU University Medical Center, Amsterdam, the Netherlands)

Jonne Sikkens (VU University Medical Center, Amsterdam, the Netherlands)

Adriaan van Doorn (University Medical Center Groningen, the Netherlands)

Rashmi Kusurkar (VU University Medical Center, Amsterdam, the Netherlands)

Michiel van Agtmael (VU University Medical Center, Amsterdam, the Netherlands)

**Background:** Although the use of e-learning is increasing in medical education, not much has been written on who will use e-learning when offered. Since e-learning is usually facultative and followed individually, it requires more student motivation than other educational methods. We aimed to investigate if residents' participation in e-learning on antibiotic prescribing (an area in which they often perceive a lack of knowledge) was associated with their motivation. Motivation is classified by Self-determination Theory into autonomous (originating from interest in learning or understanding the importance of learning) and controlled (originating from learning for CME credits or other rewards) motivation. We used Relative Autonomous Motivation (RAM), which measures an individual's overall Autonomous Motivation (AM) after correcting for their Controlled Motivation (CM).

**Summary of Work:** We conducted a cross-sectional survey study. Residents who filled out the survey including antibiotic knowledge and motivation (Self-Regulation Questionnaire-Academic (SRQ-a)) were granted access to an e-learning module on antibiotic prescribing (designed through Pscribe). We calculated RAM by subtracting CM-score from AM-score on the SRQ-a. We analyzed associations between RAM and participation in e-learning using logistic regression, adjusting for prior antibiotic knowledge.

**Summary of Results:** Residents from two teaching and two non-teaching hospitals participated, including 53 internal medicine, 8 cardiology, 5 geriatrics and 3 other. Mean age was 31.4 years, 77% were female and 32% had clinical experience  $\geq 5$  years. E-learning participation was 61% (n=42). RAM was positively associated with participation in all hospitals (adjusted odds ratio (OR) 2.7, 95% confidence interval (CI) 1.2-6.1, p=0.02), and in teaching hospitals specifically (adjusted OR 4.4, 95% CI 1.5-12.4, p=0.005).

**Discussion:** Our study shows that autonomous motivation is of great importance in e-learning participation.

**Conclusion:** A focus on increasing autonomous motivation for learning is warranted to optimize e-learning participation.

**Take Home Messages:** Suboptimal participation poses a potential pitfall of non-obligatory education

methods such as e-learning. Increasing autonomous motivation may be recommended.

#3N4 (133654)

**Simulating multiprofessional decision making on prescribing errors - a thematic analysis of pharmacy student perception of behaviours in interprofessional working**

**Nicola Brown\***, University of Manchester, Manchester, UK

Kurt Wilson (University of Manchester, UK)

Jodie Gwenter (University of Manchester, UK)

**Background:** A large cohort of final year medical and pharmacy students took part in a simulation of clinical practice using an e-prescribing system to manage mock patient cases. Case studies were written by a multiprofessional team and presented common legal and clinical prescribing issues. Students identified safety issues within inpatient and discharge prescriptions, had to discuss and action a solution, while subject to time pressures. Problems were communicated using both telephone and face-to-face interactions.

**Summary of Work:** Pharmacy students were provided with an evaluation questionnaire consisting of open questions investigating working across professional boundaries and decision-making. Data were analysed thematically.

**Summary of Results:** 130 (92%) of pharmacy students completed the questionnaire. Benefits of utilising different professional skills and approaches were highlighted: "How to apply each health care professional's strengths in order to solve the case". Clarification of professional roles, confidence and ability to make decisions and ability to effectively communicate was identified: "Understanding my role and limitations within a multidisciplinary team"; "Confidence in making decisions and communicating them". "I learnt about the importance of clear communication." Simulation brought home professional responsibility: "Having to make decisions / recommendations and being responsible for patient's health."

**Discussion:** Professionals need to understand their skills and strengths, and have confidence to voice them for effective multiprofessional team working. By taking part in the simulation, students were able to identify the value of multiprofessional working, their professional strengths, build confidence in engaging with other professionals, and identify methods to make their contribution successful.

**Conclusion:** Multiprofessional simulation allows students to practise and reflect on the skills required to engage with the multiprofessional team.

**Take Home Messages:** Real life professional simulation allows students to reflect on the skills required to work in an effective multiprofessional team, enhancing patient care.

#3N5 (135253)

**Preparing medical students for primary care prescribing practice with the aid of technology to enhance learning**

**Hiten Mitha\***, *University of Manchester, Manchester, UK*

*Kurt Wilson (University of Manchester, Manchester, UK)  
Matt Ramirez (JISC, Manchester, UK)*

**Background:** Final year undergraduate medical students are required to pass a National Prescribing Safety Assessment (PSA). Workshop sessions were designed to involve the use of iPad applications that enhance learning and in-session assessment in order to prepare the students for the PSA. The sessions focused on the use of interactive case studies (Nearpod) and an OSCE workshop using augmented reality (Junaio).

**Summary of Work:** Students were invited to submit evaluation of the sessions with quantitative scores and qualitative feedback, which were collated anonymously at the end of each session. A response rate of 100% was achieved. A total of 23 workshops were held. Student numbers ranged from 12 – 24 per session.

**Summary of Results:** Overall the session was well received and students felt learning objectives were met. The majority of comments regarding the use of technology were positive, especially for Nearpod, although students felt that augmented reality added less value to the session. “Excellent use of technology, useful and helpful for community attachment and general for life” “Getting immediate feedback with Nearpod was helpful” “Simplify the Junaio app”

**Discussion:** When evaluating using the Kirkpatrick model, the session worked well. Nearpod was a success, particularly contributing to interaction within the session. The ability to provide immediate feedback on informal in-session assessment was deemed to be a valuable asset. Observation of student performance could clearly be seen to improve throughout the workshop.

**Conclusion:** Upcoming student performance in the national PSA and our local OSCE assessments will show whether our session has provided improvement in student knowledge compared to previous year performance.

**Take Home Messages:** Incorporation of interactive technology provides enjoyable teaching sessions. Whether this translates into better performance in local and national examinations and into professional practice remains to be seen.

#3N6 (132772)

**Auditing the prescribing practice of junior doctors as a near peer auditor – a teaching and learning experience**

**Benjamin Werkmeister\***, *Christchurch Hospital, Christchurch, New Zealand*

*Dale Sheehan (Christchurch Hospital, Christchurch, New Zealand)*

**Background:** Opioids have been identified as a high risk medicine worldwide. Locally an education program has been introduced to improve opioid prescribing by junior doctors. With the supervision of the quality pharmacist I joined the research team as a near peer auditor of prescribing practice, pre and post the intervention.

**Summary of Work:** This presentation reports on the audit outcome of an educational intervention and also my experience as an auditor, developing an audit strategy, delivering near peer feedback, working within a interprofessional education team, and the impact on my own professional development.

**Summary of Results:** The prescribing audit showed a reduction in prescribing errors in oral morphine prescribing from 4/30 to 1/20, and 13/17 to 1/10 for IV morphine, indicating a significant reduction in prescribing errors following the teaching program. The audit improved my personal prescribing practice, my ability to give feedback to near peers, presentation skills and how to work within an interprofessional team.

**Discussion:** A near peer audit can be an educational tool for understanding the needs of peers and aiding their professional development as well as teaching the auditor essential professional skills and improving knowledge within the relevant field.

**Conclusion:** There is an opportunity to improve professional skills and involve junior doctors in identifying their weaknesses and work alongside a interprofessional team to shape their own ongoing education.

**Take Home Messages:** The use of near peer auditing as an education tool is effective improving personal practice, developing professional skills and providing useful support for near peers and the interprofessional health team, allowing for a more practitioner directed approach to continuing medical education.

#3N7 (135602)

Exploring the impact of formalised prescribing error feedback

**Simon Watmough\***, University of Liverpool, Liverpool, UK

Michael Lloyd, St Helens & Knowsley Hospitals Trust, UK  
Sarah O'Brien, St Helens CCG, UK

Nick Furlong, St Helens & Knowsley Hospitals Trust, UK  
Kevin Hardy, St Helens & Knowsley Hospitals Trust, UK

**Background:** Prescribing errors (PEs) are an endemic problem in healthcare with prevalence estimated at up to 50%. Error causation is complex with lack of PE feedback considered a contributing latent condition. The aims of this research are to explore the views of Pharmacists towards PE feedback and the impact of feedback on PE rates and Prescribers.

**Summary of Work:** Prospective prescribing audits were completed at the beginning and end of a three month prescriber rotational period for control and intervention wards. Prescribers received feedback on PEs in-between audit periods. PE data were analysed using an independent t-test. 24 Pharmacists were recruited into one of four focus groups. Twenty prescribers who had received feedback were interviewed individually. Interviews were transcribed and analysed using a thematic framework approach.

**Summary of Results:** Mean PE rates were significantly lower in the intervention group following feedback (mean difference 19.7%,  $p < 0.05$ ,  $d = 0.7$ ). Pharmacists recognised that feedback on PEs was essential to learn from mistakes and reduce PEs. However, delivery of feedback appeared to be inconsistent and mainly directive with communication anxieties with prescribers also reported. Prescribers welcomed and valued feedback, advocating its role in facilitating reflection and supporting their development. Pharmacists were considered credible facilitators of feedback.

**Discussion:** The work has involved a change in hospital practice and in some cases a change of culture, but it seems these changes are worthwhile. If this is to be taken further then pharmacists may need to have more training in giving feedback and more time allowed for giving and receiving feedback.

**Conclusion:** Early results are promising with positive impacts on PE rates and prescribers themselves. Further work is necessary to determine reproducibility, sustainability and the impact of feedback on specific error types and Pharmacists who deliver the structured feedback.

**Take Home Messages:** Allowing pharmacists to give feedback to prescribers can reduce prescribing error rates.

#3N8 (135571)

Developing practical prescribing skills during the undergraduate medical course - views from 1023 medical students

**Maria Kennedy\***, Brighton and Sussex Medical School, Brighton, UK

I. Haq

S.E. Williams

M. Okorie

**Background:** Junior doctors are responsible for the majority of prescribing at NHS hospitals in the UK. Newly qualified junior doctors have expressed concerns over their lack of preparedness to undertake complex tasks such as prescribing.

**Summary of Work:** Following ethical approval, an online questionnaire was sent to each UK medical school for dissemination to medical students in years 3, 4 and 5. Analysis, primarily descriptive statistics, was completed using SPSS and Microsoft Excel. Participation was voluntary.

**Summary of Results:** 1023 medical students responded from 25 medical schools, including 41% in final year ( $n = 420$ ), 37% in fourth year ( $n = 378$ ), and 22% in third year ( $n = 225$ ). Only 36.4% of students believe that their medical degree prepares them sufficiently for practical prescribing ( $n = 372$ , 95% Confidence Interval [CI] = 32-41%). Over half of the students believe that teaching of practical prescribing should commence in phase one (years 1 and 2) of the curriculum (52.6%  $n = 538$ , CI = 48-57%). 73.7% of students opine that undergraduate teaching of practical prescribing should be standardised across all medical schools ( $n = 754$ , CI = 71-77%). The majority were aware that they may need to sit a Prescribing Safety Assessment [PSA] (86.5%,  $n = 885$ ), and there was a perception that preparing for this assessment improves practical prescribing skills ( $n = 690$ , 67.4%).

**Discussion:** This is a snapshot of the current situation in UK medical schools. Students recognise that current teaching and learning of practical prescribing in UK medical schools is suboptimal. There is a perception that the PSA positively impacts on practical prescribing skills.

**Conclusion:** Introduction of practical prescribing teaching into Phase 1 of the curriculum, and utilisation of a standard approach across medical schools might be more beneficial according to students.

**Take Home Messages:** With the palpable reality of full registration moving to the point of graduation, the exploration of a standard approach to the teaching and learning of practical prescribing is timely.

### 30 Short Communication: Faculty Development 1

Location: MR 122 – P1

#3O1 (135331)

A tiered approach for mandatory assessment training

**Selma Omer\***, *University of Southampton, Southampton, UK*

*Bruce Mcmanus (University of Southampton, Southampton, UK)*

*Jenny Skidmore (University of Southampton, Southampton, UK)*

**Background:** The General Medical Council (GMC) regulates and assures the quality of basic medical education in the UK. The GMC requires all Medical Schools to ensure that all assessors are trained appropriately. Mandating assessment training poses numerous challenges including:- the high number of assessors required; their availability to attend face-to-face workshops; and their differing levels of expertise.

**Summary of Work:** Devising a strategy for assessment training involved three phases:- 1. Reviewing all the assessment in the undergraduate Bachelor of Medicine (BM) programmes; 2. Tracking available training to identify gaps and 3. Adopting a more holistic approach that encompasses training in assessment principle, methods and quality assurance processes.

**Summary of Results:** We developed a three tiered structure to examiner training: Tier 1. basic level training -simple and quick to complete; Tier 2. Comprehensive training that offers flexibility through online training (currently, eight modules are available to our faculty members on teaching, learning and assessment topics) ; and Tier 3. Advanced training through attending a face-to-face training workshop. We applied the tiered approach initially to clinical assessments and noted increased uptake in all training levels. Analysis of attendance and online training records showed over 70% of clinical OSCE examiners completing either tier 2 or 3 or both.

**Discussion:** The tiered approach allowed us to mandate minimum levels of training while successfully signposting and encouraging the majority of examiners to move beyond this minimum level. We are currently rolling out this approach to non-clinical assessments.

**Conclusion:** We successfully addressed the GMC regulations in a practical way that is more inclusive of differing examiner learning needs. This approach generated interest among examiners and facilitated wider participation in faculty development.

**Take Home Messages:** A tiered approach to faculty development offers an effective strategy to address mandatory assessment training for a large number of examiners with different learning needs.

#3O2 (135620)

**Curriculum renewal: Evaluating an innovative approach to faculty development for a new undergraduate medical education research course**

**Debra K Katzman\***, *University of Toronto, Toronto, Canada*

*Jana Lazor*

*Karisma Mawjee*

*Lori Innes*

*Jennifer Ng*

**Background:** A new research course, Health Science Research (HSR), was implemented as part of the undergraduate medical education (UME) curriculum renewal process. The course utilized 41 tutors facilitating small group tutorials (SGT) at 7 sites. The challenge was how to support faculty teaching across a large geographic area while ensuring consistent and quality teaching.

**Summary of Work:** We developed an innovative “just-in-time” hybrid FD model (online and peer-to-peer community of tutors) called HSR Educafé (HSR-E), to support the faculty to operationalize the course. One hour before every tutorial, 7-10 tutors/site convened at 7 different sites for 30 minutes of a live webinar facilitated by course leadership, followed by 30-minute peer-to-peer discussion facilitated by site lead tutor. An electronic questionnaire was administered to evaluate tutor participation, experience, and satisfaction.

**Summary of Results:** A total of 35/41 tutors (85.3%) responded to the survey. 100% were aware of the HSR-E and 97.1% were able to attend at least 1/5, with attendance ranging from 64.7- 85.3%. 61.8% found the HSR-E useful. The most satisfied tutors were from sites with a site tutor lead that was on the HSR curriculum development (CD) committee. HSR-E were rated “good-excellent” in providing guidance on how to use course-specific resources (63.6%); on coaching on how to run a tutorial (39.6%); and at providing a community of practice of peer tutors (66%). Thematic analysis identified 3 themes: Need for information; Effectiveness of community of practice for direct teaching support; and Limitations of technology enabled vs face-to-face FD.

**Discussion:** Just-in-time hybrid model of FD is a potentially effective strategy to support new teaching roles, when strengthened by face-to-face FD experiences.

**Conclusion:** The HSR-E is an FD effective strategy to support SGT when implementing a new course using tutors in geographically distributed sites.

**Take Home Messages:** Collaboration between CD and FD is essential in responding to challenging tutor training circumstances during curriculum reform.



#303 (135755)

**Spotlight on faculty development**

*Elizabeth Miles\*, St George's, University of London, London, UK*

*Anne-Marie Reid*

*Janette Myers*

**Background:** As medical education faces a rapidly changing global health environment, development of learning and teaching practices with individual professional recognition and organisational benefits is imperative. However, there is limited published evidence of programmes which achieve organisational impact through faculty development (Steinert et al 2006). This presentation outlines a transformative organisational approach.

**Summary of Work:** St George's Professional Development provision (SHINE) was introduced to recognise and reward, in the context of competing demands, staff who manage, teach, assess and support learning. Activities were mapped to national professional standards accredited by the Higher Education Academy. A phased, mixed methods evaluation was conducted to assess how the programme was meeting its aims from individual and institutional perspectives and linked to the four levels of Kirkpatrick's taxonomy (1976, 1994).

**Summary of Results:** Early findings, benchmarked against initial data, indicated positive benefits for individuals at level 1 (immediate reaction) and level 2 (learning) for participants in the programme. Phase 2 of the evaluation will seek to identify sustained changes in behaviour (level 3) and organisational learning impact (level 4) by monitoring the student experience of learning and teaching and assessing organisational impact.

**Discussion:** Evidence to date indicates that through participation in SHINE individuals valued gains in knowledge, skills and professional recognition and had developed a more collegiate approach to their teaching activities. Peer observations and peer mentoring activities supported this, indicating the development of an organisational learning culture. Phase 2 of the evaluation will seek to assess the organisational impact and sustainability of this.

**Conclusion:** The value of faculty development is widely acknowledged at an individual level. Although more challenging, with investment in time and resources in planning, implementation and evaluation, a transformative organisational approach is achievable.

**Take Home Messages:** Faculty development should map to professional standards and seek to demonstrate impact at higher levels of Kirkpatrick's taxonomy in developing high quality learning and teaching practices.

#304 (133852)

**What do clinicians regard as evidence of excellent clinical teaching?**

*David Taylor\*, University of Liverpool, Liverpool, UK*

*Hannah Giles (University of Liverpool, Liverpool, UK)*

*Kate Taylor (University of Liverpool, Liverpool, UK)*

*Arpan Guha (University of Liverpool, Liverpool, UK)*

**Background:** In the UK attention is being focused on the educational skills of clinicians. The General Medical Council requires all of those involved in teaching or training their junior colleagues to be recognized as clinical or educational supervisors. This has led to serious consideration of what constitutes evidence of excellent clinical teaching.

**Summary of Work:** Almost three hundred senior clinical academics have attended two-day training courses designed to explain the seven domains in which mastery is expected (<http://www.gmc-uk.org/education/10264.asp>). In preparation, participants completed a portfolio of their educational activity, which was revised and refined during the course and the month following. Each portfolio was reviewed, anonymized and collated for detailed analysis.

**Summary of Results:** Preliminary versions of the portfolio evidence usually relied on Kirkpatrick level 1-type (satisfaction-based) feedback from students and trainees. After the course, comparing notes and discussion with colleagues, the emphasis is much more on impact of educational activity (Kirkpatrick level 3-4), and ensuring a return on the investment of time.

**Discussion:** In the clinical environment there is an understandable focus on pragmatic solutions, but these must be carefully designed to ensure that they demonstrate skilled and effective use of time for both trainer and trainee. The GMC require that educators are given time within their job-plan (<http://www.gmc-uk.org/education/27393.asp>) to fulfill their educational responsibilities, but colleagues expressed concern that the unintended consequence of accrediting postgraduate educators would be another increase in workload.

**Conclusion:** The training course and portfolio exercise allowed colleagues to reflect upon their teaching and develop strategies for continuing improvement. Central to the improvement was the desire to focus more specifically on giving feedback and targets for development.

**Take Home Messages:** Regulation of postgraduate education has benefits and unintended consequences. What appears to be missing is a way of demonstrating that improved postgraduate training results in enhanced patient care.



#305 (126168)

### Incorporating Resident Role Modeling into a Resident as Teacher Curriculum

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Linda Snell

Farhan Bhanji

Sero Andonian

Yvonne Steinert

**Background:** Role modeling is one of the most important ways medical students learn from residents. However, to our knowledge, resident as teacher programs have not explicitly addressed role modeling. We set out to design, implement, and evaluate a workshop to teach residents to be effective role models.

**Summary of Work:** Using Bandura's social learning theory as a guiding framework, we designed a workshop that included a flipped classroom and simulation to teach residents to be aware and deliberate role models. Outcomes were assessed through pre-, immediate post-, and delayed-post workshop questionnaires evaluating participant reaction, learning and self-reported behavior changes.

**Summary of Results:** All 19 residents who participated in the program evaluation valued the workshop. Simulation and personal reflection were the highest rated educational approaches. Participant perceptions of their importance as role models, their knowledge of strategies for effective role modeling, and their use of role modeling strategies improved significantly following the workshop.

**Discussion:** In designing, delivering, and evaluating a successful resident role modeling workshop, we have addressed an important gap in residency training and the resident as teacher literature. In addition, the use of simulation and a flipped classroom to teach role modeling represents a novel approach that has not been previously described.

**Conclusion:** Following the implementation of a resident role modeling workshop into our resident as teacher program, residents perceived themselves as more aware and deliberate role models. This supports the incorporation of role modeling into resident as teacher programs. Furthermore, our approach may help guide program development in this often overlooked area.

**Take Home Messages:** Although role modeling is one of the most important ways that students learn from residents, to our knowledge, residents are not taught how to role model effectively. Incorporating a role modeling workshop into resident as teacher programs has the potential to help residents become more aware and deliberate role models.

#306 (134376)

### Follow the Leader: The need to enhance supervisory skills in Competency-Based Education (CBE) within Postgraduate Medical Education (PGME)

Meghan McConnell\*, McMaster University, Hamilton, Canada

Sheila Harms

Karen Saperson

**Background:** The implementation of CBE within PGME marks a significant pedagogical shift resulting in increased direct observation of trainees. While evidence supports the use of CBE assessment tools, less research is available on supervisory practices. The present study examined resident perceptions of clinical supervision in order to shape CBE faculty development opportunities within the Department of Psychiatry, McMaster University

**Summary of Work:** Psychiatry residents completed a 64-item online survey rating supervisor behaviors: qualities of a good supervisor, orientation to clinical rotations, and the use of direct observation in supervision. Residents rated the frequency of supervisor behaviors within a specific clinical rotation (1=never; 2=sometimes; 3=often; 4=always).

**Summary of Results:** 74% of residents completed the survey. Survey items showed high internal consistency ( $\alpha=0.921$ ). Median scores were used to identify behaviors that were frequently (median=4) or infrequently (median=1) endorsed by residents. Frequently endorsed behaviors included: using understandable language to explain concepts (Mean=3.9); acting respectfully (M=3.8); listening to residents (M=3.7); listening to residents reports on patients (M=3.7); allowing residents to develop their own ideas (M=3.6); responding to questions (M=3.6); providing adequate access during supervision (M=3.5); encouraging residents to bring up issues (M=3.5); and asking residents opinions on interventions (M=3.4). Behaviors infrequently endorsed included: explaining limits of confidentiality (M=2.0); observing patient sessions through videotapes/audiotapes (M=2.17) or one-way mirror (M=2.3); assigning e-learning material (M=1.86); and asking residents to present on specific topics (M=1.69).

**Discussion:** The present study identified supervision strengths and areas for focused CBE faculty development at McMaster University. Faculty are well prepared to provide direct observation in anticipation of CBME. However, faculty are less well positioned to provide specific clinical expectations in keeping with defined milestones. Integration of scholarship within clinical rotations is an ongoing challenge.

**Conclusion:** McMaster faculty are prepared to provide the direct observation required to support CBME. Faculty require ongoing education to provide learners with clinical orientation and integrated scholarship opportunities.

**Take Home Messages:** The implementation of CBME at McMaster University will require specific faculty development efforts to optimize current strengths and target potential areas of educational vulnerability.

#307 (134050)

**Contextual factors influence whether Registrars implement what they learn on a “Registrar-As-Teacher” Course at Stellenbosch University**

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Elize Archer, Centre for Health Professions Education, Faculty of Health and Medicine, Stellenbosch University, Cape Town, South Africa

**Background:** Registrars play a significant role as teachers for undergraduate medical students with “Registrar-as-Teacher” (RaT) training programs aiming to equip them for this task. Contextual factors influencing the transfer of learning to the workplace have not been adequately considered as part of the evaluation of these programs.

**Summary of Work:** The Centre for Health Professions Education (CHPE) at Stellenbosch University piloted a half day RaT course. In addition to using the Kirkpatrick evaluation framework, contextual factors influencing behavior in the workplace were explored. A two-phased mixed method design was used, comprising of semi-structured interviews and observation. An inductive approach was used to analyze the qualitative data. Demographic, registrar self-evaluations and workshop evaluation data was analyzed using descriptive statistics.

**Summary of Results:** Participants viewed the course as a positive learning experience (Kirkpatrick level 1). Participants self-reported positive changes in attitudes, knowledge and skills (Kirkpatrick level 2). Participants self-reported behavior changes in their teaching practices and demonstrated appropriate clinical teaching skills when observed (Kirkpatrick level 3). Limited time with competing responsibilities however reportedly impacted negatively on participants’ ability to teach students despite the knowledge and skills gained during the course. Participants mostly felt unsupported and undervalued as teachers, with no specific training, supervision or assessment of their teaching role in the workplace.

**Discussion:** Our participants self-reported and demonstrated expanded clinical teaching knowledge, skills and attitudes after the workshop. Contextual factors such as large numbers of students and limited time with competing responsibilities however impacted negatively on participants’ teaching of students. Lack of institutional supervision and support with no follow up training and feedback undermine their motivation to teach as well as their ability to develop as clinical teachers.

**Conclusion:** Participants perceived the pilot RaT course content as relevant and the workshop shaped their teaching conceptions. Contextual factors can however undermine their ability to practice as clinical teachers; and should inform the development of future RaT initiatives.

**Take Home Messages:** Contextual factors can undermine application of new knowledge and skills and should inform the development and implementation of RaT initiatives.

#308 (134531)

**Comparing concise, intensive and longitudinal medical education courses in terms of perceived self-efficacy and empowerment of faculty members**

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Aeen Mohammadi

**Background:** Faculty members’ belief on their own ability to design and perform activities required for achieving educational goals is conceptualized as their perceived self-efficacy and empowerment. In this study we investigated the effects of different faculty development courses on medical education (six-day, one month short term and six-month long term ones) on participants’ perceived self-efficacy and empowerment.

**Summary of Work:** This before-after quasi-experimental study was performed on 39 faculty members of Tehran University of Medical Sciences who participated in empowerment courses. We used the Teacher Self-efficacy Scale presented by Schwarzer et al. and the self-reporting empowerment scale of Short and Rinehart. We reassessed validity and reliability of the scales for the Persian version.

**Summary of Results:** There was a significant increase in faculty members’ perceived self-efficacy in pre and post tests in one-month and six-month courses, but there was no significant difference in the six-day course ( $p = 0.004$ ,  $0.000$  and  $0.235$  respectively). These results were the same for perceived empowerment ( $p = 0.000$ ,  $0.000$  and  $0.716$  for one-month, six-month and six-day respectively). There was a significant difference in perceived self-efficacy and participant empowerment components based on training course ( $F = 2.815$ ,  $p = .005$ ; Wilk’s  $\Lambda = .345$ , partial  $\eta^2 = .413$ ).

**Discussion:** The perceived feeling of capability would have a great effect on faculty members’ satisfaction and professional commitment. This study provided an evidence that long term medical education courses yield to higher levels of perceived self-efficacy and empowerment of the faculty members.

**Conclusion:** This study showed that long term involvement of faculty members in medical education courses would have more effect on their perceived capability. Qualitative studies are suggested to determine the reasons for these results.

**Take Home Messages:** It is recommended to use longitudinal faculty development courses to have higher levels of perceived capability.

### 3P Short Communication: OSCE

Location: MR 123 – P1

#3P1 (134577)

**Gathering the Narrative in the analysis of a catastrophic OSCE: Errors in OSCE design, curriculum delivery or problem students?**

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Joel Black, Griffith University, Gold Coast, Australia  
Marion Shuttleworth, Monash University, Churchill, Australia

**Background:** A high-stakes OSCE in an early clinical years' assessment resulted in the failure of over 40% of the medical student cohort. Questions were raised about assessment quality, curriculum delivery and student preparedness. The presence of station-level errors or flawed standard setting in the Objective Structured Clinical Examination undermines the validity of clinical skills assessment. As a resource intensive format, it is essential that OSCE stations perform as expected, providing valid and reliable assessment. Failure of large student numbers presents an unacceptable result, both economically and ethically.

**Summary of Work:** Post-OSCE analysis involved information gathering along known validity evidence pathways (Adamson & Prion, 2012; Andreatta & Gruppen, 2009). Psychometric analysis using SPSS, review of standard setting and feedback from examiners, observers and students aided understanding. A 'Sum of Minima' approach to standard setting with no available global rating vetoed a Rasch analysis.

**Summary of Results:** Psychometric analysis indicated no significant examiner, session or circuit errors. Despite meticulous pre-examination standard setting, some station-level errors persisted along with unrealistic standards. Mismatch between student teaching and the assessment tool structure, the effect of authentic simulated patient performances, and overly ambitious passing score expectations were implicated.

**Discussion:** Combined, elements of station design, standard setting and simulated patient performance resulted in multiple stations with high percentages of failing students. The inability to predict when an assessment will produce excessively negative results requires examination design structures that capture both the observed score and narrative surrounding candidate performance.

**Conclusion:** Obtaining validity evidence from clinical skills examinations in the presence of high failure rates demands a structured approach to error identification. In situations where there is doubt about the validity of results, the narrative provides essential information to allow confidence in the assessment outcomes.

**Take Home Messages:** Good assessment requires both the narrative and the observed score.

#3P2 (131616)

**Implementing OSCE in an integrated medical curriculum**

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Tobias S. Slørdahl (NTNU, Trondheim, Norway)  
Rune Standal (NTNU, Trondheim, Norway)

**Background:** The Norwegian University of Science and Technology (NTNU) decided in 2014 to implement OSCE in order to improve the reliability and validity of assessment of performance. An integrated problem-based learning curriculum is taught at the medical school. OSCE was introduced as a one-day full-scale pilot for all third year medical students. We here report the results from the pilot, which was planned and completed in one year

**Summary of Work:** Students, standardised patients and examiners received training before the pilot. Three identical circuits accommodated 106 students through 8 stations. The students were randomised into groups. Communication, clinical examination and clinical skills were tested. Online OSCE software (OMIS) was used for scoring and analysis of results. Students and examiners completed an online questionnaire after the pilot.

**Summary of Results:** 848 unique station results were captured. Borderline regression method was used to calculate the pass mark for each station. The overall Cronbach's Alpha was 0.53 and for individual stations in the range 0.55-0.80. Some stations had poor internal consistency because of variance in examiner scoring. 100 % of students and 95 % of examiners participating in the pilot want the OSCE to be permanently implemented.

**Discussion:** A reliability of 0.53 is mediocre but in accordance with previous reported data on OSCEs of this time frame. The low number of stations, and the assessment format being new to all students and examiners, probably contribute to this low reliability. Results were influenced by lack of consensus between examiners regarding the marking criteria.

**Conclusion:** The knowledge and experience gained throughout the pilot will form integral parts of the development of the OSCE at NTNU. The pilot has highlighted certain areas to be tackled in order to improve the quality of the OSCE, such as improving examiner training.

**Take Home Messages:** It is possible to complete a successful full-scale one-day OSCE-pilot from scratch in just one year.

#3P3 (134583)

**Objective Structured Clinical Examination (OSCE) and the impact of Sequestration**

*Jane Smith\*, Bond University, Gold Coast, Australia*

*Tracy Nielson*

*Natasha Yates*

*Peter Jones*

*Lesley Delaney*

**Background:** There is research showing little to no impact from the deliberate "disclosure of examination content" on performance. However the common student view is very different to the published research findings. And regardless of the published evidence, most medical schools in Australia continue to use quarantine.

**Summary of Work:** We have surveyed medical students in 3 clinical years using qualitative and quantitative questions from before until after the re-introduction of quarantine in 2015. In addition analyses were made comparing the mean performance of students allocated to early and late examination sessions, to see any differences in their scores.

**Summary of Results:** Students not sequestered, openly declared widespread cheating occurred. This triggered strong reactions both for and against sequestration. As they believed that those in later sessions received advantageous exam information. Our analysis of their perceptions and the data on their comparative performance validates their opinions

**Discussion:** The organisation and structure of OSCEs show a lot of variance in numbers of students, circuits and stations as well as duration. These variables change the the impact of non-sequestration on performance.

**Conclusion:** Assessment practice needs to be guided by both evidence and consideration of perceived fairness. We believe sequestration improves the validity, reliability and fairness of OSCE assessments for all students

**Take Home Messages:** Sequestration evokes strong opinions regardless of the evidence. Our research add to the debate about the case for and against this time-honoured practice.

#3P4 (132988)

**Introducing objective structured clinical examinations in two low resource environments**

*John Rees\*, King's College, London, UK*

*Suzanne Thomas (King's Sierra Leone Partnership, Freetown, Sierra Leone)*

*Deria Ismail Ereg (University of Hargeisa, Hargeisa, Somaliland)*

*Mohamed Samai (College of Medicine and Allied Health Sciences, Freetown, Sierra Leone)*

*Said Ahmed Walhad (Amoud University, Boroma, Somaliland)*

**Background:** King's College London is in partnerships with the only public medical schools in Somaliland and Sierra Leone, two low resource environments. Both countries are recovering from brutal civil wars that destroyed most health infrastructure and displaced many health workers.

**Summary of Work:** The first Somaliland graduates in 2007 took long and short case assessments. The two Somaliland Universities were keen to introduce more reliable assessments reducing the perceived chances of individual examiner bias but were anxious about the organisational demands of OSCEs. King's was asked to help introduce OSCEs in 2010 The College of Medicine and Allied Health Sciences, the only medical school in Sierra Leone, designed a new curriculum in 2014 with OSCEs as clinical assessment; the Ebola Virus outbreak closed universities and interrupted its introduction.

**Summary of Results:** 3-5 visiting examiners attend Somaliland final examinations each year. Assessments have been in five clinical subjects for 227 students, from 9 in 2011 to 79 in 2015. Pass rate per subject is 86.9% (868/998). OSCEs have been used to influence student learning in areas of perceived weakness: documentation, prescribing and resuscitation. 35 students in Sierra Leone took OSCEs in February 2016, building on experience from Somaliland.

**Discussion:** Challenges have included small inexperienced faculties, limited facilities and equipment, language issues and standard setting. However, a proposal to revert to previous assessments was met with vigorous resistance by students. The aim has been to make the assessment sustainable, changing visiting examiners' roles from organisers to overseers of quality. The pace of change has varied between faculties.

**Conclusion:** The short communication will describe the challenges and experience of the introduction in the only public medical schools in Somaliland and Sierra Leone.

**Take Home Messages:** The changes in assessment have been welcomed by faculty and students and have helped wider educational developments in these low resource environments.



#3P5 (135508)

The application of WE PASS with A (WPA) approach for national OSCE in Indonesia

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Yoyo Suhoyo

**Background:** To assist in designing good assessment, we have developed a comprehensive approach, named as WE PASS with A (WPA). WPA consists of 6 basic steps and 1 step for quality assurance: Writing, Editing, Preparing assessment, Assessment Process, Standard setting, Specific Feedback and Assessing the assessment. This presentation is aimed to describe the application of WPA approach for national OSCE in Indonesia

**Summary of Work:** We identified key features of each WPA components. Based on the identified key features, we developed standard operating procedure for each features.

**Summary of Results:** The preparation and administration of national OSCE follows the WPA approach. The key features of WPA applied in national OSCE consist of: 1) writing blue print and items, 2) editing the OSCE items, 3) preparation of human resources, infrastructure, technology, equipment and financial, 4) evaluate the readiness, briefing to candidates, assessment process and debriefing, 5) standard setting using borderline regression method, 6) provide specific feedback for participants, institution and regulators, and 7) assessing the OSCE itself that involving assessing the validity, reliability, transparency, fairness, comparability, reflection, educational impact, acceptability and feasibility.

**Discussion:** The components of WPA are congruence with what literatures have suggested for an assessment development.

**Conclusion:** The WE PASS with A approach provides clear guideline in planning, administering and evaluating national OSCE

**Take Home Messages:** Clear and comprehensive approach is needed for more effective planning, administering and evaluating an assessment system.

#3P6 (126129)

Tenth anniversary of the nationwide OSCE in Japan 2015: what we can learn from the experience

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Takuya Saiki (Medical Education Development Center, Gifu, Japan)  
Kazuhiko Fujisaki (Medical Education Development Center, Gifu, Japan)  
Yasuyuki Suzuki (Medical Education Development Center, Gifu, Japan)

**Background:** Among experts involved in undergraduate medical curriculum development in Japan, clinical skills education has long been considered to be underdeveloped as compared to Western countries. Exposure to bedside teaching is limited, and integration of students into diagnostic or therapeutic reasoning under supervision is not part of final year education. In Western countries, reasons for this development are widely unknown. This presentation aims at giving insight into undergraduate medical school curriculum development in Japan during the last 10 years.

**Summary of Work:** In addition to an extensive literature search, a questionnaire was developed and used as a basis for a free interview of one of the leading Japanese experts in the field (KF). Information regarding 1) the development of clinical skills training in Japan over the last decade 2) how the nationwide OSCE for basic clinical skills was implemented and 3) what further developments are regarded as essential in Japan to continue innovation in curriculum development is highlighted.

**Summary of Results:** 1) In 2005, the National Common Achievement Test (CAT) was launched. CAT includes an objective structured clinical examinations (OSCE) as well as a computer-based test (CBT). This examination is obligatory for all 80 medical schools in Japan. 2) A complex organizational system with independent observers was established to maximize standardization and objectivity. 3) In the light of the enormous success of this assessment strategy, a so-called "Advanced OSCE" is soon to be implemented.

**Discussion:** In Japan, great effort has been placed into the strengthening of clinical procedural and communicative skills education for third-year medical students prior to beginning clinical clerkship training. A highly sophisticated system to enhance standardization of nationwide assessment has been implemented ten years ago.

**Conclusion:** The knowledge and experiences of organizational and strategic measures involved in this implementation of the nationwide OSCE in Japan may be useful for similar challenges in other countries.

**Take Home Messages:** Due to the success story of the nationwide OSCE implemented in Japan in 2005, measures are underway to implement an "Advanced OSCE" in the last year of medical education in Japan.



#3P7 (135385)

**From audiology to radiotherapy physics to rehabilitation science – the challenges in establishing a standardised OSCE methodology as a fitness to practise assessment method for all clinical healthcare sciences in the current climate**

**Sandie Gay\***, National School of Healthcare Science, Birmingham, UK

Suzanne Chamberlain

**Background:** The Modernising Scientific Careers (MSC) initiative in the UK required an independent, standardised methodology to be implemented as the final assessment for clinical healthcare scientists practising in over 30 diverse specialities on national, standardised but contextualised education and training programmes. The OSCE methodology was selected to be delivered by the National School of Healthcare Science.

**Summary of Work:** In conjunction with employers, the School engaged and trained over 700 practising scientists from the specialties in the OSCE methodology including developing a bank of peer reviewed stations, set the standard for each and develop the skills for assessing the Objective Structured Final Assessment (OSFA).

**Summary of Results:** To date, the School has delivered a unique post-graduate level OSFA for 27 diverse specialities using a standardised methodology (some specialities have yet to deliver their OSFA). So far, of the 1291 trainees recruited, 353 have passed the exit examination and completed their programme allowing them to register with the regulatory authority and go on to fill essential posts in the workforce.

**Discussion:** Against a background of enormous pressure on service delivery in the current climate, healthcare scientists have been asked to be involved in this reformational change to established but disparate training pathways and fitness to practise assessments. Three years on stakeholders are taking stock to determine acceptability to their own speciality.

**Conclusion:** Trainee and assessor evaluation suggests that the standardised high stakes exit assessment has been successful and stakeholders continue to be engaged; however, queries regarding suitability for their own speciality are surfacing. It is essential to reflect on whether a standardised methodology for such varied specialties is acceptable.

**Take Home Messages:** Change is challenging and when under pressure, the inclination is to take the route of least resistance; the School needs to review the implementation to ensure that the pain of change is advantageous and ultimately, patients are benefitting from high quality care. Especially as the same methodology is being considered at doctoral level for consultant healthcare scientists.

#3P8 (135514)

**The training of an entire clinical consultation from assessment to teaching. Can students independently play and assess an “OSCE role-play”**

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Lia Fluit (Radboudumc, Nijmegen, Netherlands)

Geert Bouwmans (Radboudumc, Nijmegen, Netherlands)

Aggie Hettinga (Radboudumc, Nijmegen, Netherlands)

**Background:** “Assessment drives learning” was taken literally by students. They indicated that the scenarios used in the extended clinical skills assessments (EOSCE’s), used to assess progress in clinical skills, not only pointed out their shortcomings but could in their view, be used to train in a very focused way. We decided to transform the assessment scenarios into unsupervised training scenarios.

**Summary of Work:** Development of a new set of clinical skills training sessions in which students train to analyse a clinical problem, during a consultation supervised by their peers. We introduced the new set-up in 41 students who were extensively instructed after which they trained in groups. One doctor, one patient and one observer. They rotated in these roles. They used the scenarios and checklists as constructed for the EOSCE’s.

**Summary of Results:** The internal consistency of the checklists, in this application were determined by Cronbach’s Alpha. Interrater Reliability was assessed by the Interclass Correlation Coefficient ( ICC). With a 5 points Likert scale and focus groups the experiences of the students were evaluated . The ICC for the checklists were: History 0.74, Physical examination 0.52, combined 0.51. The outcome of the evaluation of the experiences was between 3.07 ( SD .81) and 4.22 (.69). The evaluation questions were like: the role-play as doctor was difficult/easy 3.71(.81), the checklist assessment of the role-play was difficult/easy 4.1 (.63).

**Discussion:** In this set-up we changed assessment into teaching, by changing the assessment scenarios into training scenarios. The psychometric data and evaluations show that the training of the clinical skills with these scenarios can be done reliably and realistically, without supervision by a clinician.

**Conclusion:** Transformation of an assessment tool into a practical teaching tool can be done successfully.

**Take Home Messages:** Assessment tools can be transformed into practical and efficient clinical training modalities.

### 3Q Short Communication: Postgraduate Education 1

Location: MR 124 – P1

#3Q1 (132492)

#### Teaching Patient Handoffs in the Ambulatory Setting: A Comparison of Three Instructional Methods

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Linda Kuk (Colorado State University, Fort Collins, USA)

Sandra Fineman (Marshall B Ketchum University, Fullerton, USA)

**Background:** In every medical setting, patients are transferred from one healthcare provider to another. This transfer of care is known as the patient handover. In the ambulatory setting, critically ill patients are transferred from outpatient clinics to higher acuity facilities. Paramedics are often the intermediary for the transfer of patient care. Teaching students how to use the IMIST-AMBO mnemonic during patient handovers to paramedics in the ambulatory setting may improve communication in order to reduce medical errors and improve patient safety.

**Summary of Work:** Twenty-eight first-year physician assistant students were distributed to the three instructional groups in the study: didactic lectures (Group A), simulation of patient handovers to paramedics (Group B), or no intervention (Group C). Following the educational sessions, all 28 students were videotaped during the posttest simulated patient handover to the paramedic. The videotapes were evaluated by two raters who were trained to use the IMIST-AMBO evaluation tool.

**Summary of Results:** A statistically significant difference was found among the educational groups on the IMIST-AMBO total evaluation score during the simulated patient handover,  $F(2,25) = 14.79$ ,  $p = .000$ . The Post Hoc Tukey HSD tests indicate that the simulation group differed significantly from the didactic group ( $p = .021$ ,  $d = 1.15$ ), and the comparison group ( $p = .000$ ,  $d = 3.55$ ).

**Discussion:** The results of this research study showed students in the simulation group performed better than students in the didactic lecture group as measured by the IMIST-AMBO total evaluation score. These results suggest that active learning was more effective in teaching patient handover skills to the students.

**Conclusion:** These findings may help other health professions programs design their patient handover educational curriculum.

**Take Home Messages:** Students benefit from multiple opportunities to actively practice patient handovers in the ambulatory setting.

#3Q2 (134678)

#### Are clinical teachers speaking up in a formal meeting of Post Graduate Medical Training?

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Albert Scherpbier (MUMC, Maastricht, Netherlands)

Reneé van der Leeuw (AMC, PPO, Amsterdam, Netherlands)

MaasJan Heineman (AMC, PPO, Amsterdam, Netherlands)

Cees van der Vleuten (MUMC, Maastricht, Netherlands)

Kiki Lombarts (AMC, PPO, Amsterdam, Netherlands)

**Background:** The importance of speaking up for safeguarding quality of patient care is increasingly being endorsed in research finding. Speaking up is defined as a sincere and direct manner of communication between individuals and includes asking questions, seeking feedback and discussing mistakes.(1) Little is known about speaking up among clinical teachers for the quality of postgraduate medical training.

**Summary of Work:** A purposeful sampling method was used to select teaching teams, which were invited through the program directors. The teaching team meetings were observed, audio recorded and analyzed. Subsequently, in an interview setting, based on specific audio fragments, the program directors reflected on speaking up behaviors during the meetings. All audio fragments were analyzed based on Edmondson's behaviors of speaking up.(1)

**Summary of Results:** Ten teaching team meetings were observed from October 2013 to July 2014 and ten interviews with the program directors were conducted. Both directors and clinical teachers displayed providing information, related to the behavior of 'sharing information'. 'Talking about mistakes' occurred in a general sense and without commitment to improvement activities. 'Questions' were asked, but at times without waiting for the answer and often phrased as closed questions. 'Seeking feedback' was expressed by asking for feedback about established policy or about personal performance.

**Discussion:** Clinical teachers demonstrate behaviors of speaking up during teaching team meetings, whereby it appears that problematic topics are only discussed to a limited degree without taking action. Mistakes and conflicts are mainly discussed in a general sense, and are often neither directed at the individual nor adequately result-oriented.

**Conclusion:** If clinical teachers are to develop speaking up behaviors, it is important to take into account the influencing factors in order to stimulate team communication during the teaching team meetings.(2).

**Take Home Messages:** Stimulate speaking up behaviors for the quality of postgraduate medical training.

### #3Q3 (134998)

#### Are surgical residents' intentions to leave the program related to Job-Crafting skills?

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Willem De Grave (Department of Educational Development and Research, Maastricht University, Maastricht, The Netherlands)  
Alvaro-Enrique Sanabria (Department of Surgery, Universidad de la Sabana, Chia, Colombia)  
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Diana Dolmans (Department of Educational Development and Research, Maastricht University, Maastricht, The Netherlands).

**Background:** Recent evidence indicates that attrition in surgery, and the intentions to leave (attrition proxy), are problematic issues closely related to poor wellbeing at work, denoted by low work-engagement and high burnout. The abilities of residents to transform their job-demands and resources and impact positively on wellbeing, describe as Job-Crafting skills, have been advocated to reduce attrition but require investigation. Our aim is to compare residents with serious (Group-1) and less-serious intentions to leave (Group-2) with respect to differences in Job-Crafting skills.

**Summary of Work:** A total of 202 residents filled in a 5 point Likert-Scale to measure baseline demands (workload/work-pressure), resources (autonomy/supervision), intentions to leave, and Job-Crafting skills (Skill-1: Job-Crafting increasing structural-resources; Skill-2: Job-Crafting increasing social-resources; Skill-3: Job-Crafting increasing challenging-demands; Skill-4: Job-Crafting decreasing hindering-demands). Finally, burnout and work-engagement levels were measured.

**Summary of Results:** Twenty-three residents (11.93%) were in Group-1. The baseline measures were: workload (Group-1:  $3.87 \pm .42$ ; Group-2:  $3.74 \pm .33$ ,  $p=.08$ ), work-pressure (Group-1:  $4.38 \pm .55$ ; Group-2:  $4.20 \pm .57$ ,  $p=.07$ ), supervision (Group-1:  $3.68 \pm .1$ ; Group-2:  $4.27 \pm .70$ ,  $p<.05$ ) and autonomy (Group-1:  $1.96 \pm .60$ ; Group-2:  $2.30 \pm .64$ ,  $p<.05$ ). Job-Crafting scores were: Skill-1 (Group-1:  $4.36 \pm .38$ ; Group-2:  $4.52 \pm .33$ ,  $p<.05$ ), Skill-2 (Group-1:  $3.77 \pm .65$ ; Group-2:  $3.87 \pm .69$ ,  $p=0.24$ ), Skill-3 (Group-1:  $3.0 \pm .80$ ; Group-2:  $3.44 \pm .69$ ,  $p<.05$ ), Skill-4 (Group-1:  $2.96 \pm .92$ ; Group-2:  $2.68 \pm .71$ ,  $p=.08$ ). Work-engagement was lower and burnout higher in Group-1 ( $p<.05$ ).

**Discussion:** Considering lower autonomy and supervision, and higher workload and work-pressure in Group-1, those residents show lower scores in three Job-Crafting skills (Skill-1, Skill-2, Skill-3), in comparison with Group-2. The differences are statistically significant in Skill-1 and Skill-3. Since pressure is high, it is noteworthy that no group reveals high scores in Skill-4

**Conclusion:** There are significant differences in Job-Crafting skills between both groups, however causality models are necessary to test if these skills have impact in job characteristics, wellbeing and intentions to leave.

**Take Home Messages:** Preliminary data suggests that surgery residents with serious intentions to leave show poor Job-Crafting skills.

### #3Q4 (135480)

#### The hidden curriculum of high-value, cost-conscious care: a focus group study

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Erik Driessen (Maastricht University, Maastricht, the Netherlands)

Laurents Stassen (Maastricht Medical Center, Maastricht, the Netherlands)

Fedde Scheele (Athena research institute, VU Medical Center, Amsterdam, the Netherlands)

**Background:** High-value, cost-conscious care, care that aims to assess the benefits, harms, and costs of interventions, is on top of the healthcare organizational agenda. Recently, this discussion has incorporated the role of medical education for the training physicians to provide high-value, cost-conscious care. Knowledge, reflective practice and a supportive environment are known factors that influence training of physicians, residents, and medical students. We aimed to investigate how residents learn high-value, cost-conscious care from their environment, in absence of formal programs.

**Summary of Work:** We conducted six focus groups with residents-in-training of surgical, non-surgical, and primary-care specialties in the Netherlands. Residents discussed issues regarding the role of physicians, patients, and hospital boards, in providing high-value, cost-conscious care. Additionally, experiences were shared about the explicit and implicit lessons residents received in their environment and what they need in order to implement high-value, cost-conscious care into daily practice.

**Summary of Results:** Residents acknowledge that physicians have a key role and responsibility in the delivery of high-value, cost-conscious care in the general healthcare organization and in the team of medical professionals. The possibilities for improvement towards high-value, cost-conscious care are manifold according to residents; however residents feel reluctant to modify current practice for different reasons; such as lack of knowledge, lack of skills, ambiguity towards individual responsibility and insecurities regarding professional authority in decision making.

**Discussion:** The results indicate that identifying the hidden curriculum of high-value, cost-conscious care is essential for developing effective training programs. The environment in which residents learn, by

colleagues, supervisors, or managers, influences substantially the learning outcomes.

**Conclusion:** The environment in which residents are trained is of great importance. Therefore programs for the training of high-value, cost-conscious care should take restraints perceived by residents into account and adjust to the learning environment.

**Take Home Messages:** Residents can identify opportunities to deliver high-value, cost-conscious care, but are reluctant to modify current practice.

## #3Q5 (136303)

### Scientific Training and Postgraduate Medical Education should go hand in hand

**Ahmet Murt\***, *Cerrahpasa Medical Faculty, Istanbul, Turkey*

*Elizabeth Wiley (University of Maryland/Johns Hopkins University, Baltimore, MD, USA)*

*Konstantinos Roditis (National Kapodistrian University of Athens, Athens, Greece)*

*Fehim Esen (Zonguldak Devrek State Hospital, Zonguldak, Turkey)*

*Sahin Hanalioglu (Hacettepe University Faculty of Medicine, Ankara, Turkey)*

*Thorsten Hornung (University of Bonn, Bonn Germany)*

**Background:** Postgraduate Medical Education (PGME) aims to educate a skilled, “fit-for-purpose” health workforce to promote health and benefit the community. But how successful the medical profession is in developing the next generation of scientists, is not very well known. It is important to define the most ideal methods to conduct research in postgraduate medical education, and multinational initiatives, are the most important.

**Summary of Work:** The Junior Doctors Network of the World Medical Association organized a 2-day international workshop to identify best practices in the integration of a research component into PGME. The ethical dimensions of residents as researchers and the balance between research and clinical duties were widely discussed. In addition, the most optimal design of PhD programs during or following PGME was described.

**Summary of Results:** During the workshop, discussions on the timing of research training, settings to deliver such training, mentorship and funding of the programs produced novel ideas. Shortage of “physician scientists” was raised as one of the main concerns among workshop attendees; development of more effective coordination of PGME with academic medical centers emerged as a promising possibility.

**Discussion:** International recognition of candidates who complete research training through certification, diploma and thesis appeared to be highly important. Expected outcomes of more robust research training as a component of PGME would be an increase in clinical researchers prepared to fuel medical discovery and innovation.

**Conclusion:** Research is one of the most important components of PGME and should be addressed by teaching institutions at local, national and international levels

**Take Home Messages:** The balance between service provision, educational needs of residents and the research component can be reached by involving the residents in the design of PGME.

## #3Q6 (136180)

### The value of a digital logbook for UK trainees in Obstetrics and Gynaecology

**Dede Ofili-Yebovi\***, *Kings College Hospital NHS Foundation Trust, London, UK*

*TJ Lasoye, Kings College Hospital NHS Foundation Trust, London, UK*

*Nicholas Kametas, Kings College Hospital NHS Foundation Trust, London, UK*

**Background:** In the UK, implementation of the European Working Time Directive (EWTD) reduced working hours of trainees. This resulted in a full-shift and a departure from the traditional team-based model for training. The delivery of this new model reduced training hours and the full-shift system hindered workplace-based learning.

**Summary of Work:** In our Unit, we designed an electronic portfolio for trainees to collect clinical and educational activity. This data was then used to create evidence based clinical teams which addressed trainee needs and enabled continuity of training.

**Summary of Results:** This process allowed mapping of our unit’s activity over six-month intervals. The recording of Consultant activity gave the opportunity to join Consultants into teams that had clustered activity on specific week days. Trainees were rostered to follow their team’s commitments and in addition, the created teams complemented each other to ensure a uniform training output to each trainee. Educational supervision became more efficient as it was addressing training needs on an individual basis. The overall trainee’s satisfaction in annual national survey showed a continuous increase from 68.2% in 2010 to 87.2% in 2013.

**Conclusion:** An electronic capture system of trainees educational and clinical activity allows for individualization of training and counterbalances the restrictions of the EWTD.

**Take Home Messages:** Individualised training using a digital logbook



#3Q7 (133749)

**Junior doctors' perceptions about authorship - a cross-sectional study in a tertiary center in Portugal**

**David Cordeiro Sousa\***, *Lisbon Academic Medical Center, Lisbon, Portugal*

*Inês Cardoso Leal*

*Luís Abegão Pinto*

*Carlos Marques-Neves*

*Miguel Oliveira da Silva*

**Background:** Increased attention has been paid to authorship attributing in scientific publications. Specifically, as junior doctors are frequently involved in research, paper writing is a common task and so are conflicts related to attributing authorship. We intended to analyze residents' perceptions of authorship in a tertiary center in Lisbon.

**Summary of Work:** Cross-sectional study. Data collected through completion of an online survey available from Jan-Feb/2016: a Portuguese version of the one created by Hren and colleagues. All residents from Lisbon Academic Medical Center were invited to participate. Statistical analysis was performed with STATA and Wilcoxon test was applied to assess differences between subgroups, considering  $p < 0.05$ .

**Summary of Results:** A total of 95 (62 female) residents participated. More than 90% agreed that study design, data analysis and writing the first draft were "important" or "very important" tasks. Compared to older residents, younger ones recognized that obtaining funding, providing logistic support and being the guarantor were more important ( $p < 0.05$ ). Performing data analysis and reviewing the first draft were considered more important for residents in surgical specialties ( $p < 0.05$ ), comparing to the others. More than 50% declared that in past scientific works, contributions of all authors "never" or "almost" never justified authorship. Only 20 (21,05%) residents declared to know ICMJE criteria. Residents unaware of these guidelines considered more important providing logistic support ( $p < 0,05$ ) than the residents who knew ICMJE criteria.

**Discussion:** Significant differences on residents' perceptions were remarked when considering their year of training, type of specialty or knowledge about the ICMJE criteria. Most reported feeling uncomfortable with the authorship ascribed in past works.

**Conclusion:** The junior doctors interviewed identified concerns regarding authorship criteria. Efforts must be directed towards improving a culture of ethical authorship, particularly among junior doctors.

**Take Home Messages:** The ICMJE criteria may be a useful source to teach authorship attribution in the scientific community.

#3Q8 (134199)

**An innovative smoking cessation training of medical residents in Yerevan, Armenia**

**Narine Movsisyan\***, *American University of Armenia, Yerevan, Armenia*

*Varduhi Petrosyan, American University of Armenia, Yerevan, Armenia*

*Gohar Abelyan, American University of Armenia, Yerevan, Armenia*

*Ondrej Sochor, International Clinical Research Center, St Anne's Faculty Hospital, Brno, Czech Republic*

*Jean-Francois Etter, University of Geneva, Geneva, Switzerland*

**Background:** The current medical training curriculum does not address the physicians' role in smoking cessation counseling in Armenia, where 51% of men smoke. This study assessed the short-term impact of an innovative pilot training for medical residents (MRs) adopted from an evidence-based Swiss model.

**Summary of Work:** Case scenarios, presentation slides, and video-taped counseling sessions were translated into Armenian, and standardized patients (SPs, actors) were trained. Training in small groups (in 2015) employed active learning methods, such as simulation, discussions, and role plays. At the end of a two-sessions training, physicians answered an anonymous questionnaire on the perceived effectiveness of the training.

**Summary of Results:** Of 36 trainees, including 27 (75%) females and 5 (14%) smokers, 28 (78%) returned the evaluation form. The majority acknowledged learning about the behavior change model (93%) and better understanding of their role in smoking cessation (96%). All agreed that the training helped to build skills (71% agreed completely and 25% partially) and increased self-efficacy in assisting smokers to quit (71% completely, 29% partially). Trainees noted a shift in the perceptions of their role in assisting patients to quit. Some expressed concerns about pharmacological treatments' accessibility or found the videotaped cases culturally different. Others suggested adding more detail on tobacco and nicotine dependence.

**Discussion:** This training was the first to employ SPs in a medical training in Armenia, possibly in other ex-soviet countries as well. The study provides useful insights about the immediate impact of the training and knowledge gaps to be addressed.

**Conclusion:** Active learning notably improved the smoking cessation knowledge, attitudes and self-efficacy of medical residents. A follow up is warranted to assess its impact in a longer term.

**Take Home Messages:** Role plays, video-taped counseling sessions, and simulation (SPs) methods can improve attitudes and self-efficacy of trainees related to smoking cessation counseling.



### 3R Short Communication: The Teacher

Location: MR 125 – P1

#3R1 (135459)

**Dealing with it – A qualitative study of clinical teachers' experiences of medical undergraduate education**

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Klara Bolander Laksov (Department of Learning, Informatics, Management and Ethics, Karolinska Institutet, Stockholm, and Department of Education, Stockholm University, Sweden)

Matilda Liljedahl (Department of Learning, Informatics, Management and Ethics, Karolinska Institutet, Stockholm, Sweden)

**Background:** A large part of the medical undergraduate education consists of clinical clerkships in hospitals. Much is known about the importance of supervision in this workplace learning and what characterises a good supervisor or clinical teacher. Less is known about the clinical teachers' own experiences and how they view their role, conditions for the clinical teaching and the educational strategies used.

**Summary of Work:** This study explored clinical teachers' experiences of clinical education of medical undergraduate students at Sweden's largest medical faculty. In-depth interviews with clinical teachers from different settings were subject for qualitative content analysis.

**Summary of Results:** It emerged that the clinical teachers had several interchangeable roles, themed as supervisor – organiser – controller. Also, they were motivated for their task but lacked educational training or support in the community. Furthermore, they based their teaching on own ideas and were not aware whether they used any educational strategies or not.

**Discussion:** The role of the clinical teacher changed depending on the situation with a shift in focus between the students and managing other tasks, for example patient care. Challenges such as lack of support and lack of educational tools were mitigated as they were motivated for the assignment of being a clinical teacher.

**Conclusion:** Clinical teaching is a multifaceted and complex task, but the clinical teachers seem to accept the existing circumstances, adapt to them and 'deal with it' in order to accomplish the task.

**Take Home Messages:** The clinical teachers are not prepared for their important assignment, lack support from the community and need to take on several roles to handle their tasks. Yet they are motivated and simply 'deal with it'.

#3R2 (134305)

**Emotional Intelligence, Satisfaction with Life and Work Related Variables**

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Hassan Sami Shaibah, Department of Anatomy, Alfaisal Medical College, Riyadh, Saudi Arabia

Arno Muijtjens, Maastricht University, Department of Educational Development and Research, Maastricht, Netherlands

Zara Naeem, Research Assistant, Department of Medical Education, Batterjee Medical College, Jeddah, Saudi Arabia

**Background:** Teaching in Health Professions institutions calls for close interaction between the students and faculty and between colleagues within faculty. Success in this changing and complex environment requires emotionally intelligent faculty and leadership. The current study explores emotional Intelligence and satisfaction with life among faculty belonging to six health professions. In addition, work related variables such as designation, experience, qualification and years in teaching will be concurrently investigated in the current study.

**Summary of Work:** This cross sectional, quantitative study was conducted at Batterjee Medical College for Science & Technology(BMC), Jeddah, Saudi Arabia during December 2014 to June 2015. All faculty (n=90) working at BMC were invited to participate in the study. The response rate was 77.7%. Descriptive statistics, ANOVA and regression analysis were performed.

**Summary of Results:** The explained variance was moderate (R square=0.16), and using one-sided p value, significant and substantial effects were seen for three variables namely Designation (b=-0.38, beta=-0.53, p=0.096/2), Teaching Qualification (b=0.38, beta=0.54, p=0.092/2) and Satisfaction with Life [SWL] (b=0.90, beta=0.23, p=0.071/2). The other three variables i.e. specialty or program, post level and number of years in teaching profession showed no significant effect for Emotional Intelligence.

**Discussion:** This exploratory study sheds light on Emotional Intelligence in health professions faculty and its association with satisfaction with life, designation and teaching qualification. As such it provides preliminary data on which further research can be advanced.

**Conclusion:** The current study demonstrated a strong relationship between Emotional Intelligence scores, designation and teaching qualification of faculty. A moderate positive association was found between Emotional Intelligence of faculty and their Satisfaction with Life. The current study found no differences in Emotional Intelligence score of faculty belonging to different Health Professions.

**Take Home Messages:** Emotional Intelligence is associated with achievement, career progression and satisfaction with life in faculty. This knowledge may be used strategically to foster both commitment and academic excellence at health professions institutions.

#3R3 (133301)

**Whither the triple threat physician: Aspiration or reality?**

*Ariana Rivera\*, Emory University, Atlanta, USA*

*Richard Rubinson*

*Zhengjia Chen*

*Chao Zhang*

*Edmund K. Waller*

**Background:** The ideal Oslerian physician combines excellence in the domains of scholarship, clinical care and teaching. The relationship between the attributes that construct these domains in the modern era has not been rigorously studied. We sought to determine the proportion of individual academic physician that manifest excellence in all three domains.

**Summary of Work:** Scores related to 28 indicators of professional achievement were extracted from public databases and faculty profiles for 55 MD, 4 MD/PhD, and 17 PhD faculty in a clinical department in a school of medicine. Scores for each indicator were normalized by dividing the difference between individual scores and mean scores by the standard deviation of the mean. Unsupervised and supervised cluster analyses and Exploratory Factor Analysis (EFA) determined the underlying relationships between indicators.

**Summary of Results:** The unsupervised analysis revealed each domain was comprised of multiple indicators: eight for scholarship, six for teaching, and six for clinical; care/service. A supervised analysis revealed that physician faculty grouped into three clusters.

**Discussion:** Subjects in one cluster (N=17) manifested the Oslerian qualities of success in the three domains of scholarship, teaching, and service. Among the MD faculty in a clinical department, 28% met the criteria of a “triple threat” with excellence in all three domains and approach the Oslerian ideal.

**Conclusion:** In conclusion, statistical tools for analysis of high-density data can be used to identify the indicators that construct each domain.

**Take Home Messages:** The standards used to identify this cluster help identify future leaders and create feasible aspirational benchmarks.

#3R4 (132444)

**Feeling valued? A study to explore the factors that influence GP teachers' sense of value**

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*Emma Metters*

*Sonia Kumar*

*Benito Broglia*

*Aisha Newth*

**Background:** Health reforms are moving healthcare away from hospitals and into the community. Consequently Imperial College is increasing the amount of undergraduate education being delivered by General Practitioners. We wanted to explore what makes GP teachers feel valued to aid future recruitment and retention.

**Summary of Work:** An online questionnaire was sent to all 357 GPs who teach our medical students. Questions focussed on factors which motivate GPs to start teaching and support ongoing teaching. We asked respondents to assign a value to each factor ranging from 0 (not important) to 7 (very important) and they were given the option for comments. These were analysed to generate themes.

**Summary of Results:** The response rate was 39%. 65% said that feeling more valued would increase their commitment to teaching. When looking at motivating factors for GPs to start teaching, making a difference to future doctors was most important and the main theme from the free text was keeping knowledge up to date. Of the supporting factors, student feedback was the most important. Rewards (including remuneration and teaching awards) were an important theme identified to support ongoing teaching.

**Discussion:** This study gives us insight into what makes our GP teachers feel valued; however we need to develop our themes further using different techniques, such as semi-structured interviews, to explore this in more depth.

**Conclusion:** The results support the theory that increasing GP teachers' sense of value is important for increasing their commitment to teaching. These results, along with those from future semi-structured interviews, will be used to develop strategies to increase our GP teachers' sense of value and commitment to undergraduate teaching.

**Take Home Messages:** Sense of value appears to be an important factor for GP teachers to both start and continue teaching, and identifying where teachers' sense of value could be increased is an important next step for recruitment and retention of teachers.

#3R5 (133764)

**Perceived Stress in Faculty: disabling or stimulating?**

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Mexico, Mexico, Mexico

Carmina Flores Dominguez

Fernando Azcoitia Moraila

Montserrat Urban Oropeza

Jose Luis Arellano Nava

Maria Jose Diaz Huizar

**Background:** Stress is considered as a state of mental fatigue, it depends on the perception of the specific situations and the ability to endure it. The lack of adaptability results in stress and negative emotional states, such as anxiety and depression. The importance of this study lies in the repercussion of the stress caused by the professional environment in emotional and physical health.

**Summary of Work:** We conducted a study on 222 Medical School Teachers using the Perceived Stress Scale (PSS), demographic variables, cycle in which they worked, main source of income and hours dedicated to teaching.

**Summary of Results:** Gender was 60.4% male and 39.6% female. The average age on teachers was 46.6 in a range from 30 to 78 years, the mean number of teaching hours was 16.41 in a range from 1 to 40 per week. 18.9% taught on basic cycles, 62.6% on clinical cycles and 18.5% on both. Cronbach's Alpha coefficient was 0.786.

**Discussion:** Perceived stress ranged from 2 to 40 with a mean of 13.98. 78.8% of the faculty had low perceived stress, 20.7% had medium and 0.5% had high perceived stress. Faculty who teach both basic and clinical cycles showed higher levels of perceived stress than faculty who only teaches in one of them. According to the Perceived Stress Scale (PSS) the level of perceived stress and teaching being the main source of income is significantly direct.

**Conclusion:** The features that define how faculty teach are based in personal aspects such as the hours spent in the classroom and their main income source or type of contract directly affect the way in which faculty perceives stress.

**Take Home Messages:** Stress management in our faculty is crucial to the teaching-learning process to be effective. Every Medical School should implement their own strategies to prevent and treat it such as mindfulness programs.

#3R6 (128798)

**Conditions of educational context to perform the teaching role in health sciences. A qualitative approach**

**Javiera Ortega\***, University of Concepción, Concepción, Chile

Olga Matus Betancourt

Liliana Ortiz Moreira

Paula Parra Ponce

Carolina Márquez Urrizola

Eduardo Fasce Henry

**Background:** Studies have observed differences in the educational context in Health Sciences between clinical and non-clinical teachers. There are different conditions for the teacher to exercise its role in clinical spaces and classroom such as infrastructure, teacher training, materials and human resources, number of students. Aim of this work: to understand the conditions of educational context in health sciences to practice the teaching role, from teachers' point of view. Sponsored by VRID # 214.090.004-10

**Summary of Work:** Qualitative and descriptive study, performed according to Grounded Theory guidelines. 18 teachers from 6 Health Sciences programs were selected. Teachers were personally contacted and after informed consent procedure, data collection technique was semi-structured thematic interview and focus groups. The data were analyzed by open coding method using Atlas-ti 7.5.2 software.

**Summary of Results:** Emerged 6 educational context conditions that can support the teacher role in health sciences programs: Clinical setting to support the learning process, Financial resources of the program, Classrooms designed for new educational models, Insertion program in teacher education, Number of students per classroom/clinical spaces, Teachers' coordination to articulate a better teaching-learning process.

**Discussion:** Several studies have identified factors that are involved in the educational context, however, few of them are focused on the analysis of conditions that are important for the teaching-learning process. In this study arised 6 essential conditions that must be taken into account.

**Conclusion:** Health sciences programs are developed in a complex learning environment, which must articulate several elements to train professionals that country needs. For this, it is essential to understand the conditions of the educational context that can favor the exercise of the teaching role.

**Take Home Messages:** It is essential to consider the educational contexts of health sciences programs to generate improvements in teaching-learning process.

#3R7 (136008)

**Striving for autonomy - teachers' enactment of educational policy**

*Linda Barman\*, Karolinska Institutet, Stockholm, Sweden*

*Charlotte Silén*

*Klara Bolander Laksov*

**Background:** Based on a body of literature in favour of student centred learning, academic development has relied heavily on courses that support teachers' shift in views regarding teaching and learning. However, related to recent reforms such as the introduction of competency-based approaches that emphasise standardisation and transparency, teachers may be less free to decide upon educational matters. Hence, individual teachers' deepened understanding are not enough for curriculum reforms to take place.

**Summary of Work:** We investigated how teachers make sense of education policy and what changes they conducted when education policy was implemented. We generated empirical data within four different studies regarding teachers' development of course design (14 different study programs), and the development of assessment standards in clinical practice (data generated during one year). With an overall hermeneutic approach, we analysed written course material, interview data and observational data.

**Summary of Results:** Our findings show that teachers' experienced a tension between bureaucratic demands and teaching and learning theory. This friction meant that some teachers applied theoretical constructs in instrumental ways or that they understood pedagogy as part of the bureaucracy and quality control. Teachers were found to approach a policy concerning curriculum reform with greater or lesser autonomy in the decision-making related to course design and to apply knowledge about student learning to more or less extent. Paradoxically, teachers that showed autonomy in relation to policy made extensive changes that corresponded to the policy.

**Discussion:** The findings suggest that teachers' learning and educational development can be promoted through education policy but that teachers' collaboration within local practices should be facilitated.

**Conclusion:** Wide interpretations of education policy in combination with pedagogical knowledge and local translations seem beneficial for educational development.

**Take Home Messages:** Academic/faculty development benefits from a broadened perspective with the aim to support the growth of communities of practice regarding teaching and learning within teachers local practices.



### **#3S Conference Workshop: How to optimise a flipped classroom using Team Based Learning (136119)**

Location: MR 127 – P1

*Kathleen Swalwell\**, Imperial College, London, UK  
*James Stratford-Martin\**, Imperial College, London, UK  
*Maham Stanyon\**, Imperial College, London, UK

**Background:** Team Based Learning (TBL) is an interactive educational experience. It enables large group teaching to have productive interactivity and enhance individuals' engagement. The "flipped classroom" of TBL enables students to progress through Bloom's taxonomy of learning in one educational package. TBL is increasingly popular in medical education, but conversion from a lecture based model can appear challenging. This workshop is an introduction to the ingredients of TBL with reflection of their educational value. The workshop will incorporate adaption of current lecture based teaching resources into the TBL model and fresh resource creation. The session will enable participants to construct a TBL development plan for their educational setting with recognition of the realistic challenges of application.

**Structure of Workshop:** 120 minutes, accommodating 30 participants. The workshop will open with an interactive exploration of the processes within TBL (individual/group readiness assessment and application exercises) with reference to educational theory. This will be followed by a reflective discussion on adaptation of the Larry Michaelsen version of model of TBL and implications to student learning. The second part of the workshop will be interactive seminar on incorporation of current lecture based resources into the TBL model and creation of new resources. The workshop will then move to facilitated group reflection on incorporation of TBL into individuals' educational environment. The session will close with participants' formulating a personalised TBL development plan for their educational setting to take back to their course and colleagues.

**Intended Outcome:** • Identify the value of TBL components using educational theory • Appreciate the impact of adapting the format of The Larry Michaelsen Version of TBL on student learning • Develop TBL components from current teaching resources • Reflect on incorporating TBL into their educational contexts • Formulate a personalised TBL development plan

**Who Should Attend:** Intermediate teachers who regularly teach undergraduate/postgraduate learners in large groups and are keen to flip the classroom

**Workshop Level:** Intermediate

### **#3T Conference Workshop: Enhancing Learning Using Clinical Case Scenarios and Concept Mapping as a Visual Strategy to Teach Critical Thinking in Medical School (136480)**

Location: MR 128 – P1

*Amina Sadik\**, Department of Basic Sciences, Touro University Nevada, College of Osteopathic Medicine, Henderson, Nevada, USA

**Background:** Concept mapping is one of the most effective visual strategies and methods to teach critical thinking — a skill critical to lifelong learning, allow students to show their knowledge, and to receive feedback. Concept mapping exercises introduce students to the physician-like thought process early in the curriculum, which we expect to become beneficial as they advance in their studies. Using concept mapping as a tool for formative assessment, gives faculty an opportunity to meet with students and go over their reasoning, discuss their decision-making, and justify the flow of the concept map. Students have an opportunity to receive feedback to help inform their critical thinking on various cases. In this capacity, both faculty and students benefit from the concept mapping exercises.

**Structure of Workshop:** Participants will be given time to work in small groups. In these small groups, they will construct a concept map on a topic of their choice demonstrating their understanding of how to teach and assess critical thinking skills.

**Intended Outcome:** Participants will be able to make the connection between using concept mapping as a visual strategy to teach critical thinking. The session will address how to select a clinical case for cognitive integration and the steps to take for formative assessment.

**Who Should Attend:** Medical educators who are willing to learn visual strategies to teach and assess critical thinking and logical reasoning of medical students at all levels.

**Workshop Level:** All levels



### **#3U Conference Workshop: Setting defensible cut scores in a mastery-learning environment (133420)**

Location: MR 129 – P1

**Diane Wayne\***, Northwestern University Feinberg School of Medicine, Chicago, USA  
**William McGaghie\***, Northwestern University Feinberg School of Medicine, Chicago, USA

**Background:** Mastery learning is a rigorous form of competency-based education in which learners advance based on demonstrated acquisition of skill rather than curricular time. Setting standards is a critical component of mastery-learning programs because faculty must determine when learners are ready to move to the next stage of training. This workshop will analyze different standard setting methods and how they can be used in a mastery-learning curriculum.

**Structure of Workshop:** This 90-minute workshop features mini-lectures with embedded group activities and hands-on standard setting practice. Introductions, objectives – 5 minutes Intro to mastery learning – 10 Review of Angoff and Hofstee standard setting methods – 10 Hands on practice: setting traditional standards using an Angoff and Hofstee method – 20 Introduction to mastery Angoff – 10 Hands on practice: setting standards using the mastery Angoff – 20 Debrief the activity – 10 Wrap up and course evaluation – 5

**Intended Outcome:** In health professions education, mastery learning is frequently used with simulation-based education when patient safety considerations are important. After this workshop participants will be able to: 1. Compare and contrast the goals and inferences of traditional and mastery learning standards 2. Evaluate the use of performance data for item-based methods in mastery learning settings 3. Use a mastery-learning Angoff to set standards for procedural skills

**Who Should Attend:** This workshop is geared toward educators who are involved in pass/fail decision making for students, clinical trainees and / or faculty. Previous audiences have included student clerkship directors, residency and program directors and course directors.

**Workshop Level:** Intermediate

### **#3W Conference Workshop: Integrating Simulated Patient Methodology into Your Educational Context (134413)**

Location: MR 131 – P1

**Cathy Smith\***, University of Toronto, Toronto, Canada  
**Debra Nestel\***, Monash University; University of Melbourne, Melbourne, Australia

**Background:** Simulated Patients (SPs) - well people trained to consistently portray an individual for educational, assessment and research purposes – are working increasingly in health education. Simulated Patient (SP) methodology is appropriate to consider when the learning objectives relate to interpersonal or professional skills or when technical and communication skills are being integrated. In addition, the SP is able to give feedback from their unique perspective as the proxy of the person (e.g. patient, family member, other health care professional) that they are representing. Sometimes, though, there are obstacles to implementing SP methodology, related to economic considerations or to a lack of understanding about, or knowledge and skills of, how to work with SPs. Drawing on our experiences in three countries (Australia, Canada, UK) and in diverse environments, we'll explore practical strategies to start working with key aspects SP methodology, including scenario development, training and role portrayal, as well as providing opportunities to learn from each other. We'll also provide resources and references for further exploration.

**Structure of Workshop:** Interactive exercises including large group discussion, a simulated training activity, small group breakout sessions, and opportunities for individual reflection.

**Intended Outcome:** After participating in this workshop, participants will be able to: identify basic components of SP methodology; implement strategies to introduce SP methodology into their educational context; and reflect on practical aspects of including SP methodology in their own institutions.

**Who Should Attend:** Clinicians and educators who are interested in working with SP methodology to increase the versatility of their practice.

**Workshop Level:** All levels

**#3X Conference Workshop:  
Programmatic assessment of  
competency-based workplace learning:  
combining assessment for learning and  
assessment of learning (133979)**

Location: MR 132 – P1

**Harold Bok\***, Faculty of Veterinary Medicine, Utrecht University, Utrecht, Netherlands

**Kent Hecker\***, Faculty of Veterinary Medicine, University of Calgary, Calgary, Canada

**Background:** In competency-based veterinary education emphasis has shifted towards outcomes, capabilities, and learner-centeredness. Together with emphasis on sustained evidence of professional competence this calls for new methods of teaching and assessment. Combining different assessment instruments not only counteract the downsides of using a single instrument but also provides a holistic overview of trainees' development for both formative and summative purposes. In these assessment programs the main focus is on the provision of meaningful feedback in order for the student to attain predefined professional competencies (assessment for learning), and to maximize robustness of high-stakes decisions (assessment of learning).

**Structure of Workshop:** The experiences from clinical practice and evidence from educational research will be briefly presented, then, in small groups the participants will try to aggregate written narrative information and scores from different workplace-based assessment instruments in a meaningful way for formative and summative purposes. Examples of best practices will be shared. The workshop will be highly interactive, requiring participants to use the evidence and translate it to their assessment practices.

**Intended Outcome:** The participants will understand which factors influence the formative and summative functions of assessment from the perspective of clinical practice and educational research, think about possibilities of making feedback meaningful for learning in workplace-based assessment, and make robust high-stakes decisions based on written narrative and score based information.

**Who Should Attend:** (Veterinary) educators/teachers and program/course directors responsible for teaching, learning and assessment in the clinical workplace (also from curricula with a distributed teaching model).

**Workshop Level:** Intermediate

**#3Z Conference Workshop: One-on-One interviews: The what, how and why (132343)**

Location: MR 134 – P1

**Floor Velthuis\***, University Medical Center Groningen, Groningen, Netherlands

**Lara Varpio\***, Uniformed Services University of the Health Sciences, Bethesda (Maryland), USA

**Sayra Cristancho\***, Schulich School of Medicine & Dentistry, London (Ontario), Canada

**Debbie Jaarsma\***, University Medical Center Groningen, Groningen, Netherlands

**Background:** Health professions educators use a variety of research methods in their scholarship. As qualitative methods are increasingly employed in our community, it is important that we offer opportunities to consider the nuances and intricacies of qualitative methods. Conducting effective interviews is an essential skill in qualitative research and a versatile data collection method. However, though widely used, the science and art of interviewing is difficult to master. It requires careful planning and preparation, extensive practicing, and thoughtful reflexive attention to multiple details. In this workshop, we introduce novice qualitative researchers to the science and art of interviewing. We will provide an overview of when interviews might be used for data collection and introduce participants to different types of interviews that can be conducted. We discuss the interview process from building the protocol of questions, to techniques for keeping participants on topic. We also discuss some advanced interviewing methods such as Rich Pictures. Participants can expect to practice interviewing techniques, to debate the strengths and weaknesses of different interviewing approaches, and to consider how interviewing can help researchers generate new, valuable insights into health professions education research questions.

**Structure of Workshop:** First, research into and theories about qualitative interviews is interactively discussed. Then, workshop participants will practice some interview techniques, write interview questions, and reflect on the kind of data interviews can generate.

**Intended Outcome:** After this workshop participants will be able to: - Describe the interview process, from planning to conducting; - Identify different types of interviews; - Formulate open and closed interview questions, and know what kind of data can be expected from each; - Understand and offer informed critiques on observed interviews; and - Better informed about the theories behind and research into interviews as a qualitative research data collection method.

**Who Should Attend:** Health professions education scholars interested in learning and applying interviewing techniques.

**Workshop Level:** Introductory

### #3AA Conference Workshop: Cost Benefit Analysis of Healthcare Professional Education on Patient Outcomes (125969)

Location: M 215 + 216 – M2

**Kieran Walsh\***, BMJ, London, UK

**Stephen Maloney\***, Monash University, Melbourne, Australia

**Scott Reeves\***, Kingston University, London, UK

**Dragan Ilic\***, Monash University, Melbourne, Australia

**George Rivers\***, Monash University, Melbourne, Australia

**Background:** The education of healthcare professionals is expensive. It is therefore vital that maximum benefit is gained from investment in education. Cost benefit analysis (CBA) is one way to achieve this. CBA involves fully accounting for the costs and benefits of an educational intervention. For CBA to work, the benefits must be capable of being described in monetary terms. Certain patient outcomes can be costed – these include medical errors such as falls or pressure ulcers.

**Structure of Workshop:** Introduction. Explanation of outcomes. Cost benefit analysis: an introduction. Costing an educational programme – how to do it. Participative session where delegates work in small groups to conduct a mocked up costing. Costing the benefits. Participative session where delegates work in small groups. Linking the programme to the outcome. Interactive session where delegates discuss the challenges in doing this and how best to overcome these challenges. Discussion. Developing plans for research. Follow up.

**Intended Outcome:** Attendees should be able to - Cost an educational programme - Choose educational outcomes that benefit patients and that can be costed - Link the programme to the outcomes - Conduct simple cost benefit analyses

**Who Should Attend:** This workshop is for all those with an interest in developing low cost healthcare education that will have significant effects on patient outcomes.

**Workshop Level:** Introductory

### #3BB Conference Workshop: Regulating emotions in practice encounters with Standardized Patients (SPs) – How to get the emotional level just right (136124)

Location: M 211 + 212 – M2

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**Background:** We know that emotions play a critical role in learning. If they are too intense, the learner becomes too anxious and cannot focus on the learning content. If they are too weak, boredom can result and the dynamics of the encounter may not unfold either. Getting it “just right” is a challenge for educators who create cases and those who train and support the SPs and learners throughout the educational program. When writing a case one can implant multiple elements that will create tension. The SP case portrayal can be “spiced” with intense emotional reactions to arouse the learner. Anger, sadness and fear are just some of the many emotions one can ask the SPs to express. Some SPs will be able to do it easier and better than others, which calls for a thoughtful recruitment process. When training SPs one can enhance the emotional tone portrayal by challenging them with inappropriate behaviors or strong emotions from the learner’s perspective. Observing clinical training encounters need to include all aspects of the interaction, from SP affect and verbal tone to the learner’s reactions to it. Post-encounter debriefings and analysis will be helpful for all involved.

**Structure of Workshop:** 10 min Welcome and introduction 15 min Past experiences with SP emotions (Think-Pair-Share in groups of 2) 15 min Strategies for titrating emotional expressions (presentation) 35 min Opportunities and challenges for addressing emotions in the context of SP encounters (using videos and worksheets) 15 min Take-home points and summary

**Intended Outcome:** By the end of the session participants will be able to: 1. Describe the impact of high or low emotional tone 2. Argue the need to regulate emotional expressions in SPs 3. List 3 methods of optimizing emotions in SP training

**Who Should Attend:** Educators, teachers

**Workshop Level:** All levels

### 3CC Posters: Problem-based learning/Team-based learning

Location:

#3CC01 (135874)

**Factors affecting constructive learning process in Problem Based Learning (PBL) Tutorials: The students' perspective**

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**Background:** Constructive learning is one of PBL characteristic in which students actively build their knowledge. During this process, students integrate their prior and new knowledge. The quality of this process determines the extent to which students achieve the learning objectives. This study was aimed to explore students' perception of the factors contribute to the constructive learning process

**Summary of Work:** The study was conducted qualitatively at Faculty of Medicine, Islamic University of Indonesia by applying case study design. Data was collected through semi-structured interviewed with 21 students with at least one-year experience in PBL tutorials. Data was analysed using thematic analysis.

**Summary of Results:** Four themes were identified as the factors influencing the constructive learning process: case design, tutor skills, peers' characteristics, and quality of self-study.

**Discussion:** Students discussed superficially when the cases were not designed relevant to students' prior knowledge. Students required tutors who had both content and facilitation expertise. Such tutors were able to direct students when the discussion process was blocked. Students' motivation were influenced by peers' characteristics. They participated actively when the majority of the group members also gave their contributions. Lastly, students who had good quality study shared more idea and gained more understanding than the others.

**Conclusion:** Case design affected on the activation of students' prior knowledge. Having sufficient self-study and active peers facilitated students to construct more knowledge. Tutors who had good skills were able to ensure whether the discussion run well and the group achieve the objectives.

**Take Home Messages:** In implementing PBL, faculty should consider principles of case design. Beside content expertise, tutors should have good facilitation skills one of which stimulating students to participate actively and manage their self-study well. For this reason, faculty should provide sufficient training for tutors.

#3CC02 (134654)

**Neurophysiological aspects underlying the learning process in the problem-based learning method**

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**Background:** Problem-based learning (PBL) is an instructional method in which students are driven to learn through facilitated problem solving guided by a tutor. In PBL, learning is student-centered, i.e. students themselves structure self-knowledge. This methodology is based on working in collaborative groups with a limited number of students to identify what they need to learn in order to solve a given problem. The objective of this paper is to present an approach of the neurophysiological circuit based on the PBL processes as teaching methodology.

**Summary of Work:** Literature and theories were reviewed to elaborate pertinent concepts to interchanging PBL and the anatomoneurophysiological aspects. Analyses of early sensory cortex demonstrated that learning process does not usually result from passive experience even under a stimulus.

**Summary of Results:** The relevance of the supervised learning is substantiated by anatomical and neurophysiological properties of striatum with ideal infrastructure for rapid, reward-gated, that quickly forms representations of the patterns of cortical connections that predict reward.

**Discussion:** Through its sequential seven steps and spiral-like knowledge acquisition, the PBL method is committed to motivate students to become good learners, and, consequently, to provide the key to solid and proactive performance. In this sense, some points of the present methodology are feasible to be explored in order to put together the neurobiology and learning

**Conclusion:** The neurophysiological aspects collected to construct this paper were driven to contribute and to substantiate the links of learning process in the problem-based method according the importance of following the gradual performance of each step. While important works are concerned to exanimate differences between PBL and conventional curricula, the information of this paper is focused on the neural association in PBL on light of the statement that students get more enjoyment out of the problem-based approach to learning

**Take Home Messages:** The seven steps of PBL favors the memory retention and restructures of thinking, thus generating knowledge favoring the spiral-like knowledge acquisition, corroborating the prior knowledge and its association with increased intersubject synchronization of activity in the ventromedial prefrontal cortex. Hippocampus is the mediator structure acting as a memory "index" of learning to communicate neocortex after achieving



each step, triggering the pattern of activation in neocortex.

### #3CC03 (135041)

#### The influence of adopting SIL in the preclinical PBL curriculum on the learning in the clinical years

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**Background:** Our previous studies revealed that it was feasible to add scheme-inductive learning (SIL) to improve the learning in PBL curriculum and could be effective either in the clinical years or the pre-clinical years. It is important to know the influence of adopting SIL in the preclinical years on the learning in the clinical years.

**Summary of Work:** SIL was introduced to the Nephrology, Neurology and Infection-Rheumatology units. Schemes for each clinical presentation were introduced in a lecture, practiced in the tutorial sessions, wrapped up in a small group. Data were obtained from think aloud tasks and structured questionnaires after students completing their clinical rotations.

**Summary of Results:** SIL in the pre-clinical PBL curriculum further improved students' problem-solving strategies and knowledge structure in the clinical years. From students' perspectives, SIL in the pre-clinical years is helpful in their approach of patients' problems, makes the knowledge learned more structured and integrated. More students using structured thinking process (schema) to approach a patient's problem as compared to the medical field which did not adopt SIL in the preclinical year. More students claimed that SIL had effects on the organization of knowledge structure right after the SIL sessions than in the clinical years; however, this difference was not observed for diagnostic strategies.

**Discussion:** Adopting SIL in the pre-clinical years may have influence on the buildup of knowledge structure and the diagnostic reasoning process in the clinical years. The strong resistance to adopt SIL is students' stereotypes of first learning enough medical knowledge then diagnostic strategies.

**Conclusion:** SIL in the pre-clinical years may serve as a framework around which students could build up their knowledge in a more organized and integrated way, and therefore assists their approach to solve a patient's problem in the clinical years.

**Take Home Messages:** SIL in the pre-clinical years may influence the learning in clinical years.

### #3CC04 (136324)

#### The Impact of Problem Based Learning on Situation Awareness of Medical Students in the Simulation Laboratory

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**Background:** Medical student's clinical performance in an emergency setting requires a certain set of skills to adjust with the pressure of the environment. While many students do perform well, some feel overwhelmed by the nature of the emergency and the surrounding distractions and subsequently underperform. This performance gap poses a major challenge for medical educators. Argyris and Schön (1974) described performance gap as, "a gap between theory and practice". The root cause for this clinical performance gap may have an educational aspect. To illustrate, lecturer/teacher centered curriculums have historically been the main teaching method in most medical schools, it did not contribute significantly to close the performance gap for some students. There are several ways to teach critical topics (e.g. crisis management) but the best educational strategy to deal with this issue is not yet clear. In this study we elected to focus on situational awareness as a cognitive skill as it is directly related to performance. Different methods have been suggested to improve S.A in the past, in this study we decided to study the impact of different instruction methods (Lecture, PBL) in combination with simulation training on medical student's situational awards. Our hypothesis was by combining PBL and simulation in sequence, we might be able to maximize the performance outcomes. In addition this learning environment could lead to a synergistic effect on situation awareness and subsequently better emergency clinical performance.

**Summary of Work:** This study compared the effects of two instructional methods (Lecture, PBL) on medical student's situational awareness in the context of simulated crises. The primary endpoint was Situational awareness score, and the secondary outcome was the depth of knowledge.

**Summary of Results:** Baseline S.A was similar between Lecture and PBL groups (58%; 59%, respectively). However Post teaching SAGAT increased by 5% for the lecture group and decreased by 5% for the PBL group. The long-term follow up showed the reverse, where the lecture group went back to baseline (59%), the PBL group improved to 66.9%.

**Conclusion:** A combination of teaching methods with a simulation environment can be utilised to achieve better S.A and potentially better clinical performance.

**Take Home Messages:** Combination of different teaching methods in a creative learning environment, has the potential for positive long term effect

#3CC05 (126250)

**Change of PBL's helpful effect from early clerkship to late clerkship at Inha University School of Medicine in Korea**

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**Background:** At Inha University School of Medicine, Korea, PBL is a part of an integrated curriculum using a system based approach in the 1st and 2nd year with non-clinical materials delivered in the context of clinical practice. The main curriculum for the 3rd and 4th year is the clerkship. Our purpose of this study is to evaluate the change of the PBL's helpful effect from early clerkship to late clerkship.

**Summary of Work:** In May 2012 and February 2014, the advantages of PBL in each process were asked on a questionnaire to 44 students of Inha University School of Medicine, who were early 3rd year students in May 2012 and finished all medical curriculums including the clerkship in February 2014. Each process included finding problems, generating a hypothesis, verifying the hypothesis, independent learning, communication skills, sharing information, and teamwork. We asked whether each PBL process was helpful for the clerkship on a 5-point Likert scale (extremely 5, very 4, moderately 3, slight 2, not at all 1).

**Summary of Results:** All students answered the questionnaire. The order of assistance of each PBL process was as follows (May 2012 → February 2014): independent learning (3.64 → 3.98), finding problems (3.39 → 3.95), verifying the hypothesis (3.36 → 3.93), sharing information (3.30 → 3.84), making the hypothesis (3.36 → 3.80), teamwork (3.14 → 3.64), and communication skill (3.20 → 3.61).

**Discussion:**

**Conclusion:** Even though there were some differences within each process, there was improving change of the PBL's helpful effect from early clerkship to late clerkship. Independent learning is the most helpful, but communication skills and teamwork are less helpful.

#3CC06 (135063)

**Staff attitude toward Problem-Based Learning (PBL) at the Faculty of Medicine, Thammasat University**

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**Background:** The Faculty of Medicine at Thammasat University has implemented a problem-based learning (PBL) curriculum since 1992. All staff has been obliged to participate in PBL and play different roles, such as facilitators, resource person, block committee and scenario writing. However the attitude of staff toward PBL has never been evaluated, although it affects the efficiency of learning outcomes.

**Summary of Work:** This study aims to assess staff attitude toward PBL. Questionnaires using open-ended questions and 5-likert scale questions were distributed to all staff. Descriptive analysis was used to interpret the results.

**Summary of Results:** The overall response rate was 87.5%. The data showed that 73.5% of staff had positive attitude toward PBL while 27.5% had negative attitude toward PBL. Staff displaying positive attitude believed that PBL helped medical students to get more skill other than knowledge, for example, critical thinking skill, problem-solving skill, communication skill, self-directed learning and life-long learning. However, staff with negative attitude concerned about the difficulty of creating PBL scenarios. They concerned about the sufficiency of knowledge in students who are not eager to study and the difficulty in acquiring knowledge from the PBL sessions when the PBL groups were conducted by non-content tutor.

**Discussion:** Staff displaying positive attitude believed that PBL is more effective than traditional lectures while staff with negative attitude suggested that giving lectures is better for students who are uneager.

**Conclusion:** The majority of staff have positive attitude toward PBL. They believe that PBL is more effective than traditional lectures. Furthermore, PBL could help students to improve their learning skills. Being a facilitator could also improve their own skills as well as those of other students.

**Take Home Messages:** The majority of staff at Thammasat University believed that PBL is more effective than traditional lectures.

#3CC07 (133553)

**An innovated PBL in improving the abilities of self-directed learning and clinical application**

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**Background:** Problem-based learning (PBL) has widely adopted in medical curricula for early years training in Taiwan. In traditional PBL, students capture the information from paper-based scenario and discuss in a group setting. However PBL in pre-clinical has the remarkable lack of clinical attachments, so the clinical reasoning could not be fully developed. We design the modified model of PBL- the standard patient-based PBL(SPPBL) to improved the problem of cross over between PBL and clinical attachments.

**Summary of Work:** Participants include year 5 medical students. Except basic genecology/obstetrics clerkship curricula, some core lectures will be replaced with SPPBL in six-weeks rotation programs. Standard patient simulation may present case history in response to questioning by students and undergo a limited physical examination at the student's direction. They also assist students in developing the communication and clinical skills. Evaluation of SP-PBL model consists of formative and summative assessments by tutor, peer evaluation, questionnaires, focus groups and OSCE.

**Summary of Results:** The students reported SPPBL a positive learning experience and got higher OSCE score in SPPBL-related scenarios.

**Discussion:** In SPPBL, students take medical history, perform physical examination and provide patient education on standard patient. These clinical skills are essential for clinical reasoning and could not be trained well in traditional PBL.

**Conclusion:** The innovated and integrated curriculums improve learning outcome and bridge clerkship to internship program. SPPBL integrate basic and clinical knowledge, clinical experiences and skills more efficiently.

**Take Home Messages:** The SPPBL model takes the principles of PBL and applies the students to learn during clinical attachments.

#3CC08 (133307)

**The effectiveness of problem-based learning for comprehensive approach based on a patient-simulated video**

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**Background:** Problem-based learning (PBL) cases are usually given in the paper-based, in which consideration of psychosocial aspects tends to be insufficient because it omits clinically important non-verbal information. We used the patient-simulated video consisted of not only consultation but patient's daily life, and assessed whether such video-based PBL encourages students to attain a comprehensive clinical approach, compared with the paper-based PBL.

**Summary of Work:** 120 students in the 5th year of medical school were recruited to take PBL through two case scenarios, one by paper-based PBL (paper method) and another by simulated video-based PBL (video method). After finishing each PBL, a questionnaire was completed to evaluate the target achievement rate of the followings: satisfaction of the session, imaging the authentic patient, and incorporating comprehensive approach including psychosocial aspects. In addition, the diversity of diagnoses assessed by the number of ICPC-2 codes, ICPC-2 code types, and psychological codes rate. As a follow-up study, we also surveyed the memory fixation rate of the cases.

**Summary of Results:** In the video method, the target achievement rate was significantly better. The diversity of diagnosis and the memory fixation rate were not significantly different between the two methods.

**Discussion:** The video with patient's daily life may encourage the students to think about their patients more comprehensively including psychosocial aspects. However, the variety of the psychosocial diagnoses may be constrained in the video method because of the given concrete images.

**Conclusion:** The video method is better to have the student think more comprehensively than the paper method, with a possible drawback of differential diagnoses being constrained by the image of video. The effect of memory fixation by the video method is equivalent to the paper method.

**Take Home Messages:** The video with patient's daily life is likely to be effective for students to think about more comprehensively.

#3CC09 (131625)

**Engaged Learning Really Does Work: 8 Years of Data to Support the Shift to TBL in Medicine and Psychiatry Clerkships**

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**Background:** As the pedagogical shift in the classroom from traditional lecture-based didactics to more self-directed learning methods continues, quantitative data provides supports for this shift within the clinical clerkships. Both internal medicine and psychiatry shifted their pedagogical approach from passive to engaged learning, specifically Team-Based Learning (TBL), during academic year 2007/08.

**Summary of Work:** Eight years of data from 2006/07 to 2013/14 were analyzed for both the internal medicine and psychiatry clerkships. BSOM NBME mean scores for each year were compared to national NBME mean scores for the corresponding subject exams. Independent-samples t-tests were performed to indicate if the differences between scores were significant.

**Summary of Results:** There was a significant difference in the scores for internal medicine ( $p=.001$ ) and for psychiatry ( $p=.044$ ). These results support the assertion that the inception of TBL into the internal medicine and psychiatry curricula has had a statistically significant impact on BSOM student performance of the NBME subject exams.

**Discussion:** While we cannot conclusively state that changing the didactic structure to TBLs alone accounted for the sustained improvement on the NBME subject examinations in these two clerkships, the clerkships at BSOM utilizing traditional lecture based didactics have NBME scores at the national average during the same 8 years.

**Conclusion:** Knowledge-based data of NBME subject examination scores provides evidence to support the shift to TBL as the primary pedagogical method within the clinical clerkships. Analysis of eight years of data indicates that students exposed to TBL in the internal medicine and psychiatry clerkships performed significantly above the national NBME mean.

**Take Home Messages:** As the LCME continues to encourage the pedagogical shift from lecture-based didactics to more self-directed learning, the data in this proposal provides support of this shift within the clinical clerkships. BSOM student performance on internal medicine and psychiatry NBME exams have been significantly above the national mean since implementing TBL.

#3CC10 (135848)

**Team-Based Learning for Medical Students in Geriatrics**

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**Background:** Team-based learning (TBL) is a student-centred teaching approach designed to improve integration between students and significant gain in knowledge in large groups. The objective of this study is to enter the TBL method in teaching of Geriatrics.

**Summary of Work:** After definition of the student learning objectives "prevention and health promotion of the elderly", some lectures were replaced with TBL activities. All key components of TBL (individual and group team readiness assessment, immediate test feedback and case discussions) were implemented. The evaluation of the effectiveness of the method was carried out by comparing the gain knowledge of each student, and the receptivity of the students through a questionnaire on line based on the Likert scale after the session.

**Summary of Results:** 55 of 63 students participated in the study (87.3%). The analysis of feedbacks showed an average gain of 77.9% in knowledge. A percentage of 94.4% agreed that the method was appropriate, while 90.5% agreed they felt encouraged to participate in class and 73.6% noticed an increase in hits to the discussion in staff. This experience validated the introduction of this active methodology of education complementing lectures on Aging module, despite the large number of students.

**Discussion:** Since many medical schools are creating integrated and interdisciplinary courses in the preclinical years, TBL is particularly useful because of its emphasis on team- work and problem solving skills for clinical application.

**Conclusion:** TBL method applied in Aging module for Geriatrics teaching was highly rated by the students and allowed a significant gain in knowledge.

**Take Home Messages:** We found that a TBL approach allowed an active learning environment that improved students' performances. Based on our experience, other preclinical courses are now piloting TBL, Additional workshops will be held to train more tutors, to increase use of the method.



#3CC11 (133335)

**Improved learning achievement with team-based learning by using criterion referenced test**

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**Background:** Team-based learning (TBL) is an important active learning method that provides teamwork and requires decision making. Individual formative evaluation is not commonly used in TBL. We have developed a criterion referenced test (CRT) for a large class of third year medical students on glucose lowering-agents associated with clinical applications (TBL session). Evaluation the impact of the CRT on learning achievement is the aim of this study.

**Summary of Work:** 99 students participated in TBL class. The pretest assessments were assigned to the students in a classroom. At the end of the session, the students were tested with 10 items of CRT formative question that categorized by learning objectives and provided test information and feedback immediately. Two weeks later, they were re-evaluated by a posttest questions to assess the outcomes of the CRT.

**Summary of Results:** Average score of CRT is  $6.747 \pm 1.3$ . Analysis of formative evaluation shows that 61 students pass the exam (CRT score > 60%). Significant difference between pretest and posttest mean-score are found in both students who passed ( $M = 6.562-8.619$ ,  $p\text{-value} = 0.001$ ) and not pass the CRT criterion ( $M = 5.868-8.455$ ,  $p\text{-value} = 0.001$ ). However, the students are not significant difference of posttest mean-score ( $M = 8.455-8.619$ ,  $p\text{-value} = 0.563$ ) and develop mean-score ( $M = 41.672-43.043$ ,  $p\text{-value} = 0.933$ ).

**Discussion:** In all group, using CRT with TBL impact to learning achievement.

**Conclusion:** CRT is a good device for feedback during instructional process and identifying each problems of learning objectives that may need an improvement.

**Take Home Messages:** CRT is one of the good choice for formative evaluation in TBL.

#3CC12 (133255)

**Teamwork and academic performance on kinesiology students using Team Based Learning**

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**Background:** Team Based Learning (TBL) is an active learning strategy that encourages the use of transversal skills (e.g. teamwork). Considering that defining learning goals, and planning strategies, fulfilling specific tasks and assuming concrete roles to achieve said goals is essential to TBL, promoting teamwork is to be expected. Objective: To assess the relation between teamwork skills and academic performance of Physiotherapy students of a private Chilean university who previously participated in a Team Based Learning course.

**Summary of Work:** Pre-experimental design. The TBL method was utilized over 5 sessions. Students ( $n = 51$ ; 43,14% female; median age = 23,61 years) were divided in nine groups. A Likert-type scale was used at the end of the course to evaluate teamwork. Performance was assessed using individual and group tests, and different application activities. Participation was voluntary, anonymous, and subject to prior agreement.

**Summary of Results:** In terms of teamwork skills, students showed high team planning (80,9%) and communication (68,8%) abilities, and low collaborative problem solving abilities (25,5%). Although teamwork skills were not significantly correlated with the individual tests, a direct correlation with some of the group tests and applications was assessed.

**Discussion:** After the TBL sessions, Kinesiology students obtained high scores in the teamwork scale. These results were likely to be expected, as the methodology allows the students to develop teamwork skills, with the motivation of achieving common goals at the end of each session and at the end of the course itself. The relation between teamwork and academic performance, in some cases, showed that family background and challenging situations improved teamwork.

**Conclusion:** Teamwork is a generic skill relevant in the process of training professionals. TBL has the potential to contribute to achieving this goal, although other experimental designs are required to confirm it.

**Take Home Messages:** TBL can potentially be used as a strategy to foster teamwork.

#3CC13 (128929)

**Development of questionnaire on medical students' learning experiences toward team-based learning during integrated medical curriculum in Taiwan**

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**Background:** Team-based learning (TBL) has been employed in medical curriculum. Previous studies focused on the context, process, and learner's performance. Little is known about the learning experiences on TBL. This study aims to examine the medical students' learning experiences toward the mutual effects between instructional factors and learning effectiveness in TBL.

**Summary of Work:** Questionnaire on learning experiences in TBL (QLETBL) was developed based on its key elements of instruction designs and integrative learning orientations. Participants included 300 medical students taking integrated basic and clinical science courses. Item and factor analysis were conducted to assure the quality and identify the key factors of questionnaire.

**Summary of Results:** Medical students' overall ratings on learning experience to TBL were (mean $\pm$ SD, 3.55 $\pm$ .59/five-point scale). Finalized questionnaire contained 34 items with four factors: I. Interactive Collaboration (8 items, 3.85 $\pm$ .68), II. Self-directed Learning (8 items, 3.46 $\pm$ .76), III. Learning Enhancement by Instructional Design (10 items, 3.36 $\pm$ .80), IV. Integrative Learning Experience (8 items, 3.51 $\pm$ .78).

**Discussion:** Results demonstrated highest score in Interactive Collaboration. Significant positive learning experiences were displayed on willing to accept different opinions from group members, devoting time to pre-class preparation, ensuring holding content knowledge, and mutual support when facing difficulties in learning, but not on review practice after class and peer evaluation.

**Conclusion:** This study identifies medical students' positive learning experiences on interactive collaboration, pre-class effort and learning effectiveness, and mutual learning support. Further investigation is needed to explain their negative learning experiences on after-class review and peer evaluation.

**Take Home Messages:** QLETBL, a valid instrument, not only helps medical course developers to identify the authentic learning experiences toward instructional design but also may enable medical students to illustrate the expected self-directed learning in TBL.

#3CC14 (132771)

**Modified Team-Based Learning in EKG Supplementary Tutorial**

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**Background:** In laboratory interpretation, exam EKG is one of the common problem found in medical students. EKG interpretation is one of crucial problem of externship during workplace. Traditional lecture, teacher-centered method, sometimes cannot enhance critical thinking enough. Team-based learning (TBL), student-centered approach, sounds to be better.

**Summary of Work:** TBL concept was derived for supplementary tutorial of EKG interpretation in 6th year medical students. Short answer questions, regarding myocardial infarction, arrhythmia, and metabolic diseases were used for individual & group readiness assurance test (RAT). Outcomes were the difference between i-RAT, g-RAT and the result of EKG station of the comprehensive examination.

**Summary of Results:** Results showed 17% increasing scores from i-RAT to g-RAT and 80% of students passed EKG station of the comprehensive exam. By observation, learning atmosphere was interactive learning including small group discussion and peer teaching.

**Discussion:** Even though time consuming, TBL concept enhances participatory active learning and promote academic skill especially EKG interpretation. The disadvantage of short answers used in this study is it could not show immediate feedback.

**Conclusion:** Not only traditional lecture but we can also modify TBL concept in teaching EKG interpretation.

**Take Home Messages:** In teaching EKG interpretation, sometime peer to peer learning may be better.

#3CC15 (133949)

**Self-managed tasks: A Team-based Learning Approach in a Medical School in Uruguay**

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**Background:** The objective is to describe an innovative way of teaching communication skills for medical students at the Faculty of Medicine, University of the Republic. It is a free access public medical school that admitted 1731 students in 2015

**Summary of Work:** The course of communication skills consists of 5 workshops: during the first half tasks are coordinated by a teacher and in other students work on a self-managed task organized by themselves. Workshops aim to integrate communication theory with exercises to develop interviewing skills by using: role-playing; analyses of texts, videos and images; quiz contest and videos made by the students. The self-managed task is expected to help students to organize themselves, to develop their autonomy, to improve group integration through dynamics and ludic proposals.

**Summary of Results:** A total of 905 out of 1731 (52.3%) students completed anonymously a self-reported evaluation form to assess their perception of the self-managed task, using a Likert scale from 1 (not at all) to 5 (very much). Of them, 71% responded much or very much to the item “the task is an innovative work”; 54% to “the task stimulated the group integration and growth, not only academically but also personally”, 65% to “it helped to improve teamwork”, 72% to “I became more open-minded”, and 74% to “this type of dynamic promotes free expression of thoughts”.

**Discussion:** The results show a very high level of satisfaction with the self-managed task. The good results were related to the possibility to express themselves and reach a good group integration while reinforcing the group functioning with very dynamic proposals.

**Conclusion:** The implementation of innovative and enjoyable methodologies in Medical School led students to positive and significant learning experiences, while promoting and improving team-based learning.

**Take Home Messages:** 1. Developing new learning strategies about communication skills 2. Promote activities that require self-coordination. 3. Including innovative and ludic dynamics.

#3CC16 (130588)

**Innovative team-based learning using a live standardized patient encounter**

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*Tetsuhiro Maeno*

**Background:** Team-based learning (TBL) has been useful to teach clinical reasoning where the number of teaching faculty is limited. A real patient encounter has also been used in problem-based learning (PBL) to enhance students’ motivation and contextual learning. This describes our innovative TBL using a live standardized patient encounter.

**Summary of Work:** A live standardized patient encounter was used in TBL sessions for the fourth year students as part of preparatory clinical reasoning sessions immediately before clinical clerkship at University of Tsukuba in 2015.

**Summary of Results:** Each session was designed as pre-session assignments, readiness assessment, a live standardized patient encounter by a voluntary student while the rest of the class listening to and making notes for the encounter, role plays for case presentations by pairing students, group discussion for differential diagnosis, and a wrap up lecture.

**Discussion:** Our TBL sessions are innovative in design using a live patient encounter to teach clinical reasoning. A live encounter followed by role-play case presentations may enhance students’ motivation and decrease a gap between classroom and workplace.

**Conclusion:** Classroom theory transfer to workplace is essential in medical education. Team-based learning using a live standardized patient encounter may be useful in theory transfer.

**Take Home Messages:** A live patient encounter may be useful not only in PBL but also TBL to promote theory transfer to workplace.

#3CC17 (135169)

**Implementation of team-based learning in the 3rd year of a systems-based medical program: a pilot study in genetic and environmental physiopathology**

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José Miguel Pêgo

Rosete Nogueira

Hélder Novais Bastos

Manuel João Costa

Jorge Pedrosa

**Background:** Minho Medical School offers a six-year undergraduate program, with a systems-based curriculum. The 3rd year Biopathology and Introduction to Therapeutics curricular unit has an integrated approach to pathology, pharmacology/therapeutics, genetics, immunology and microbiology. We designed an 1-day TBL activity to bring on an interdisciplinary approach within a module on medical genetics, prenatal diagnosis and cancer physiopathology. This work evaluates students' perceptions and performance in the activity.

**Summary of Work:** The 96 students participating in the TBL activity first took a 30-minute individual readiness assignment (IRA) test consisting of multiple-choice questions based on clinical vignettes. Afterwards, student teams discussed individual answers and solved two clinical cases (120 min). Finally, the class got together with faculty for the application discussion (180 min). Students were surveyed about the activity on the same day and were asked to answer the 10 most difficult and discriminating IRA items three weeks later.

**Summary of Results:** The response rate to the post-activity survey was 56%. Students considered that TBL positively increased their knowledge on pharmacology (88,9%), prenatal diagnosis (83,3%), cytogenetics (88,9%), cancer pathology (77,8%) and genetic counseling (75,9%). They particularly appreciated the opportunity to apply and integrate knowledge, individually and in groups. The possibility to practice exercises and to perform discussion with faculty was also emphasized, with 54% of students considering that the activity increased their motivation to get involved in peer discussions. The average classification on IRA test was 50.3%. Post-activity test had a mean classification of 84,3%.

**Discussion:** Medical students developed positive perceptions about the 1-day TBL activity and, 3 weeks later on, provided better answers on IRA items.

**Conclusion:** TBL can impart sustainable knowledge and lead to high satisfaction among participants.

**Take Home Messages:** Students within a systems-based program appreciated many aspects of the TBL process and increased their knowledge about learning objectives.

#3CC18 (134525)

**Developing an Instrument for Assessment of Team-Based Learning by Learners**

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Sima Kolahdooz

Rita Mojtahedzadeh

Gholamreza Hassanzadeh Gheshlaghi

**Background:** In Team-Based Learning (TBL) method of teaching, students actively participate in the teaching-learning process and are responsible for their learning through pre-class studying and team work with other classmates. Evaluation of the TBL sessions by students would help its better implementation. In this study we developed a valid and reliable tool for assessment of TBL classes.

**Summary of Work:** This mixed method cross-sectional study with a Qual-Quan design was conducted on 168 medical students of Tehran University of Medical Sciences in the basic sciences stage of their studies. We asked for students' satisfaction with this teaching method and its effectiveness, in semi structural in-depth individual interviews until data saturation (12 interviews). We performed content analysis of the interviews and designed the questionnaire.

Psychometric characteristics of the questionnaire were assessed in the terms of content validity, test-retest reliability, internal consistency and construct validity through explanatory factor analysis.

**Summary of Results:** The final tool was a 29-item questionnaire (reliability =0.87 and Alpha=0.93) with 5 components of "learning enhancement", "satisfaction", "technical aspects", "teacher capability" and "appropriate testing".

**Discussion:** The way of implementing TBL sessions has a notable effect on learning quality, so evaluation of these sessions' outcomes and pros and cons requires the assessment of the learners' experiences and comments in different educational contexts which needs a suitable tool.

**Conclusion:** This tool can be used for the assessment of TBL classes.

**Take Home Messages:** Assessing the students' experiences of TBL method can provide valuable information for improving the learning quality.



#3CC19 (134076)

**TBL as a learning, personal development and exam preparation tool within a PBL System: Subjective and Objective Evidence**

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Lynn Alkhatib (Alfaisal University, Riyadh, KSA)

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Malak Dabbagh (Alfaisal University, Riyadh, KSA)

Ahmed Yaqinuddin (Alfaisal University, Riyadh, KSA)

**Background:** Neuroscience is one of the most intriguing yet challenging areas of study in medical school. We introduced Team Based Learning (TBL) as a means of continuous assessment and learning, parallel with the originally running PBL system in the Neurosciences block (NSB) as an innovative approach. We aim to study any measurable effect of the TBL component on students' preparation (subjective to their opinions) and in-course performance (objective).

**Summary of Work:** Data was collected through paper-based questionnaires from second-year medical students. Furthermore, we carried out an objective comparison between the current batch of students' grades at the end of the new TBL-NSB and those of the previous year's batch, who did not have TBL in their block.

**Summary of Results:** The majority of responses leaned towards affirmation of pro-TBL outcomes. Results showed that students' cGPA has a significant impact on whether they believe that TBL was an effective tool in improving their learning ( $F=5.498$ ,  $P<0.01$ ) and professional development ( $F=4.773$ ,  $P<0.01$ ). Data analysis from the grades of both batches revealed a significantly higher performance in the new batch of students who took the TBL-NSB over those who took the conventional non-TBL one.

**Discussion:** TBL outcomes were evaluated in terms of three levels of educational benefits– as a learning, professional development and exam preparatory tool. The majority of students appreciated the importance of TBL in those domains, especially weaker students. The significant difference we found between the two batches' grades shall be attributable to the introduction of TBL in the new NSB curriculum since all other factors are constant including syllabus, teaching faculty and learning resources.

**Conclusion:** TBL is a satisfactory learning, personal development and exam preparatory tool as demonstrated by subjective and objective evidence.

**Take Home Messages:** We highly recommend the implementation of continuous assessment regimes like TBL in all blocks as they carry a wealth of value in multiple facets of educational outcomes.

### 3DD Posters: Selection

Location:

#3DD01 (134741)

**Traditional and MMI interview styles for selection: A widening participation perspective**

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Sean Zhou (QMUL, London, UK)

Charlie Chandrakumar (QMUL, London, UK)

Sandra Nicholson (QMUL, London, UK)

**Background:** Multiple Mini Interviews (MMI) as a method of selection is gaining popularity, the research and evidence for it is slowly emerging and hints that it does not disadvantage those from a widening participation (WP) background.

**Summary of Work:** Our primary aim is to ascertain the views of WP students, and their perceptions of which style is fairer and which they would prefer. Through qualitative research methods, with a mix of focus groups and questionnaires, students engaging with a student led WP programme in East London were asked about their perceptions before, and after a series of traditional and MMI mock interviews.

**Summary of Results:** Data was gathered from 72 questionnaires and 3 focus groups. Student's perceptions of fairness and preference for MMI and traditional interviews were gathered. The reasons for their preference and any perceived difficulties were explored.

**Discussion:** Overall it seems many students like the idea of MMI, and perceive it to be a fairer judge of abilities, but many would still rather undertake a traditional interview due to easier access to support resources and practice from schools or other providers.

**Conclusion:** WP students prefer traditional over MMI as it is easier to prepare for, despite believing MMI is a fairer form of interview.

**Take Home Messages:** More work needs to be done on how the shift to MMI will affect WP students, and what support, if any, they require.

#3DD02 (133812)

**Correlation between multiple mini-interview score with students' academic performance in Faculty of Medicine Universitas Indonesia**

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Diantha Soemantri (Department of Medical Education Faculty of Medicine Universitas Indonesia, Jakarta, Indonesia)

**Background:** A good student selection method should be able to predict future performance. Multiple mini-interview (MMI) has been reported to be the best predictor for OSCE performance in medical schools. In Faculty of Medicine Universitas Indonesia (FMUI), MMI has been implemented as one of its student selection method for the International class since 2013 with acceptable reliability (0.636).

**Summary of Work:** Fifty-one candidates passed the 2013 MMI and enrolled at FMUI. They have currently completed their fifth semester (pre-clinical phase). Their performance was assessed using their grade point average (GPA), their grades in Basic Clinical Skills (BCS) module and in modules emphasizing on non-cognitive attributes (Humanities, Professionalism, Cultural Competence, Adult Learning, Bioethics, Health Communication, Interprofessional Education, and Empathy). The MMI score was correlated with the students' performance using Spearman's correlation coefficient.

**Summary of Results:** The 2013 MMI mean score was 74.88 (49.72-98.96, SD 8.81), and the mean GPA was 3.15 (2.46-3.64, SD 0.27). There was no significant correlation between the students' MMI score with their GPA and their non-cognitive module grades.

**Discussion:** No correlation between MMI score with GPA is to be expected as MMI is not a good predictor for academic performance, while MMI not showing correlation with BCS and non-cognitive module grades may be caused by homogeneously high MMI score of the candidates who passed, thus producing homogenous grades across the cohort. This also showed that modules emphasizing on non-cognitive attributes weighs more toward academic knowledge than toward personal attributes in the pre-clinical phase.

**Conclusion:** The 2013 MMI in FMUI did not show correlation with students' general and non-cognitive performance up to the fifth semester. Further study is needed to assess its predictive validity in the clinical phase.

**Take Home Messages:** MMI's reliability and predictive validity should be assessed continuously for future improvements in student selection.

#3DD03 (135200)

**Measuring empathy in student selection: Which components are assessed by the MMI?**

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Dietrich Klusmann (University Medical Center Hamburg-Eppendorf, Hamburg, Germany)

Mirjana Knorr (University Medical Center Hamburg-Eppendorf, Hamburg, Germany)

Anja Schwibbe (University Medical Center Hamburg-Eppendorf, Hamburg, Germany)

Stefan Zimmermann (University Medical Center Hamburg-Eppendorf, Hamburg, Germany)

Wolfgang Hampe (University Medical Center Hamburg-Eppendorf, Hamburg, Germany)

**Background:** In a multiple mini-interview (MMI), medical school applicants are evaluated in different interview and role-play stations that assess interpersonal skills like self-reflection and empathy. While the literature suggests that MMIs are reliable and predict relevant performance criteria, one remaining question is: which components of interpersonal skills does an MMI measure? Based on a cognitive-developmental theory of emotional awareness, we hypothesize that people who can perceive and describe feelings carefully are also empathetic in an MMI. We try to answer this question for the Hamburg MMI with a focus on empathy.

**Summary of Work:** Three months after end of the admission procedure, we asked candidates to complete an online questionnaire consisting of two well-established self-rating instruments (Interpersonal Reactivity Index (IRI); Self-Reflection and Insight Scale (SRIS)) and one performance test (Levels of Emotional Awareness Scale (LEAS)) measuring empathy related constructs. Pearson's correlations were used to examine the relation between IRI, SRIS and LEAS and MMI scores.

**Summary of Results:** IRI and SRIS scores ( $n=82$ ) correlated significantly with certain MMI interview and role-play station scores (correlations up to  $r=.29$ ,  $p<.01$  for IRI and up to  $r=.26$ ,  $p<.05$  for SRIS) but not with the MMI total score ( $r=.17$ ,  $p=.14$  for IRI and  $r=.10$ ,  $p=.35$  for SRIS). LEAS score ( $n=80$ ) did not correlate with the MMI ( $r=-.16$ ,  $p=.15$ ).

**Discussion:** The correlations between some MMI stations and IRI and SRIS scores show that empathy and self-reflection are both components of interpersonal skills as assessed by our MMI. Nevertheless, the non-association between the LEAS scores and the MMI indicates that the mere ability to describe feelings carefully is not sufficient to perform well in the MMI. Reasons will be explored.

**Conclusion:** These results expand findings on the construct validity of our MMI, as empathy and self-reflection seem to be assessed by our MMI.

**Take Home Messages:** Empathy as assessed by the MMI is more than mere emotional awareness.

#3DD04 (133972)

**Multiple Mini-Interview (MMI) performance predicts evaluation of psychosocial skills by general practitioners in a GP clerkship**

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Maren Ehrhardt

Janina Lackamp

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Wolfgang Hampe

**Background:** There is growing evidence that Multiple Mini-Interview (MMI) performance predicts in-program and licensing examination performance. However, given that MMIs intend to primarily measure psychosocial skills, more evidence for the predictive validity within a practical context is needed.

**Summary of Work:** Within our curriculum, all second-year medical students are required to spend one week with a general practitioner (GP) in a 1:1 teaching. We asked all GPs and their staff to evaluate their student's psychosocial skills based on a newly developed questionnaire (five dimensions on a scale of 1 to 5). We used univariate analysis of variance to compare GP evaluations for different admission quota (20% GPA-only, 30% HAM-Nat (a natural sciences test), 30% MMI, 20% waiting time and other). Additionally, we calculated Spearman's rank correlation coefficients for the relationship between GPA, HAM-Nat and MMI performance with GP ratings.

**Summary of Results:** Mean GP ratings ( $n = 219$ ) were mostly favorable ( $M = 4.48$ ,  $SD = .77$ ). Analysis of variance revealed a significant effect of admission quota on GP ratings ( $F(4, 194) = 2.547$ ,  $p < .05$ ) with the lowest mean GP ratings for students selected by HAM-Nat and the highest ratings for waiting time and GPA-only students. MMI performance showed a significant relationship with GP ratings ( $\rho = .34$ ,  $p < .01$ ), whereas GPA and HAM-Nat did not.

**Discussion:** Despite reduced variance, MMI scores and GP ratings correlate significantly. This indicates that our MMI measures psychosocial skills that are of relevance for GPs. Considering some relatively low GP ratings in the HAM-Nat quota additional non-academic selection tools such as situational judgement tests might be introduced in this step of the admission procedure.

**Conclusion:** Our results expand the existing literature on the validity of MMIs and demonstrate that MMI performance predicts criteria that are relevant in a GP environment.

**Take Home Messages:** MMI performance predicts the evaluation of psychosocial skills by GPs.

#3DD05 (135464)

**Assessing team work skills in the context of a Multiple Mini Interview**

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**Background:** Social competency plays a major role in selection of students for medical schools. In a multiple mini-interview (MMI), communication skills are observed directly. We are also interested in broader team work capabilities like leadership skills and team-oriented behavior.

**Summary of Work:** We developed a two-part leaderless group task consisting of a discussion about a controversial topic and a problem-solving task where participants had different information that they should share and integrate. Two assessors counted: 1. leadership and problem solving behavior and 2. team-oriented behavior. Applicants worked on this task in groups of three (n=24) or four (n=168) as part of an MMI used by the Hamburg medical school. Analyses were conducted to investigate: • reliability of the checklist • relationship to the other MMI stations • fairness for participants with various share of involvement

**Summary of Results:** The interrater agreement using the behavioral checklist was rather low. Most prominent is the issue in the problem-solving task, where assessors agreed on the number of observed behaviors ( $0 \pm 1$ ) in only 51.6% of the applicants. Based on an apriori devised scoring scheme, (almost) no relationship was found to other MMI stations, suggesting that, as intended, a different ability was measured. But the scoring scheme was biased in hindsight: it penalized applicants who were very active but committed mistakes and rewarded passive applicants with just one good contribution. Nevertheless, the assessors gave positive feedback with regard to the content validity of the task.

**Discussion:** Additional analyses are planned to investigate if interrater agreement increased over time or was affected by group size. Such results would indicate a complex observation.

**Conclusion:** Team work skills can be a valuable extension of an MMI, but it creates challenges with regard to the training of the assessors and the scoring scheme. Furthermore, a defensible normative judgment how to weight quantity and quality of contributions is needed.

#3DD06 (131725)

**Implications of not matching to a first-choice discipline: a family medicine perspective**

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Douglas Myhre (University of Calgary, Calgary, Canada)

Shelley Ross (University of Alberta, Edmonton, Canada)

James Dickinson (University of Calgary, Calgary, Canada)

**Background:** In Canada MD graduates secure a post-graduate position via the Canadian Resident Matching Service. Most graduates are successful in matching to a first-choice discipline. Annually a small percentage of graduates are matched to a discipline that is not their first-choice and the implications of this have not yet been studied.

**Summary of Work:** A questionnaire was mailed to graduates (2006-2011) of the family medicine (FM) residency program at the Universities of Alberta and Calgary. We sought to determine whether preparedness for practice, well-being, lifestyle satisfaction, and identity with FM differed according to whether FM was a first choice discipline (Yes vs. No).

**Summary of Results:** The response rate was 43% (N=305). 95% of the Yes (N=263) and No (N=42) groups were prepared for practice. Mean scores (Yes vs. No) on well-being and lifestyle satisfaction did not differ,  $p > .05$ . The No group reported a lower mean score on identity with FM,  $p < .05$ .

**Discussion:** The results showed that the two groups differed on the self-report measure of identity with FM. Possibly other measures more objective in nature may find additional differences between the two groups which our questionnaire was unable to address.

**Conclusion:** Both groups were similar in self-report measures of preparedness for practice, level of well-being and lifestyle satisfaction. The No group reported lower identity with the discipline of FM.

**Take Home Messages:** Family physicians who did not match to their first choice discipline reported lower identity with the discipline but graduated feeling prepared for practice and achieved a level of well-being and lifestyle satisfaction comparable to their FM colleagues who did match to their first choice discipline.



## #3DD07 (133970)

### A novel multimodal selection process for General Surgery Residency

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Zean Jia Hui Ng (National Healthcare Group – Alexandra Hospital Private Limited General Surgery Residency Program, Singapore)

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Qinghui Lu (Tan Tock Seng Hospital, Singapore)

**Background:** The selection of residents is critical for the success of a training program. Multiple studies have looked at the correlation between exam scores, interviews and letters of reference with resident performance. In the National Healthcare Group, our aim was to devise a multimodal approach to identify applicants with the appropriate qualities to become successful surgeons.

**Summary of Work:** A literature review was done for better understanding of the experiences in the American residency selection process. Faculty members identified ideal qualities and personality traits of residents and this culminated in a new multimodal format for our selection process in 2015. It comprised of 3 stations: 1) Traditional interview by faculty 2) Manual dexterity testing 3) Situational testing to assess non-technical skills.

**Summary of Results:** A scoring sheet was implemented to allow for quantification of subjective opinions. Different weightage was placed on each component depending on their relative importance and an overall score was tallied. Residents were ranked according to their overall scores. There were a total of 21 applicants - 14 male and 7 female. The overall scores ranged from 39.8% to 88.6%.

**Discussion:** The selection process is crucial for a residency program, yet validity and reliability remains uncertain. The implementation of a scoring system allows for an objective means of ranking applicants. It remains to be seen if the methods employed and the components evaluated are reliably predictive of residents' subsequent performance.

**Conclusion:** The novel selection process of the National Healthcare Group appears promising and feasible. Subjective aspects can be given numerical values to allow for an objective scoring system to improve inter-rater reliability.

**Take Home Messages:** Residency selection is crucial for continued improvement of the General Surgery Residency Program. We employed a novel selection process to identify potential all-rounded residents. A follow-up study is required to determine if this multimodal approach translates to future resident performance.

## #3DD08 (134136)

### Evaluation of the Assessment – Revision of the Multiple Mini Interview Blueprint and Scoring for Selection of International Medical Graduates

**Shannon Murphy\***, Alberta International Medical Graduate Program, University of Calgary, Calgary, Canada

Jean Rawling, Family Medicine, University of Calgary, Canada

**Background:** The Alberta International Medical Graduate Program introduced the Multiple Mini Interview (MMI) into the assessment process for internationally trained physicians in 2007. At that time, the MMI was used to measure professionalism in international medical graduates (IMGs) for entry into Family Medicine residency programs. The AIMG Program has since expanded to assess applicants for entry into multiple disciplines. Consequently, the MMI required update and revision, to accommodate the expanded applicant pool and stakeholder groups.

**Summary of Work:** The AIMG Program MMI conducted a blueprinting exercise to map the 2015 CanMEDS competencies to desired key personality attributes. The blueprint then guided case content development. Evaluation forms were updated and interviewer training conducted to highlight the content changes. Finally, scores were reported in a standardized format to allow for increased utility to end-users.

**Summary of Results:** The blueprinting exercise increased the MMI's face and content validity.

**Discussion:** Residency program directors indicated the revised MMI to be a useful assessment tool. Candidates initially found the standardized scores confusing, but with communication and education they recognized the increased transparency of the assessment.

**Conclusion:** Blueprinting is a critical component of assessment development. Stakeholder engagement in the blueprinting process is also an important component. Changes in how scores are reported must be communicated thoroughly to all stakeholders.

**Take Home Messages:** Regularly scheduled assessment evaluation is critical to recognize evolution in the purpose of the assessment.

#3DD09 (135342)

**Reliability and acceptability of multiple mini-interview model for residency program recruitment: Our experience**

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**Background:** Standard interviews are used by most residency programs for assessment of attitude of the non-cognitive competencies, but variability of interviewer skill, interviewer bias, and context specificity limit reliability. The aim of this study is to investigate reliability and acceptability of seven-station multiple mini-interview (MMI) model for resident selection into ORL HNS residency program in Oman

**Summary of Work:** One independent academic residency training center, Fifteen applicants and seven interviewers were involved. There are seven 8-min MMI stations with eight raters including the chief resident in Station 4 with the Education Committee Chairman (Enthusiasm to Specialty). Candidates were rated on two items: Medical Knowledge (wherein the applicants were assessed through two standardized case scenarios) and Behavioral knowledge (which covered the personality and attitude, professionalism, communication, enthusiasm to the specialty, and proficiency in English.

**Summary of Results:** The interview evaluation/survey form that was given to the candidates and interviewers had proven that MMI is a fair and more effective tool to evaluate non-cognitive traits, and prefer the MMI to standard interviews.

**Discussion:** The reliability of our process was high enough for high-stakes decisions such as admissions (0.9). Prior research has demonstrated similar high reliability values of the MMI model, although using more stations. We also demonstrated that the MMI process was acceptable to a pool of interviewers and interviewees previously exposed to standard interview formats.

**Conclusion:** The MMI process for residency interviews can generate reliable interview results using only seven stations, and it is acceptable and preferred over standard interview modalities by the applicants and faculty members of the ORL HNS residency program in Oman.

**Take Home Messages:** the MMI process can generate reliable interview results but a multi-center study with residency programs of various sizes in both community and university settings are needed to verify our findings.

#3DD10 (131390)

**Degrees of empathy first year students of medicine. The admission process has a role?**

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*Cecilia Torres Universidad Nacional del Sur, Health Sciences Department, Bahia Blanca, Argentina*

**Background:** In 2014 the School of Medicine at Universidad Nacional del Sur changed the admission process, focusing the course on collective health, epidemiological determinants of health, behavioural sciences, and doctor patient-relationship aspects. Objective: to analyze and compare the degree of empathy in first year students belonging to the 2013-2014 cohorts.

**Summary of Work:** A descriptive cross-sectional study. Data collection was through empathy scale Jefferson, a self-administered questionnaire, anonymous, validated Spanish.

**Summary of Results:** Respondents: 97.5% (117/120) freshmen medical students; 58 of the 2013 cohort and 59 of 2014. Mean age: 20 years (18- 22), 84 women and 33 men (2013: 34/24 -2014 50/9). The median score of empathy 2013 cohort was 5.91 (RI 0.72) and for 2014 of 6.25 (RI 0.35) (p <0.05).

**Discussion:** There are different degrees of empathy among these cohorts. The 2014 cohort attended an admission course related with collective health, epidemiological determinants of health, behavioral sciences, and doctor patient-relationship aspects had a median score of empathy superior than 2013 cohort that attended course related with mathematics, physics, biochemistry and biology.

**Conclusion:** The different degrees of empathy could be related with the new form of admission process, although the highest proportion of women in the 2014 cohort could also explain these differences. Further studies should be design to analyze the impact of admission process on students attitudes and students behavior towards patients..

**Take Home Messages:** Empathy is a competence that should be developed in medicines students. The selection process of students could have an impact in such development.

#3DD11 (131545)

**Admissions and social accountability: an analysis of admissions at the Northern Ontario School of Medicine (2006-2015)**

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**Background:** Under its social accountability (SA) mandate, the Admissions Office of the Northern Ontario School of Medicine (NOSM) was designed to promote selection of Aboriginal, Francophone, rural and northern students reflecting the demographics of northern Ontario. We conducted a study to explore how well the NOSM admission process meets its SA mandate.

**Summary of Work:** We looked at how cultural minority (Aboriginal and Francophone), northern and rural applicants were represented at each admission stage. We focused on three major groups of applicants: those qualified for the admission process, those accepted for interview, and those accepted to the program. We evaluated differences in the proportions of minority, northern and rural applicants across different stages of admission process and we compared Grade Point Average (GPA) scores between applicant groups.

**Summary of Results:** Overall, 3.5% of all qualified applicants (610 of 17358) were admitted to NOSM between 2006-2015. The percentage varied for all qualified Aboriginal and Francophone applicants (11% and 7%, respectively). Overall, 92% of admitted students were from Northern Ontario, 8% were from rural and remote areas from the rest of Canada. In addition, 7% of students were Aboriginal and 22% were Francophone. The average GPA score for students was 3.7 on a 4.0 scale consistent with medical schools across Canada. Based on the overall success rate, the most promoted groups were northern and Aboriginal applicants (18% and 11% of qualified applicants have been accepted to the program in the last decade). The rate was lower for Francophone and rural applicants (7 and 6%, respectively).

**Discussion:** NOSM has developed mechanisms to promote selection of a student body reflective of the needs, demographics and communities of Northern Ontario. We use a context scoring algorithm to assess and rank applicants based on geographic, Aboriginal and Francophone backgrounds. While continuing to evolve, these tools have proven responsive and effective in allowing NOSM to address its SA mandate.

**Conclusion:** Our study showed that the NOSM admission process successfully promoted selection of Aboriginal, Francophone, northern and rural applicants while maintaining the strong academic background of incoming students.

**Take Home Messages:** NOSM has been able to develop tools that promote a SA admissions process. These tools have helped guide selection of an academically strong medical school class that better reflects the population distribution of Northern Ontario.

#3DD12 (133581)

**Common features in the psychological tests performed during entrance interviews among medical students with psychiatric problems while studying in the medical program**

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**Background:** We would like to find out the common features that could be identified during the psychological tests performed at the time of the entrance interviews among medical students with the psychiatric problems during their studies.

**Summary of Work:** For the year 2015, We have had eight medical students who were diagnosed with psychiatric conditions that affected their studies. We retrospectively examined their psychological tests that the eight students performed during their entrance interviews, including 16-Personality Factor Test (16PF), Department of Mental Health E.Q. Test and Draw a Person Test, to find out any common feature that may be presented in their the psychological tests.

**Summary of Results:** The study included 5 males and 3 females. The psychiatric conditions were diagnosed during academic year 2-6. We found 6 common features in the tests: i) judgmental impairment identified by Draw a Person Test abnormality 8/8 (100%); ii) emotional immaturity identified by 16PF Test abnormality 6/8 (75%); iii) irrationality identified by E.Q. Test abnormality 7/8 (87.5%); iv) impatience identified by 16PF abnormality 7/8 (87.5%); v) seriousness (Factor F) identified by 16PF Test abnormality 7/8 (87.5%); iv) aggression (Factor E) by 16PF Test abnormality 6/8 (75%).

**Discussion:** Despite of the small number of subjects, the three tests were sensitively able to identify abnormality during the admission interviews. The Draw a Person test was found to have the highest sensitivity. These features can be used for screening of candidates in the future entrance interviews.

**Conclusion:** Six common features found in the psychological tests performed during admission among medical students with psychiatric disorders

were judgmental impairment, emotional immaturity, irrationality, impatience, seriousness and aggression.  
**Take Home Messages:** The Draw a Person test was found to have the highest sensitivity to detect abnormality among candidates in the entrance interviews.

### #3DD13 (133022)

#### Selecting for Resilience in Medical Students

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**Background:** Medical students are subject to high levels of stress and an inability to handle such demands can lead to negative consequences. There is evidence that resilience is an inherent quality, which can be nurtured and developed. The ability to demonstrate resilience would therefore be a useful characteristic to select for admission to medical school.

**Summary of Work:** The aim of the study was to explore the perceptions of resilience amongst a sample of current medical undergraduates and faculty involved in medical student selection at University of Nottingham. Semi-structured interviews were conducted with ten undergraduate medical students and with seven admissions team faculty, to explore perceptions of resilience and its role within medical student training. Data was then analysed using thematic analysis.

**Summary of Results:** Thematic analysis of interviews revealed six themes: resilience is seen as 'bouncing back'; resilience involves knowing when to seek help; resilience is affected by both genetics and environment; resilience is important as medicine is demanding; a lack of resilience in medical students has poor consequences; and empathy and resilience can positively affect each other.

**Discussion:** Exploring the concept of resilience with both students and faculty suggested that it would be useful to select for the resilience at the admissions stage, but also the inclusion of a programme of resilience training during the medical course should be developed and implemented.

**Conclusion:** Whilst there is a growing body of research around resilience as a concept, there is a paucity of published qualitative studies exploring resilience in medical students specifically, how it can be evaluated and developed.

**Take Home Messages:** An inability to handle the demands of medical training can lead to negative consequences such as burnout which has been well documented. It would be desirable that students are selected for resilience at the point of admission, but resilience must also be developed longitudinally throughout the course.

### #3DD14 (133724)

#### Lack of correlation of marks on entrance examination with knowledge acquisition and medical skills at the end of medical course

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**Background:** Interview at medical school admission process has been shown to correlate with high degree of achievement in national licensing examination. However, little is known about the impact of marks on entrance written examination on the academic achievement of medical students at the end of the course in terms of clinical skills and medical knowledge acquisition.

**Summary of Work:** We did a correlation between marks obtained in the entrance examination in 2009 with those obtained in the progress testing (PT) and in the Organized Structured Clinical examination (OSCE) at the end of the medical course (12th stage) in 2015. In addition, we also did a correlation between the marks obtained on entrance examination with the mean of grades obtained in each curricular unit of the clerkship (from 9th to 12nd stage). The Pearson correlation test was used for statistical analysis. Differences at  $p < 0.05$  were considered statistically significant.

**Summary of Results:** Fifty-one students were enrolled. There was no correlation between the marks on medical entrance examination and PT ( $r = -0.05$ ,  $p = 0.73$ ), marks on medical admission process and OSCE ( $r = -0.15$ ;  $p = 0.30$ ), and marks on medical entrance examination and the mean of grades at the clerkship ( $r = 0.22$ ;  $p = 0.12$ ).

**Discussion:** Lack of correlation between marks on entrance examination and performances on PT and clerkship assessment suggests that student's performance may be different during the clinical course in comparison to that observed before university entry. The lack of correlation of marks on entrance examination with OSCE is expected, as the latter reflects mainly medical skills acquisition.

**Conclusion:** Our study shows that marks on medical entrance examination do not correlate with performance in TPI, OSCE, and knowledge acquisition in the clerkship at the end of the medical course.

**Take Home Messages:** Selection by written examination at medical admission process does not associate with medical competence at the end of medical course.



#3DD15 (132744)

**Increasing the Efficiency of the Admissions Committee**

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Carol Elam*

**Background:** Medical schools face a time when faculty are busier than ever which may constrain admissions process involvement. Recruiting Admissions Committee members can be difficult due to the amount of committee time required, overburden of reading countless files, and attending meetings. The session will present a best practices option regarding an admissions voting process.

**Summary of Work:** The session will outline a Pre-Vote process that has successfully been implemented at two different institutions resulting in reduced committee meeting time and meeting frequency. This process also allows members who are not present provide input during meetings.

**Summary of Results:** The pre-vote system procedure resulted in reducing both meeting frequency and meeting length in half at both institutions. Subsequent refinements have increased communication among committee members.

**Discussion:** Holistic review practices in admission must be utilized in both data collection and deliberation to be effective. Exploration of how decisions are made is important in evaluating the overall efficacy of the admissions process.

**Conclusion:** Careful consideration of selection practices can help control time commitments necessary for committee member service and monitor sources of bias in selection. Consideration of the approaches to selection decision-making can be streamlined, potentially resulting in time savings and reduction of bias.

**Take Home Messages:** Consideration of approaches to deliberation and voting can lead to the refinement of best practices and suggest areas for future research.

#3DD16 (135850)

**Secondary Education Achievement: A Reliable Method to Predict Early Medical School Performance?**

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**Background:** Medical schools are among the toughest schools to get into due to the rigorous competition. With various curricula such as the American SATs, Saudi system, International Baccalaureate and the British system, not all students receive the same type of secondary education. As such, upon entering medical school, some students have more knowledge regarding basic sciences. Alfaisal University in Riyadh, KSA is unique in that it accepts students from various high school systems as part of its admissions criteria. This study aims to determine what elements during secondary education schooling affect academic performance during the first two years of medical school.

**Summary of Work:** A questionnaire was distributed among the first and second year medical students at Alfaisal University. Inquiry about high school curriculum, GPA, and the examination tests for admission into medical school was made.

**Summary of Results:** Students from American curriculum schools had an average GPA of above 3.5. There was no correlation between these student's SAT scores and medical school GPA. Students from the British system had a strong positive correlation between their A-level scores and their medical school GPA. Saudi system students had high GPA and Saudi standardized tests scores. However, this didn't correlate with their medical school GPA.

**Discussion:** Students that enter medical school from different curricula have varying degrees of academic success during the first two years. American and Saudi high school GPA and test scores didn't correlate with medical school GPA. Those who did well in the British system were likely to excel during the first two years.

**Conclusion:** Students from the British schools are more likely to succeed academically in the first two years of medical school as compared to their American or Saudi system colleagues.

**Take Home Messages:** Students from different educational systems don't perform at the same level during early medical school years. Measures should be taken to correct this discrepancy.

#3DD17 (135553)

**The assessment of the first year students' satisfaction as regards the admission process of the Faculty of Medicine, the Project to Increase the Number of Doctors for the Population in Rural Areas, Mahasarakham Hospital**

*Laddawan Buranavorasil\*, Mahasarakham Hospital, Mahasarakham, Thailand*

**Background:** The Mahasarakham Medical Education Centre is founded as co-ordinated institution with Khonkaen University having an objective to co-produce medical staff. Since its establishment in 2010, there has been no satisfaction assessment on its students admission procedure. This study thus aims at solving the issue and seeking for suggestions to bring the admission process to a higher standard.

**Summary of Work:** For the aforementioned purpose, a set of online questionnaires has been sent to sixteen students who have successfully admitted to study in the MD11 program, class of 2016, the Faculty of Medicine, Khonkaen University. All students have submitted the answers, accounting for 100%.

**Summary of Results:** -All sixteen students have submitted the answers, 9 of which are female, 7 are male students. The ages range between 18-19 year-old. -The result is as follows; 1. The Chemistry test is excessively complicated, having the lowest satisfaction level. Thai language, social studies, mathematics and biology tests gained slightly higher satisfaction. Meanwhile, physics and English tests are the exams with the highest satisfaction (3.8) 2. The interview test also obtained the highest level of satisfaction. (4.00) 3. The aspects that require improvement are; - The atmosphere of the exams room; the noise, the size of the tables. - The difficulty of certain exams should be adjusted.

**Discussion:** 1. Since the admission examination location is outside of the University, there was a limitation on location, i.e. the table being too small, excessive noise during exams. 2. The difficulty is too high. This is due to the fact that the Faculty of Medicine was not the one who created the exams questions but the Faculty of Science, in particular the subject of fundamental science. Therefore, they are deemed unfit for the potential medical students.

**Conclusion:** The satisfaction assessment regarding the admission examination for students wishing to study at the Faculty of Medicine, the Medical Education Centre of Mahasarakham Hospital was carried out for the first time with an aim to improve its admission process. The result of such will be submitted to the Faculty of Medicine, Khonkaen University for consideration.

**Take Home Messages:** The admission process to the Faculty of Medicine, Khonkaen University should be assessed annually for amelioration and system development

#3DD18 (133208)

**The impact of specific preparatory courses upon academic success during Medical Degree-Course Studies at Sapienza University of Rome**

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*Stefano Eleuteri, Sapienza University of Rome, Rome, Italy*

*Fatima Longo, Sapienza University of Rome, Rome, Italy*

*Katia Ditoma, Sapienza University of Rome, Rome, Italy*

*Claudio Barbaranelli, Sapienza University of Rome, Rome, Italy*

*Paolo Falaschi, Sapienza University of Rome, Rome, Italy*

**Background:** Examinations for admission to Medical Degree Courses in Italy consist in multiple-choice quizzes regarding general knowledge, biology, chemistry, mathematics and physics. Since 1999, Sapienza University of Rome has organized preparatory courses to help candidates prepare for these tests. This research project aimed at investigating the contribution these courses may make towards the academic success of the students later attending medical school.

**Summary of Work:** The careers of students now enrolled at the Medical Degree Courses at Sapienza University of Rome (n=5611) were analysed. The marks they obtained at "Medical Physics", "Chemistry and Biochemistry" and "Biology and Genetics" and their total mean marks were evaluated.

**Summary of Results:** An ANOVA test revealed the significant impact of participation in our courses on marks in "Medical Physics", "Chemistry and Biochemistry" and "Biology and Genetics" where participants scored higher than non-participants. A further ANOVA test was conducted on students divided on a course-year basis, confirming the significant effect of courses on "Medical Physics", "Biology and Genetics" and total mean marks, with participants scoring higher than non-participants.

**Discussion:** Dividing students by course year marks in "Biology and Genetics" for second-year participant students were significantly higher than those for non-participants. In third-year students' marks a significant impact of the courses emerged on "Medical Physics", "Chemistry and Biochemistry" and "Biology and Genetics" with highest mean marks and number of exams passed obtained by the participants. Similar results emerged for the fifth-year students.

**Conclusion:** These results seem to indicate the efficacy of the courses not only as regards the specific subjects studied at our courses but also the overall mean marks. Further studies could clarify if the efficacy of the project also influences final degree results.

**Take Home Messages:** The "Orientamento in Rete" project predicts greater academic success for our students. Further studies are required to investigate the possible impact of psychological attitude upon the effects of the courses.

#3DD19 (135875)

**GP Ambassador Programme for Medical School Recruitment in Dorset**

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*Susannah Jackson (GP Centre Bournemouth University, Bournemouth, UK)*

*Clare Wedderburn (GP Centre Bournemouth University, Bournemouth, UK)*

**Background:** The number of UK students applying for places at medical school has fallen by over 10% over the past 2 consecutive years (Price, 2015). The Dorset GP centre piloted an inclusive initiative to improve communication between young GPs and Dorset school children to help encourage students to consider a medical career.

**Summary of Work:** Teachers and careers advisors from all 42 Dorset secondary schools were approached. GP ambassadors were recruited from specialty trainees. They received training regarding current medical school application, and were equipped with resources for the session, including a presentation. Bournemouth University GP Centre organised visits.

**Summary of Results:** Invitation uptake was recorded. Pre-visit surveys of teachers and school children questioned desired session outcomes. Post-visit surveys demonstrated usefulness. Results illustrate the value of grass roots discussion between school children and young GPs to inform and inspire school students to study medicine.

**Discussion:** In Dorset there is increasing recognition of the value of coordinated support for school students considering a career in medicine. GP trainees are in a position to offer relevant, up to date information regarding application and experience of being a junior doctor. The GP centre is well placed to administer this approach.

**Conclusion:** This programme has provided a coordinated approach to support schools and students. There is value in providing opportunities for school children to discuss aspirations for a career in medicine with young GPs. There is scope to broaden the network of support using resources at Bournemouth University and the 3 hospitals in the region.

**Take Home Messages:** Applications for places at medical school are falling in number. Innovations to engage school children in educational sessions regarding a medical career could inspire and strengthen applications.

#3DD20 (135575)

**1st year students' motives for studying medicine and dentistry**

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*Leo Heinonen (University of Helsinki, Helsinki, Finland)*  
*Terhi Karaharju-Suvanto (University of Helsinki, Helsinki, Finland)*

*Eeva Pyörälä (University of Helsinki, Helsinki, Finland)*

**Background:** Motives behind students' disciplinary choice influence their interest in studies, quality of learning and study progress. In Finland, students of medicine/dentistry have to pass a demanding entrance examination. Thus, those accepted are persistent and highly motivated students. This study examines the first-year students' self-reported motives for applying for studying medicine/dentistry.

**Summary of Work:** We studied students' motives in a cohort that started their studies in 2011. During their first semester, students answered a web-based questionnaire with an open-ended question about their study motives. Students' answers were examined using qualitative content analysis. Most students gave their informed consent (86% medical and 73% dental students).

**Summary of Results:** Medical and dental students were first studied separately and then compared. The three largest categories of motives detected for medical students were interest in the field of medicine (70%), practical (40%) and vocational (31%). Those of dental students were practical (70%), interest in the study field (49%) and handcraft (24%).

**Discussion:** The 1st year students' motives choice indicate their ideas of the content of the studies and their future work-life orientation. Both medical and dental students emphasized an interest in the study field and a meaningful, respected and humane profession. Dental students also reported an interest to work with their hands.

**Conclusion:** The 1st study year medical and dental students' motives for studying medicine and dentistry were relevant. We raise the question, how well students' study motives are met during their study years. Therefore, we are collecting further research data from the same students in the end of their studies in 2016.

**Take Home Messages:** Students' interest in their study field and future professions should be cherished throughout their studies to support their study motivation and stimulate their study progress. Further inquiry is required to explore the consistency of the students' study motives in the course of the medical and dental studies.

#3DD21 (134178)

**Exploring Graduate Entry Medical Students' views on studying medicine**

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*Martin J Carrier (Barts and the London Medical School, London, UK)*

*Susan Gelding (Barts Health-Newham University Hospital, London, UK)*

**Background:** The aims of Graduate Entry Medical courses are to enhance medical school diversity and provide a succinct route for graduates contemplating a medical career. Graduate Entry Medical students (GEMs) have previous undergraduate study experience and often, work experience. GEMs can academically out-perform undergraduate counterparts during assessments. Reasons postulated for GEMs' success include their time-management and stress-coping techniques. There is little literature exploring GEMs' views of studying medicine or whether their previous educational/work experience has been beneficial.

**Summary of Work:** A questionnaire comprising demographic, Likert-scale and short-answer questions was designed and distributed amongst 22/44 1st year GEMs. Responders interested further in the study were invited to participate in a focus group.

**Summary of Results:** 22/22 GEMs completed the questionnaire, mean age 24.2 years. 10/22 offered to participate in the focus group. 90% had a science undergraduate degree and 70% had previous employment experience. Several themes emerged from the questionnaires: • Larger workload/volume of information studying Medicine. • Time management and professionalism skills gained from previous study/work experience • General Practice (GP) exposure and communication skills training were considered excessive The focus group discussions generated further themes: • General maturity and experience advantageous to medical training • Changes to course needed to enhance career choice opportunities

**Discussion:** Exploring GEMs' views on studying medicine was enlightening, particularly their views on course restructure. 1st year GEMs have little clinical experience and may subsequently change their views regarding GP exposure and communication skills training as they progress.

**Conclusion:** 80% of GEMs felt studying medicine was harder than their previous studies, but found their past study and work experience helpful for devising time-management strategies and self-directed learning. Focus group discussions revealed GEMs' general maturity impacted advantageously on learning and encouraged wider career choices.

**Take Home Messages:** GEMs found previous experience useful for coping with workload and pressures of studying medicine and 1st year GEMs wish to have wider medical career exposure opportunities.

#3DD22 (135632)

**Graduate Entry in Medicine: selection criteria and student performance**

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*Raquel Plácido (Faculty of Health Sciences, University of Beira Interior, Covilhã, Portugal)*

**Background:** In Portugal, medical schools admit a number of students who has a previous graduation and diverse selection methods are used. At FHS-UBI until 2010 we used a knowledge test(KT) in Biology, Physics, Chemistry and Maths as part of the selection criteria but since 2011 it was substituted by a cognitive aptitude test(CAT). Our aim was to compare the 1st year performance of graduate entry students selected by those two methods and to know if their performance is different from the non-graduate students.

**Summary of Work:** We analyzed 7 cohorts (N=1089) of 1st year medical students both from graduate and non-graduate entry groups (from 2007 to 2014). Test admission scores (KA and CAT) and 1st year scores were collected. Data was analyzed using Pearson's correlation and ANOVA test.

**Summary of Results:** There is no correlation between test admission scores and 1st year performance between graduate students selected by KT or CAT. Comparing the score means of the 1st year there is a significant difference between the two groups. We also found that graduate students selected by KT(mean=14.9±1.35) appears to have better performance than those selected by CAP(mean=13.2±1.92) when compared to non-graduate entry students(p<0.05).

**Discussion:** Graduate-entry selection methods are not consensual. Our study shows that performance in early years of medical school is not associated with the way we select those students. This performance appears to be more related to knowledge acquisition ability. However we don't know what is the relation between selection method and students' performance in the later years of medical course.

**Conclusion:** Further research is needed to assess if the cognitive aptitude test has a predictive validity of students' performance in the later years of medical school.

**Take Home Messages:** We need to continue to investigate and gather evidence about the validity of selection methods in medical education as predictors of success in medical school.



### 3EE Posters: Curriculum 1

Location:

#3EE01 (135576)

**Improvement in clinical skills with no change in theoretical knowledge in a new Bologna curriculum**

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*M Alegre*

*A Gea*

*L Arbea*

*MC Rodríguez-Díez*

*M Ferrer*

**Background:** Bologna process has served as a catalyst for change in medical education. In recent years, more importance has been given to clinical skills. An objective structured clinical examination is an assessment method to evaluate clinical skills and constitutes part of the end-of-year or final examinations for the medical degree. MIR exam (Internal Medical Resident) is a multiple-choice test which evaluates medical knowledge at the end of degree in Spain. In 2008, the Medical School of the University of Navarra changed its curriculum to adapt to the Bologna Process.

**Summary of Work:** This is a comparative study to evaluate outcomes of the new curriculum (NC) (med'08) versus the old curriculum (OC) (med'99) through objective clinical skills exam and MIR exam. We recollected the following data: 1) the score obtained of clinical skill exam in 5 sections: simulation, clinical cases, medical report, communication and clinical history; 2) the final place in test MIR; 3) the score from six years of degree, and 4) the score from secondary school.

**Summary of Results:** Mean scores from four clinical skills sections: simulation, clinical cases, medical report and clinical history, were significantly higher in NC group compared to the OC group. In communication skills section there were no differences. We found no differences between both groups in the results of the MIR exam.

**Discussion:** Other studies have demonstrated better skill performance with reformed curriculum too. But they were not evaluated using objective measures, or they have considered the fourth year results (not completed curriculum), or the sample size was too small.

**Conclusion:** New curriculum is more effective than the traditional method to improve the acquisition of required clinical skills of medical students while theoretical knowledge remains unmodified.

**Take Home Messages:** An improvement in clinical skills can be achieved with a similar knowledge level.

#3EE02 (136001)

**Changes in the medical curriculum to insert integrative themes of diagnosis in the context of primary care: painful way to heaven?**

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*Rosa Delbone Faria*

*Luciana Gouvea Viana*

*Letícia Henriques Resende*

*Suzane Pretti Neves*

**Background:** Our medical school is considered cutting edge for acting in primary care (PA) since the 70s, when students started learning in medical clinics in PA under the guidance of internal clinic and pediatric faculty. This model serves, in part, to the new medical curriculum guidelines (DCN-2010/2014) for greater integration in public health (PH). However, subjects such as Clinical Pathology (PC), with strong connection basic to professional cycles, are remaining in teaching-learning classical model far from PA-scenario.

**Summary of Work:** Reflection on the curriculum change process in PC, started in 2004, to align subjects in the context of the DCN-2010/2014. For seven years, countless meetings, and through deep awareness of teachers/students, engaged teachers discussed, reformulated and implemented two disciplines (PC-I/II, 3th-year/medical course) focused on PA; and created 4 integrative disciplines PC, Radiology and Pathology (PRO-I/II/III/IV, 5th-year, close to the hospital training), already in place.

**Summary of Results:** The changes are reflected as active participation of students in their knowledge construction, work team, focus on diagnostic methods in real cases, cost-effectiveness, social accountability, all with positive student assessment. Process:

Strengths: commitment and dedication from engaged teachers in the process and to coordinate debates among contrary currents; and institutional support. Weaknesses: extreme difficulty of acceptance by teacher majority due to the good student assessments to previous PC-disciplines; confused understanding of the role of teacher in PA; and obstacle by students who treated it as more work in less valued activities than in the other disciplines.

**Discussion:** The change process had a hard and prolonged development, but the success of the new design emphasized the strategy.

**Conclusion:** The process of curricular reform, although exhausting, proved successful and compatible with the demands of medical education in our country.

**Take Home Messages:** Curriculum changes, though stressful, should be considered as a result of the legal order, the deep discussion of the professionals involved, and the medical education improvement perspective. Grant: Pró-Ensino na Saúde, Edital 024/2010 CAPES- Project 1606/2011

#3EE03 (135018)

**Curriculum innovation and evaluation: Case study of anesthesia clerkship for undergraduate students, Faculty of Medicine, Universidad de los Andes, Bogotá, Colombia**

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Yuranny Zambrano Castellanos

Maria Teresa Gómez Lozano

Juny Montoya Vargas

**Background:** The aim of this research project was to evaluate the curricular system and understand its changes and adaptations with regard to teaching methods and evaluation in accordance with the requirements in Competency-Based Medical Education (CBME).

**Summary of Work:** For this evaluative research a case study was conducted in 2014/15, with 55 students of 8th semester, 2 tutors and 6 professors of medicine participating. The sources of information were: observations, interviews, focus groups, learning diaries and document reviews. These allowed an approach to the curriculum, the learning processes and the evaluation of the academic program and how it matches with CBME.

**Summary of Results:** The results show that the curriculum promotes the model of CBME applying teaching strategies, such as problem-based learning, practicing and integrating knowledge in simulation labs and observing in operating rooms of which some are recognized as innovative strategies in education.

**Discussion:** Despite the CBME oriented teaching the evaluation process is not performed in a corresponding manner, instead acquired knowledge is evaluated in written exams. The results show that the concurrent influence of the traditional model of medical education based on content and the model of CBME in the curricular system creates a situation in which a clear focus of the curriculum is missing.

**Conclusion:** The implementation of innovative educational strategies should be consistent with the model applied in the curricular system, in this case CBME, to connect learning with evaluation processes, in order to account adequately for the students' learning progress and performance.

**Take Home Messages:** The curricular system has to be focused about its educational model to clearly define the academic programs. The evaluation has to reflect the applied teaching strategies and methods using different criteria and measurements in order to fully unfold the possibilities CBME holds.

#3EE04 (131724)

**Improving Croatian Health Professionals' Education**

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Mira Klarin

Goran Kardum

Joško Sindik

**Background:** Development of health studies includes a diverse range of educational programs (with belonging qualifications) that enable to future health professionals to adjust to the needs of health system. Croatian Qualifications Framework is an instrument with a purpose to achieve the convergence between qualifications' levels in Croatia and European Qualifications Framework.

**Summary of Work:** Development of the occupational standards/qualifications for the 6th and 7th level of health studies of nursing, midwifery, radiology technology (RT), physiotherapy (PhT) and medical laboratory diagnostics (MLD), as well as designing programs of 7th level of education for midwifery and MLD.

**Summary of Results:** Information on job descriptions, key tasks and specific knowledge and skills needed in nursing, midwifery, RT, PhT and MLD, were collected in 200 employees in health sector. Based on the findings, expert working groups defined 10 occupational and 10 qualification standards (6th, 7th level and graduate study programs).

**Discussion:** Standards' development enables improving the quality of higher education and qualifications, defining competencies and increasing multidirectional mobility of health professionals. Standardization of the competences with laboratory equipment for MLD and midwifery design curricula (adapted to current needs in health care), will improve the offer of higher medical education in Croatia.

**Conclusion:** Through the standardization of the professions and qualifications, the Croatian system of higher medical education becomes balanced with the standards and guidelines of quality assurance of the EQF, while the educational offer is adapted to current needs of the health system in the Republic of Croatia and other countries.

**Take Home Messages:** The evolving needs of the health sector are a challenge for the competences of health professionals, while the need for synchronization and continuous improvement of the educational offer is the most important requirement.

#3EE05 (134581)

**Self-directed and internationalized scopes among participants in the Free Course Student Doctor system - a unique student-selected bedside training program at Jichi Medical University**

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Hitoaki Okazaki (Jichi Medical University, Shimotsuke, Japan)

Kazuomi Kario (Jichi Medical University, Shimotsuke, Japan)

Yasuko Noda (Jichi Medical University, Shimotsuke, Japan)

**Background:** Jichi Medical University (JMU), a medical university for training students to practice as general physicians in rural areas of Japan, has developed the Free Course Student Doctor system (FCSD), a unique student-selected bedside training program. Through this program, eligible students can study any subject they like at any institution for 6 months and be exempted from didactic lectures and paper tests for 17 organ-specific subjects in the sixth school year. Students are selected based on their scores on the comprehensive knowledge test administered at the end of their fifth school year.

**Summary of Work:** To evaluate the efficacy of FCSD in broadening perspectives and fostering self-directedness, we examined the learning experiences of 39 JMU students who participated in the course from 2011 to 2015.

**Summary of Results:** Over 5 years, 36 male and 3 female candidates participated in the FCSD. Twenty-seven participants (69%) studied general internal medicine (GIM), and 17 (44%) studied infectious diseases. Other popular subjects were emergency medicine and ultrasound examination, and only six students chose organ-specific subjects. Of the 33 (85%) participants who studied abroad, 12 visited institutions specializing in GIM, 10 went to institutions specializing in family medicine, and 5 participated in public health projects in developing countries.

**Discussion:** Although difficulties in establishing self-directedness and low rates of choosing international electives have been reported among Japanese students, FCSD participants spontaneously selected specialties requiring systemic clinical approaches relevant to their future clinical work and actively studied abroad. Course flexibility created variations in the learning environment, with settings ranging from clinics to international organizations, and this experience might broaden learners' perspectives.

**Conclusion:** The FCSD at JMU provides opportunities for eligible students to foster self-directedness and internationalized perspectives.

**Take Home Messages:** Eligible Japanese students utilized the FCSD, which helped them engage in self-directed learning and internationalized medical education.

#3EE06 (134203)

**Curriculum reform using a student-centered pedagogy improves licensure exam performance**

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Sara G. Tariq, (University of Arkansas for Medical Sciences, Little Rock, USA)

Richard W. Wheeler (University of Arkansas for Medical Sciences, Little Rock, USA)

David L. Davies (University of Arkansas for Medical Sciences, Little Rock, USA)

Charles M. Quick (University of Arkansas for Medical Sciences, Little Rock, USA)

**Background:** There has been a substantial shift from passive, lecture-based pedagogy to a student-centered approach. The long term effectiveness of these strategies is not clear

**Summary of Work:** The College of Medicine at the University of Arkansas for Medical Sciences made a major reform of the preclinical curriculum. This included substantial reduction in contact hours and use of traditional lecture, and the addition of a variety of student-centered pedagogies, including team-based learning and problem-based learning. The aim of this study was to compare student performance on the United States Medical Licensing Exam (USMLE) Step 1 before and after this reform.

**Summary of Results:** Students in the class of 2013 and 2014 (n=319) had the previous lecture based (old) curriculum; students in the classes of 2016 and 2017 (n=324) had the (new) student-centered curriculum. There were no significant differences between classes on mean Medical College Admission Test scores. The mean USMLE step 1 score for the old curriculum group was 215.5 and for the new curriculum group 220.5 (p<0.0036). The table below shows the mean Step 1 scores stratified cumulative GPA. New curriculum Step 1 mean scores in all quartiles were higher, but the lowest quartile was statistically significant (p<0.001). Mean Step 1 Scores

Top quartile	2nd quartile	3rd quartile	Bottom quartile
Old Curriculum			
242.6	224.4	210.8	187.7
New Curriculum			
244.2	225.4	213.1	202.7
P=0.51	P=0.55	P=0.31	P<0.001

**Discussion:** This work demonstrates that a student-centered curriculum with a variety of engaged learning strategies results in improved performance, particularly in the lowest quartile group.

**Conclusion:** This study supports pedagogy which is student centered and promotes engagement in medical school preclinical curricula. This approach seems to improve performance mostly for students in the lower performing portion of the class.

**Take Home Messages:** The use of a student-centered approach in the preclinical phase of medical student education promotes better performance on major summative examinations.

#3EE07 (135647)

**Developing a “clinical manifestation” framework: the first step towards reforming medical clerkship curriculum**

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*Azim Mirzazadeh (Tehran University of Medical Sciences, Tehran, Iran)*

*Mohammad Shariati (Tehran University of Medical Sciences, Tehran, Iran)*

**Background:** Undergraduate medical education in the Tehran University of Medical Sciences (TUMS) is changing. Reform committee and the Clerkship Directors planned to develop and disseminate a new model curriculum for the medicine core clerkship that was designed to enhance the learning of generalist competencies and to reduce factual overload through the definition of a core curriculum. This Committee decided to determine Common Clinical Manifestations (CCM) that a general practitioner need to learn how to approach them, as a part of the clerkship core curriculum. The purpose of the study was to determine CCM that all students are required to master in approaching them.

**Summary of Work:** We used a combination of methods including, qualitative and quantitative approaches. Triangulation method was used in the first phase; literature review, a survey of experts from different clinical disciplines and a survey of general practitioners. In this phase initial list of common clinical manifestations was prepared. The second phase of the study was characterized by identifying clinical presentation of the patients who were visited by family physicians and gathered via the health system network. We have used this information in finalizing the CCM list. Finally, information extracted from phase I and II were available to the experts and finalized in an expert panel.

**Summary of Results:** After these phases, we obtained a list of 100 CCM (such as palpitations, fever, and nausea, etc.) as the most important content to be included in a minimal clerkship core curriculum in undergraduate medical education. Based on the finding, we have classified this list into different disciplines and allocated them to core clinical departments.

**Discussion:** Our process can benefit medical schools that offer outcome-based medical education, especially for clinical clerkship course. They will be able to focus on topics chosen by the Iranian expert panel as being the most important issues in such a situation to drive effective clerkship, a supportive system including assessment should be implemented.

**Conclusion:** General practitioner need to learn how to approach Common Clinical Manifestations as core curriculum to enhance outcome-based medical education and learning of generalist competencies.

**Take Home Messages:** Common Clinical Manifestations should be considered as clerk's core curriculum.

#3EE08 (132441)

**A Medico's Dilemma**

**David Baynes\*, Sree Balaji Medical College And Hospital, Chennai, India**

*Dr. Shanthi*

*Dr. Manjula Devi*

**Background:** Admissions into Medical College in South India depends upon the Summative Assessment of the students in School. This assessment is based on a rote memory system, which suppresses the passion and innovative capacity of the students. This study is based on HOW Professional Aspiration can be developed during Medical studies.

**Summary of Work:** With the support of the faculty members, new teaching and learning techniques were exposed to 500 undergraduate students of Shree Balaji Medical College, Chennai, India. The Feedbacks were obtained by a medical unit validated questionnaire.

**Summary of Results:** The Results showed that 172[34.4%] students preferred more of community oriented programs and clinical studies. 113[22.6%] opted for Shadowing techniques. 99[19.8%] fancied Jigsaw Studying technique. 81[16.2%] appreciated faculty's guidance and support. 35[7%] sought for peer support.

**Discussion:** The above result suggests that the students with less passion craved for more community based practical exposure and clinical oriented studies when compared to theoretical studies. The students of this generation expect more of innovative teaching methods and guidance from the faculty than the current existing methods.

**Conclusion:** This kind of learning and increase in passion prepares the students for the broad challenges they will face in their career as physicians.

**Take Home Messages:** Passion is the Only Bridge to inspire the indecisive individuals to being more determined. *The evolution of passion will be a revolution for the future of medical studies.*



#3EE09 (136157)

**Attaining Competence and Developing Capability in a new UK Postgraduate Physician Associate Programme – The Evolutionary Challenges and Solutions.**

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*Denise E Prescott, University of Liverpool, Liverpool, UK*

**Background:** Physician Associates (PAs) are established in the USA and Australia. UK population growth places unprecedented demands on the healthcare system. The appetite to train PAs comes from a shortage of some medical specialties. The regional commissioner invited this University to develop/deliver a 2-year Postgraduate Diploma (PGD) expeditiously, using a medical education model.

**Summary of Work:** Deconstruction of the Faculty of PA's (FPA) non-modularised core documents was undertaken by a multi-professional expert group. Programme design was complicated since 'students' were full-time employees of the healthcare system; consequently compliance with employment law was integrated into curriculum design.

**Summary of Results:** Analysis identified 3 principal themes, subsequently embedded. An integrated, modular clinical curriculum compliant with legal, QAA and FPA requirements was constructed, using a spiral, systems-based approach with emphasis on the 'learning community' (Lave and Wenger 1991). The PGD met the complex requirements of many external influences, whilst retaining academic rigour.

**Discussion:** The PAs sit a national exam (NE), OSCE/MCQ, before employment; both criticised. We developed a domain-based assessment (DBA). Standard MCex was reconstructed, 34 domains; satisfactory achievement mandatory in each. Competence is first post. An academic obligation exists to build capability through scaffolding, experiential learning and critical reflection, to prepare PAs for their challenge. Evidence is captured in a dynamic e-portfolio.

**Conclusion:** Modularised curricula can be established mapped to non-modular professional frameworks. University curricula must ensure students are adequately prepared for the NE. NE currently does not include work-based assessment and as such assessment of competence is only addressed through the University e-portfolio Completion of defined core competencies provides some reassurance that exiting P.A.s have attained an acceptable level for their first post. However, engendering additional skills which will allow them to further develop their capability to operate safely and effectively in a multi-disciplinary health care team is essential. Beyond competence is capacity and capability. Modularised curricula, although challenging, can be designed to map to complex, non-modular professional frameworks, further complicated by external

**Take Home Messages:** Competence is first post. Beyond competence is capability.

#3EE10 (134225)

**Student initiatives in France: a pathway to enhancing the curriculum's quality whilst developing students' medical expert skills**

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*Alexandre Mader*

*Quentin Del-Valle*

*Jerome Etienne*

**Background:** CanMEDS' competency-based framework suggests six skills for a medical expert: communication, collaboration, leadership, professionalism, promoting health, and academic skills. Medical studies in France are sanctioned by a national ranked exam that determines students' residency and their future career. This exam focuses almost solely on academic skills. Lyon Est Faculty of Medicine thought of ways to develop the other skills, including stimulating student-initiated projects.

**Summary of Work:** In 2013, the Faculty created a structure that enables students to explore and develop projects. A few students supervise this structure to ensure initiatives are relevant, effective, and durable. All students can suggest ideas and participate in their development. If necessary, the Faculty provides financial help or teachers' support. Once the project is launched, its effectiveness and usefulness are evaluated. It is then passed on to new students who continue to improve it each year. To this day several projects have seen the light of day: tutoring systems, learning resources, conferences on learning methods, etc.

**Summary of Results:** Students master many new skills by developing and participating in this positive dynamic. Most projects require an important workforce, teaching students to communicate, collaborate and lead a team. Working with Faculty members also develops students' professionalism.

**Discussion:** Though student-initiated projects cannot develop all the skills suggested by CanMEDS' framework, they contribute to diversifying the skillset of an otherwise strongly academic-focused curriculum. Students are encouraged to participate, but projects are not mandatory, thereby, creating disparities in students' training.

**Conclusion:** Encouraging students to implement their own projects enhances the curriculum's quality, and develops students' skills. Thus, student initiatives should have their place in the curriculum.

**Take Home Messages:** Making room for student initiated projects enhances the curriculum's quality, and develops the competencies students need to become medical experts. Teachers, make room for student initiatives! Students, drop your books, make your dream projects come true!

#3EE11 (134409)

**Diversity in Health Professionals Education: Creating a Training and Education roadmap for Paramedics in Singapore**

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*Timothy Rajah, SAF, Singapore*

*Sian Shao Lee, SAF, Singapore*

*Hong Yee Lo, SAF, Singapore*

**Background:** In the 1980s, ambulance services in Singapore were operated by nurses who were deployed by the Singapore Fire Brigade Service. The Singapore Armed Forces Medical Training Institute (SMTI) started providing paramedical training for both combat medics and civilian paramedics in 1996. Although a formal training structure was established, paramedical training remained at the vocational level, offering only basic to intermediate-level life-saving skills. Until now, paramedics only possess a vocational certificate and there were no local higher education programmes for aspiring paramedics who wish to seek professional growth.

**Summary of Work:** Recognizing the need to bridge this gap, inter-agency collaboration between educational institutions and industry partners such as the Singapore Armed Forces (SAF) and Singapore Civil Defence Forces (SCDF) began. This paved the way for consultative work in the area of paramedic professionalism and training. A workgroup was formed to establish national standards and training requirements for all paramedics. Various educational institutions also worked closely with the workgroup to establish industry-recognized and relevant Higher Learning Programmes (HLP) for paramedics who wish to upgrade themselves.

**Summary of Results:** The cross-ministerial/agency collaboration involving 4 ministries and 9 agencies culminated in the National Paramedic Training and Education roadmap. Paramedicine in Singapore will be transformed from a vocational trade to an academic discipline, complete with its own faculty and progression pathways, encouraging all paramedics to seek lifelong learning and professional upgrade.

**Discussion:** There should be multiple pathways for paramedics to succeed regardless of educational background.

**Conclusion:** The training and educational development of paramedics is crucial to the professional growth of paramedicine in Singapore. This will raise the standards for pre-hospital emergency care and translate into better patient outcome.

**Take Home Messages:** Paramedics, being the first responders to emergency calls, should be adequately trained and credentialed.

#3EE12 (132015)

**The Effects of New Community Health Course on the Second Year Medical Students**

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**Background:** Fundamental community health course in new 2013 medical curriculum was designed based on context-based and experiential learning concept. Course design and preparation engaged stakeholders in health care services and community. Students were divided into 4 teams in each batch (16th-18th). The effectiveness of this course needs to be explored.

**Summary of Work:** Students got essential concept and planed before going to live 8 days in community. Reflection, line and visits from teachers were set. Group presented and shared learning experiences. The questionnaire was constructed from themes in 2013 with .866 of Cronbach's alpha. Pre-posttest was applied and analyzed by pair-t test.

**Summary of Results:** There were statistically significantly improvement of five predominant themes of batch17th and 18th with p-value for Feeling both batches were < 0.001, Understanding were < 0.001 and 0.002 respectively, Awareness both batches were < 0.001, Skills both batches were < 0.001, and Inspiration were < 0.001 and 0.004 respectively.

**Discussion:** Decrease traditional lecture and increase experience resulting in comprehension and appreciation of the context which they live, study and they will work in the future. However, this course may not ensure sustainability of those results.

**Conclusion:** Fundamental community health course is effective course for increase of the positive feeling, understanding of themselves, diseases and illnesses, roles of rural doctors, context, and community health, awareness of health determinants and community health, life skills and communication skills, and inspiration of learning and being a doctor.

**Take Home Messages:** Provide student through experiential learning in real context is important for professional training.

#3EE13 (134283)

**A Study on Direction for the Development of Global Health Education**

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**Background:** As a result of globalization of diseases and the delivery of health care, physicians today are required to understand global health(GH) such as the global burden of disease, the health inequities, effective medical aid, and so on. Also, interest in GH among medical students has significantly increased. Despite significant interest among medical students, Global Health Education(GHE) programs are poorly established in medical schools of Korea.

**Summary of Work:** For developing GHE programs, proposed GHE curriculum frameworks were reviewed and core values, guiding principles and GH competencies were identified in the context of current literatures.

**Summary of Results:** To meet medical students' needs and to reflect an increasing focus on social accountability in medical education, GHE should be provided in Korean medical schools, and the core values of GHE can be summarized as follows ; health equity, social justice, solidarity, responsibility, accountability, respect, openness, humility and sustainability.

**Discussion:** Korea's Official Developmental Aid(ODA) volume almost tripled from 2006 to 2011. Korea has committed to double its ODA/Gross National Income(GNI) ratio over the next three years. With these increases, interest in GH among medical students has significantly increased, and medical schools should prepare a new curriculum on GH.

**Conclusion:** For building key themes essential to the development of GHE programs in Korea, these provided frameworks should be significantly focused on in a global context and should be taught from the perspective of the social, political and economic causes of ill health.

**Take Home Messages:** Medical educators should include the perspective of the social, political and economic causes of illness and the core values of GH as a starting point for developing GHE curriculum in Korean medical schools.

#3EE14 (134625)

**How to implement a curriculum reform? Academic Year Coordinators as a task force**

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*Hanna Jarva*

*Eeva Pyörälä*

**Background:** Medical schools are going through an era of reforming curricula, due to changes in the society, challenges in healthcare, rapid increase in medical knowledge and technological advances. The medical curriculum at the University of Helsinki has been revised, and now we are facing the challenges of implementing the reformed plan.

**Summary of Work:** Two working groups evaluated the previous curriculum, under the leadership of the vice dean of education. A project manager was recruited to enhance the development process, and six Academic Year Coordinators (AYC) were recruited to promote, monitor and further develop the reform process in each of the six academic years.

**Summary of Results:** The learning outcomes of the new curriculum have been defined and core curriculum has been scrutinised. The role of the AYC's is to ensure that the change process advances, the courses are described, delivered, evaluated and necessary revisions are made. They also control the quality of the new elective courses.

**Discussion:** While implementing the new curriculum, the most challenging task is to foster and evaluate the reform process in different units and disciplines. Recruiting experienced and rewarded faculty members with pedagogical training as AYC's for each medical year has been an effective tool for putting the planned changes into practice.

**Conclusion:** The vice dean and project manager cannot alone lead the implementation of curriculum reform. It requires leadership at a level, which enables a dialogue with the educational community of practice of teachers and students. The AYC's have proved to be a valuable task force in promoting this type of change.

**Take Home Messages:** Recruiting experienced teachers with a solid pedagogical content knowledge as Academic Year Coordinators is an effective tool to implement and foster curriculum reform.

#3EE15 (135288)

**Do they teach what they need to? Impact of curriculum mapping on content of a lecture series in surgery**

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*Miriam Ruessler* (Department of Surgery, University Hospital Frankfurt, Frankfurt, Germany)

**Background:** Learning objectives are substantial for student's learning. The Surgical Working Group on Medical Education of the German Association of Surgeons defined a competency-based catalogue of learning objectives for surgical undergraduate training. However, students at our faculty report that important learning objectives are not taught sufficiently. At the same time, lecturers mention that they do not know the learning objectives of the other lectures in the surgical lecture series. Aim of the present study is to map the learning objectives of the lecture series in surgery for undergraduate students and to increase the number of correctly taught learning objectives.

**Summary of Work:** All lecturers in the lecturer series were observed. Their learning objectives and their taught level of competence were documented. After the lecture series, the results were visualised within the catalogue of learning objectives using a color code. Learning objectives that were taught in more than one lecture were tagged with the title of each lecture and the name of each lecturer teaching the specific learning objective. In the following lecture series learning objectives were documented correspondingly.

**Summary of Results:** In the first lecture series 53% of the learning objectives were not taught. After the mapping the number of not taught learning objectives decreased on 41% ( $p < 0.0001$ ). The average duration of the lecturers did not change. This could be measured in all surgical disciplines and all levels of competency.

**Discussion:** Following work should focus on mapping the whole surgical curriculum including bedside teaching.

**Conclusion:** The presented way of mapping a curriculum has been shown as effective to increase the number of taught learning objectives.

**Take Home Messages:** Curriculum mapping is useful to increase the number of taught learning objectives.

#3EE16 (134748)

**Perceived value of the intercalated BSc in Medical Education**

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**Background:** There is a clear requirement at postgraduate level across specialties for formal teaching experience and educational qualifications. With one-third of medical students opting for intercalation, can we determine whether these educational interventions can provide diverse and ingrained benefits to doctors' skill sets at postgraduate level? The primary purpose of this research is to explore how graduates from the BSc in Medical Education perceive the value of their degree in their subsequent careers, specifically within academic pursuits at a postgraduate level such as teaching. These findings are compared to findings from graduates who have completed other BScs offered at the school.

**Summary of Work:** Graduates from Barts and the London SMD who have an intercalated BSc from 2007 and later were selected to participate in this study. Data was collected via a questionnaire and a series of semi-structured interviews to further ascertain their perceptions.

**Summary of Results:** Analysis suggests the perceived benefits and failings of an academic educational intervention in terms of teaching, publishing, undertaking research and confidence in reflecting for portfolio purposes. Differences between the educational intercalated degree and 'wet bench' scientific equivalents are highlighted. A summary of the results from the data analysis will be presented at the conference.

**Discussion:** Through deliberating the perceived value of a BSc in Medical Education and other BScs, the differences can be determined and considered for changes to both the intercalated as well as the medical curriculum.

**Conclusion:** This data contributes directly to determining what aspects of intercalated degrees are found to be valuable in the medical profession at a postgraduate level.

**Take Home Messages:** Medical Education degrees offer great value to participants in their future careers in a variety of ways. These benefits should be enshrined within the medical curriculum to ensure all trainees benefit from the increased confidence and skills sets described by participants.



#3EE17 (134829)

### Medical education in Sweden, time for a change

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**Summary of Work:** The results of the investigation were published in 2013 and submitted for comments to the government. The election 2014 resulted in a new government, the submission was put on hold. Later in 2015 the investigation was submitted again and new discussions followed. Different parties had the opportunity to be involved in this process, including the Swedish medical association.

**Summary of Results:** The investigation suggested remodeling the medical education to six years, with licensing upon examination. To become familiar with the health care system the physician will enter an introduction year that can be included in the medical specialization.

**Discussion:** In many other European countries, the students receive their license upon completing 6 years of medical school. These physicians have difficulties working in Sweden since they need an introduction. The suggested change would reduce flow times of becoming a specialist as well as conform to the system of many other European countries, thus making it easier to work internationally.

**Conclusion:** A reformed education would greatly reduce flow times towards becoming a specialist, as well as ease the introduction of foreign physicians.

**Take Home Messages:** Sweden is in need of a new and improved medical education.

of 5 weeks. 93.55% found it easy or relatively easy to set up and 90.32% found it easy to use. 93.55% found that changes in the timetable were obvious. 61.29% preferred the app to emails when changes were made to teaching. 93.55% found google drive easy to access. Overall, 80.00% rated it as excellent. Tutor attendance was 90-100% in each surgical block.

**Discussion:** Introduction of the online timetable improved overall student satisfaction with 100% rating the hospital block as excellent or good, having been rated poor the year prior. Free text comments included 'easy to see changes', 'really good resource' and 'easily the best way of organising the block'.

**Conclusion:** Google Calendar is easy to use and is a great method of alerting students to timetable changes in real time. Teaching presentations are easily accessible and automatic reminders can be sent to tutors.

**Take Home Messages:** Google calendar is an excellent medium for online timetabling of hospital placements. In future, use of a healthcare based app might offer further advantages.

#3EE18 (135474)

### Real-time online timetabling improves student satisfaction and tutor attendance on hospital placements

*Erin McIlveen\*, RAH, Paisley, UK  
Erin McIlveen (RAH, Paisley, UK)  
Mark Vella (RAH, Paisley, UK)*

**Background:** Most students on hospital placements receive paper timetables and endless e-mails about teaching changes. The aim of this evaluation was to determine whether the use of the google calendar online timetable was a suitable and sustainable alternative.

**Summary of Work:** 31 medical students used the google calendar timetable over 20 weeks. Students were supplied with login details for the google calendar app which was split by specialty. They were advised how to install and use it on their smartphones at the beginning of the block. Teaching presentations were uploaded to the google drive. Tutors received automatic reminder emails from the calendar at 1 week and 1 day prior to teaching. At the end of the block, the students filled in an evaluation form.

**Summary of Results:** 18 surgical and 13 medicine students used the google calendar app over 4 blocks

### 3FF Posters: Curriculum Evaluation 1

Location:

#3FF01 (136057)

**Progress in Medical Education in Saudi Arabia in the Last Decade (2005-2015)**

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Mohammad Farouq (Faculty of Medicine, Rabigh, KAU, Jeddah, KSA)

**Background:** The present study was conducted to investigate the progress in Medical Education in Saudi Arabia in the last decade (2005-2015).

**Summary of Work:** The websites of Ministry of Higher Education (MOHE), Pubmed, and Web of Knowledge were searched for collecting data and related articles.

**Summary of Results:** In the Kingdom of Saudi Arabia (KSA), medical education commenced in 1967 when the first medical school was established at King Saud University, Riyadh. Till 2005 there were total 14 medical colleges; 13 in the public sector and only one in the private sector and now there are 31 medical colleges 25 in the government sector and 6 in the private sector. Three health professions education programs have been started in three different universities of the KSA. Almost all medical colleges have well established medical education departments/units. In the last decade, there is a considerable increase in the total number of research papers published in ISI-indexed journals. A national accreditation agency for higher education has been established by the name of the National Commission for Academic Assessment and Accreditation (NCAAA). The NCAAA is playing a pivotal role in improving the quality of education in the Kingdom in general and medical education in particular.

**Discussion:** Several medical colleges in the Kingdom have collaboration with foreign medical educationists and experts for their faculty development and curriculum reforms. The government of KSA has made a huge investment in science and technology infrastructure generally and in education sector particularly. In 2015, a significant proportion of KSA budget was allocated to education (SR 217 billion, 25% of the annual budget) and health (SR 160 billion, 19% of the annual budget).

**Conclusion:** Saudi Arabia has made a lot of progress in medical education in the last decade. The government's tremendous efforts and great interest are bringing positive results and KSA is turning into a regional hub for the advanced education, research, science, and technology but still there is room for improvement.

**Take Home Messages:** The present trends of progress are very welcoming, but it must be linked with quality assurance procedures so that medical education in the KSA would meet the international standards.

#3FF02 (135232)

**Faculty and Students perception of Pre-Professional program in King Saud Abdul-Aziz University for Health Sciences using World Federation For Medical Education areas**

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Aamir Omair  
Abdolmohsen alkushi  
Reem Alsubait

**Background:** The increasing globalisation of health sciences, as manifested in the rise of migration rate of health care providers and educators across the borders, has inflicted a wave of quality assurance strengths in medical education. This has underlined the need for definition of standards and introduction of successful and transparent accreditation systems. These standards are the basis of quality improvement in medical education and all the six WHO/WFME regions use those standards as a template for regional accreditation system. A strategic partnership was formed in 2004 between the World Health Organization (WHO) and World Federation for Medical Education (WFME). This partnership reflects the importance of combined medical education and the healthcare delivery sector to improve medical education quality. King Saud bin Abdul-Aziz University for Health Sciences (KSAU-HS) was established in April 2005 in Riyadh, Saudi Arabia, in order to prepare high school graduates for health career in an academic setting that enhance excellence in teaching, research and patient care. The College of Science and Health Profession (COSHP) within this university was developed to equip high school graduates in two preparatory academic years with the educational tools important for future health studies in the professional programs of the university.

**Summary of Work:** The purpose of the study is to identify within the KSAU-HS's pre-professional program the aspects and quality from both faculty and students perception using Basic Medical Education WFME Global standards for Quality Improvement. The research design, which used in this study, was a cross-sectional survey for the faculty and students.

**Summary of Results:** • A total of 423 students responded to the questionnaire and 67 faculty members. This study indicated that faculty rates the effectiveness of WFME subareas being high in three main areas: Mission and outcome (51%) Educational Setting (81%), Students Assessment (66%). • The lowest effectiveness sub-areas rated by faculty were for two main areas related to Educational Resources (18%), Governance & Administration (22%). • There were two main areas in which both the faculty and students had a low rating: Program evaluation (29%) and Students area especially related to the Students counseling unit (26%). • Male students perception was higher than female students on: curriculum includes elements in scientific thinking and research methods (40%,31%), biomedical sciences development (38%,28%), learning environment (62%,33%), program

evaluation (35%,18%), students involvement in planning of the program evaluation (23%,8%). Batch 12 perception was higher than batch 11 on: curriculum and instructional methods (51%,41%), students support and counseling unit (33%,20%), students activities encouragement (41%,28%), teachers encourage students to engage in medical research (38%,23%).

**Discussion:** The WFME standards were found useful for both institutional self-review and independent accreditation processes. Also, WFME standards are a useful template for evaluation such a program considering all medical education activities within the College of Science and Health Profession. The feedback from stakeholders' evaluation should be used to develop and modify educational programs. As a result of this study faculty and students, indicated the need of improvement in areas of program evaluation and students.

**Conclusion:** This study indicates that the program needs further development and more focus in a wide range of quality assurance besides basic educational standards, such as Program evaluation, Students, Educational resources, Governance & Administration.

**Take Home Messages:** Always we will find way to improvement

#3FF03 (131924)

**Relationship between the subscales of an assessment survey and the global perception grade of an innovative teaching methodology in Physiotherapy**

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Paulina Ortega B.

Javiera Ortega B.

Paula Parra P.

Katherine Miranda C.

**Background:** There are many variables that influence the student's perception of new teaching methodologies, and it is essential to focus on the needs and feedback from them. The aim of this study was to evaluate the relationship between global perceptions and subscales of an assessment survey of an innovative teaching methodology in Physiotherapy.

**Summary of Work:** A quantitative, not experimental, transversal study with a descriptive scope. The participants were 48 students from the Biomechanics II unit. A satisfaction questionnaire of the activity with 34 items on a Likert scale of 1-5, and a global perception grade on a scale of 1 to 7 was designed. The items were grouped into six dimensions. Analysis was performed using bivariate statistical correlation Pearson product moment in SPSS 21.0

**Summary of Results:** The results indicate that there is significant correlation between the final grade of the activity and all subscales: expectations ( $r(46) = 0.352$ ;  $p < 0.05$ ), teamwork ( $r(46) = 0.388$ ;  $p < 0.05$ ), desire to learn ( $r(46) = 0.388$ ;  $p < 0.05$ ), general assessment of the activity ( $r(46) = 0.462$ ;  $p < 0.05$ ), feedback ( $r(46) =$

$0.614$ ;  $p < 0.05$ ) and self-knowledge ( $r(46) = 0.448$ ;  $p < 0.05$ ).

**Discussion:** The analysis of the 6 subscales present in the survey allows us to identify and correlate the student's general perception of the activity with specific variables that influence the process of this innovative teaching method. In this case the students were coherent when they assessed each item and gave their activity's general perception grade.

**Conclusion:** The results obtained support the hypothesis that students with higher expectations and desire to learn, with a proper self-knowledge and teamwork, and greater feedback appreciation have better overall perception of the activity

**Take Home Messages:** It is essential to consider the different variables that influence the student's general perception of innovative teaching methods to implement them in the Physiotherapist's training process.

#3FF04 (134995)

**The Relationship Between Attendance Rate and Test Scores – Under Existence of Collaborative Writing**

**Pin-Hsiang Huang\*, Faculty of Medicine, National Yang-Ming University School of Medicine, Taipei, Taiwan**

Jiing-Fong Ling

Cheng-Yun Pu

**Background:** Dealing with tremendous curriculum is difficult in medical school. Thus, collaborative writing existed in many medical schools in Taiwan as a supplementary study tool toward tests. Many students in National Yang-Ming University (NYMU) claims study with collaborative writing and previous exam questions is enough for taking exams, which were predominantly used as quantification tools of student performance.

**Summary of Work:** To discover the relationship between attendance rate and test scores under existence of collaborative writing, five courses including emergent medicine, obstetrics and gynecology, ophthalmology, pediatrics and anesthesiology of medical students of 5th grade in NYMU were enrolled for this prospective cohort study. Grades were gathered by school faculty and the name was coded by an assistant. Analyst would receive coded attendance and grades separately. All scores were raw exam score, compared to the final score which was adjusted by attendance rate and average performance.

**Summary of Results:** All subjects showed positive correlation between score and attendance, though the coefficient of determination is low. Student attendance showed positive correlation with the expectation of calling roll, thus the ophthalmology showed the highest average attendance rate. The coefficient of determination had negative correlation with average attendance rate, and it showed high coefficient of determination when anesthesiology was excluded.

**Discussion:** All classes showed positive correlation between class attendance and the exam score, though the coefficient of determination was not significant. The low coefficient of determination might be translated either due to small sample or truly low lecture efficacy or both. Student attendance was strongly affected by roll call policy.

**Conclusion:** All subjects showed positive correlation between score and attendance. Student attendance showed positive correlation with the expectation of calling roll.

**Take Home Messages:** 1. Although the students have collaborative writing, positive correlation between score and attendance is noted in our study. 2. Student attendance showed positive correlation with the expectation of calling roll. 3. The attendance might be affected by self-motivation or roll call policy, which were not included in our study and should be further evaluated.

#3FF05 (135543)

**Online Surveys: Are they a redundant feedback tool?**

**Emma Norris\*, Barts and The London SMD, Queen Mary University, London, UK**

Anne Hills (Barts and The London SMD, London, UK)

Kristin Braun (Blizzard Institute Barts and The London SMD, London, UK)

**Background:** Human Development (HD) is the pre-clinical modules covering primarily Child Health and Obstetrics and Gynaecology. In previous years there has been a discrepancy with overall satisfaction between years one (HD1) and two (HD2). In the 2014-2015 online survey, 90% of students were satisfied with HD1, however, only 59% were for HD2.

**Summary of Work:** The research was to find out the student views of the module, to discuss ways to enhance the student satisfaction and whether the survey reflects the true student opinion. The study used focus groups and interviews, and an analysis of the data from the online survey.

**Summary of Results:** Data shows student views of the Human Development curriculum, teaching quality, and evaluation methods.

**Discussion:** The student's views have permitted a deeper exploration of the feedback from the surveys. There has been insight into methods for increasing student response rates to surveys. It has also lead to discussion of emerging teaching methods (such as e-learning and flipped-teaching) to improve engagement with the module material.

**Conclusion:** Survey feedback often reflects the most extreme views of the students. This research gives a better understanding of some of these views and has suggested ways to improve the feedback gathering processes. There are possible solutions to increase student satisfaction with the module by integrating more engaging teaching methods.

**Take Home Messages:** It is difficult to measure student satisfaction. Often the views reflected in survey data comes from the extremes both positive

and negative. To generate more reflective views of the cohort does there need to be a change in the feedback culture?

#3FF06 (134445)

**Improvement in the clinical teaching quality according to students' perceptions: a 10-year follow-up study**

**Marcela Bitran\*, Escuela de Medicina, Pontificia Universidad Catolica de Chile, Santiago, Chile**

Manuel Torres (Pontificia Universidad Catolica de Chile, Santiago, Chile)

Arnoldo Riquelme (Pontificia Universidad Catolica de Chile, Santiago, Chile)

Oslando Padilla (Pontificia Universidad Catolica de Chile, Santiago, Chile)

Carlos Reyes (Pontificia Universidad Catolica de Chile, Santiago, Chile)

**Background:** Since 2004, medical students at the Pontificia Universidad Catolica de Chile regularly evaluate the quality of clinical teachers using MEDUC30, a theory-based questionnaire developed at our school. The aim of this study was two-fold: to reevaluate the psychometric properties of MEDUC30 ten years after its development and to study the changes of the clinical teaching quality -as perceived by students- during the 2004-2014 period.

**Summary of Work:** We used a database of 22,166 questionnaires collected from 2004 throughout 2014 completed by medical students from 3rd to 7th year. The questionnaire's inner structure was studied by exploratory and confirmatory factor analysis. Time-related changes in the general score of MEDUC30 and its emerging factors were studied with ANOVA.

**Summary of Results:** The overall reliability of MEDUC30 was excellent (Cronbach alpha = .98) and that of the six resulting factors was very good (Cronbach alpha =.88-.96). The questionnaire's structure was best explained by a bi-factor model composed of one general factor and six specific factors named: Patient-based teaching, Communication of objectives, Evaluation and feedback, Promotion of comprehension and self-directed learning, Control of the session and Learning climate. During the 10-year follow-up, the quality of clinical teaching improved significantly in all six dimensions, particularly in Evaluation and Feedback.

**Discussion:** MEDUC30 presents today a reliability as good as or better than ten years ago. Its inner structure is seemingly more complex now than in the original validation study and seems highly consistent with the Stanford University's educational model used in this questionnaire's development.

**Conclusion:** The improvement in the clinical teaching quality perceived by students reported in this follow-up study might be attributed to two main factors: the massive qualification of clinical teachers in the Medical Education Diploma incepted at our school in 2002, and the effects of the individual feedback given yearly by



the Center for Medical Education to clinical teachers based on their results obtained with MEDUC30.

**Take Home Messages:** Long-term studies of the quality of clinical teaching are necessary for a critical appraisal of teaching and may prove useful to direct faculty development efforts. They are also an invaluable source of feedback for individual clinical teachers.

#3FF07 (135983)

**Evaluation of the curriculum: From theory to practice**

**Arij Chatbri\***, *Associa-Med, Sousse, Tunisia*

*Mohsna Bhiri (Associa-Med, Tunis, Tunisia)*

**Background:** We identified the initial problem of lack of information and knowledge about medical education among the students. Moreover, the general absence of motivation to evaluate their status has made the students unaware of their rights and responsibilities. Finally, Tunisian medical students have never been recognized by their superiors as meaningful partners to work on these improvements.

**Summary of Work:** The activity includes a series of trainings leading to the creation of a core of active members in medical education, who will work on their curriculum evaluation through questionnaires prepared according to the WFME standards, and integrated in the schools' websites. It includes also a campaign to advocate for the integration of medical students in the decision making process.

**Summary of Results:** The number of the members involved in the process is increasing: 22 TMET Trainers, 40 participants in other sessions; who integrated the school committees for quality assurance and evaluation as they have some knowledge in the field.

**Discussion:** Analyzing the impact of the trainings on the students; the choice of the sessions' themes evolved from random to targeted. The involvement of the students in the quality assurance process in the faculties was an offer. We are currently working on a Memorandum of Understanding between the school and our association, to define the roles of the students and ensure that they are fully committed to the cause.

**Conclusion:** The evaluation is the first step towards any change. Starting with clear goals, conducting a baseline assessment and then setting a strategy isn't that hard to achieve if the students have a background in medical education and a motivation to make a change.

**Take Home Messages:** These questionnaires are a huge step towards the development of the faculties' curricula, offering the students an opportunity to raise their voices, and the teachers a chance to get feedback in order to improve their methods.

#3FF08 (135103)

**Difficulties and unsatisfied demands of in-operating room teaching: students' perceptions from Tri-Service General Hospital, National Defense Medical Center**

**Hsu-Kai Huang\***, *Tri-Service General Hospital, Taipei, Taiwan*

*Wei-Ting Liu (Tri-Service General Hospital, Taipei, Taiwan)*

*Po-Chien Hsieh (Tri-Service General Hospital, Taipei, Taiwan)*

*Hao-Ming Chang (Tri-Service General Hospital National Defense Medical Center, Taipei, Taiwan)*

*Shyi-Gen Chen (Tri-Service General Hospital National Defense Medical Center, Taipei, Taiwan)*

**Background:** With working hour limit and patient safety issues nowadays, the students expect more opportunities for hands-on experiences and advanced knowledge in teaching activities in operating room.

**Summary of Work:** In Dec. 2015, questionnaires regarding experiences and teaching activities in operating room were collected from interns of Tri-Service General Hospital, National Defense Medical Center.

**Summary of Results:** The most difficult teaching divisions were neurosurgery, gynecology and orthopedics. The most unsatisfied demands components in operating room teaching were surgical field anatomy (30.9%-83.3%), surgery related knowledge (30.8%-86.1%) and image interpreting (23.1%-62.9%).

**Discussion:** The possible causes of difficulty in teaching are workload, teacher motivation and system culture. Students are willing to participate teaching activities in operating room instead of bystanders.

**Conclusion:** Under patient safety and non-emergent condition, quality of teaching activities should be monitored and continuous improving.

**Take Home Messages:** Methods for improving in-operating room teaching: -Identify difficult teachers with questionnaires or peer review. -Meetings with teaching program moderator should include students as committee members. -Alternative teaching method like representative video clips or YouTube QR code for ubiquitous learning. -Enhance concepts of "Residents as teachers" and associative accreditation with rewards. -Concepts like "Timeout" or "10 minutes teaching" between operations.

#3FF09 (135055)

**Breast-feeding seed teacher's learning needs of re-education and the effectiveness of training programs**

*Ying-Hui Lin\*, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung City, Taiwan*

**Background:** In Taiwan, the National Health Department to promote breast-feeding seed teacher on job training program to improve their Breastfeeding empirical knowledge and adult learning and teaching concept to provide various baby-friendly hospital health care professionals training. The research is intended to use ADDIE model to design re-education training program and assess its effectiveness.

**Summary of Work:** The research use electronic survey to investigate the learning needs of breast-feeding seed teacher's re-education training. According these results, researcher designed、developed 16 hours curriculum, announced publicly and invited breast-feeding seed teacher participate. In order to understand the effectiveness of the training, the research used Kirkpatrick's four-level training evaluation model to analyzing the training effectiveness, included "reaction level" - what participants thought and felt about the training and "learning level" - the resulting increase in knowledge.

**Summary of Results:** 57 valid questionnaires were collected, according to the results, the demand for breastfeeding seed teacher re-education content included how to promote evidence-based nursing/medicine to improve the outcome about breastfeeding, how to apply adult teaching and learning knowledge and skill in clinical education, need improve lactation counseling skills, gender and culture issue about breastfeeding and breastfeeding assessment. Seed teacher preferred embodiments of the curriculum were participating in exercises, expert presentations and panel discussions. 46 teachers to participate in breastfeeding seed teacher re-education program. Results indicate that the average of training course satisfaction was 4.8 points (5 points); breastfeeding knowledge test scores overall average were 87.92 points, total average post-test score were 94.42 points ( $t = 6.08$ ,  $SD = 6.50$ ,  $P < .000$ ) have a significant differences. The result show the effectiveness of re-education training program.

**Discussion:** ADDIE model to design breastfeeding seed teacher re-education training program is an effective instructional design model, Learners' views would helpful for training program development, and teachers also can master their teaching effectiveness.

**Conclusion:** How to promote evidence-based nursing/medicine to improve the outcome about breastfeeding, how to apply adult teaching and learning knowledge and skill in clinical education, need improve lactation counseling skills, gender and culture issue about breastfeeding and breastfeeding assessment were the main learning needs of breadtfeeding seed teacher re-education training program; ADDIE instructional design model to plan the re-education of breastfeeding lecturer of seed,

learners can view the development of training programs, and to effectively master teacher teaching effect.

**Take Home Messages:** How to promote evidence-based nursing/medicine to improve the outcome about breastfeeding, how to apply adult teaching and learning knowledge and skill in clinical education, need improve lactation counseling skills, gender and culture issue about breastfeeding and breastfeeding assessment were the main learning needs of breadtfeeding seed teacher re-education training program. ADDIE instructional design model is an effective approach for the breastfeeding re-education program.

#3FF10 (134973)

**Development program for Supportive Staffs in Medical Education Centers, MOPH Thailand**

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Vanich Vanapruks, (CPIRD, Bangkok, Thailand)*

**Background:** : 37 Medical Education Centers (MEC) in Regional Center hospitals of Minister of Public Health (MOPH) Thailand; affiliated with 14 Medical schools are responsible for clinical years of undergraduate medical students in The Collaborative Project to Increase Rural Doctor Production(CPIRD). Supportive Staffs in MECs play important roles to facilitate academic staffs and medical students in teaching, learning. But most of them rarely have medical education management background. Thus development program for supporting staffs is needed.

**Summary of Work:** Need analysis was done by reviewed literature, questionnaires responded by MEC executives and information gathered from workshop of supporting staffs. CPIRD provided training program for MEC supportive staffs, consisted topics of: mission of CPIRD and MECs, class arrangement, assessments and evaluation, quality assurance, education related research, googles for education, IT system for CPIRD, project management, financial regulation and contemplative learning. Various learning methods are used. 5-point Linker scale electronic questionnaires were distributed to learners and learners' MEC executives for course evaluation 2 months after course finished.

**Summary of Results:** 52 supporting staffs from 34 MECs attended the program. Perceptions of benefit of the training program are positive among the learners (4.26 /5) and the executives (4 /5). The most satisfied benefits are the connections among MEC, between MEC and CPIRD, sharing knowledge and resource, value of their roles in MEC. The less satisfied topic is financial regulation (3.68/5).

**Discussion:** Training program can help MEC supportive staffs to gain basic medical knowledges, increase perception of self and institutional value, self-confidence, forming network for sharing about effective MEC management. But the program still needed improvement.

**Conclusion:** Training program is beneficial for MEC's supportive staff both in learners' view and executives' view.

**Take Home Messages:** Development program for supportive staffs of MEC is important and need good planning.

#3FF11 (136030)

**The positive attitude of communication skill is relate to learning outcome in medical student**

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*Muenprae Jantanakul (Phuket,Thailand)*

*Paphon Hirunyachoke (Phuket,Thailand)*

**Background:** Attitude is a part of thinking process affected to the performance and the achievement .For example the twin brought up by same parent and same environment might have different reaction to the same stimuli leading to the different outcome.All mankind is divided into two class,positive and negative thinker.We would like to study of the association between the excellent learning and the positive attitude

**Summary of Work:** Our data reported here are based on a survey collected from the sixth year medical student of Vachira Phuket Hospital.We used a twenty-six items questionnaire, adapted from the CSAS and a fourteen items questionnaire, self-assessment of their attitude of learning communication skill.The learning outcome of our student was categorized into three groups ; good moderate and poor learning outcome student. Chi-square was used for statistical analysis.

**Summary of Results:** Among 24 medical students: 33% had good learning outcomes, 33% had moderate learning outcomes and 33% had poor learning outcomes. Those with good and moderate learning outcomes had higher attitude of that the communication skill is necessary to the medical study than those with poor learning outcomes.( $P=0.02$ ) Those with good learning outcomes had higher attitude of the doctor-patient communication than those with poor learning outcomes.( $P=0.04$ )

**Discussion:** This study depicted the relationship between the attitude about the communication skill and learning outcomes. Since good learning outcomes correlated with the attitude about the necessary of communication skill, we might imply that the positive attitude of the communication skill is one of the important part of medical study.

**Conclusion:** 6th year medical student with good learning outcomes had higher attitude about the necessary of communication skill than other groups

**Take Home Messages:** Attitude is the foundation of success.Good attitude of communication skill associated with the good performance and learning outcome,According to that, the medical courses need to be emphasized about encouragement the positive attitude.

#3FF12 (134702)

**Satisfaction, remembering and understanding of medical students with the 7 Community Tools Learning Module**

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*Krishna Suvarnabhumi (Prince of Songkla University, Songkhla, Thailand)*

**Background:** The 7 Community Tools have been widely used as community assessment tools by Thai health care workers for a decade. In order to prepare students for future practice, Prince of Songkla University has provided the 7 Community Tools Learning Module for all students through lecture and field practice. This study aimed to explore the overall satisfaction, remembering and understanding of the tools by students and to explore the correlations of overall satisfaction, time after learning and grade point average (GPA) on remembering and understanding of the tools.

**Summary of Work:** A self-administered questionnaire was completed by 3rd, 4th and 5th year students. Their answers were analyzed by SPSS Version 23. Focus groups were done for in-depth exploration of the answers.

**Summary of Results:** The response rate was 95.84% (553/577). Cronbach's alpha of the questionnaire was 0.98. Overall, the students were very satisfied with learning by lecture, learning by practice, and 7 community tools. The median "remembering" score was 12/16, median "understanding score" was 5/8. Spearman's rank correlation coefficient showed low a positive correlations between overall satisfaction and the "remembering" score. There was statistically significant between GPA and remembering score. The focus group discussions revealed that students were satisfied with the learning methods and field practice, and believed they helped them improve their understanding.

**Discussion:** Longer times after studying tended to decrease remembering but increase understanding. Overall satisfaction was a factor that improve remembering and can be promoted by field practice.

**Conclusion:** The students perceived that 7 Community Tools are useful for their future practice and they were satisfied with the Learning Modules.

**Take Home Messages:** Medical school has to provide learning modules to prepare students for future practice. Learning modules should be evaluated.

#3FF13 (133897)

**All I want for my rotation is...: Perspectives of pharmacy students on their learning experiences during clinical placements**

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*Hwee Sing Khoo (National Healthcare Group, Singapore)  
Yong Hao Lim (National Healthcare Group, Singapore)*

**Background:** Pharmacy students move through different clinical settings for short durations during their clinical attachments to ensure a broad-based learning experience. Few studies have examined how different rotational structures affect students' learning experience. We investigated students' perspectives of their learning experiences after arranging the same rotations in different ways.

**Summary of Work:** Twenty-two 3rd year pharmacy students completed mid and end posting online surveys during their 6-week clinical placements in outpatient (OP), and satellite and inpatient settings (IP) in a large acute hospital in Singapore. Group A (n=8) went through OP in the first 2 weeks; group B (n=7) went through OP in the middle 2 weeks, while Group C (n=7) went through OP in their last 2 weeks. The rest of the time was spent in IP settings.

**Summary of Results:** An examination of student feedback on what they found most useful during their placements reflected the following themes: 1) practical exposure to patients, 2) exposure to knowledge, 3) putting into practice knowledge learnt at school, 4) learning directly from preceptors. Overall satisfaction was lower in the mid placement survey (mean=3.23, scale of 1-4), and Group B students reported higher satisfaction (means=3.57 and 3.83) than groups A and C.

**Discussion:** Group B students reported higher satisfaction compared to Groups A and C, suggesting that interspersing intensive learning rotations with less intensive learning rotations may provide better overall learning experiences. Students may engage in 'catch-up' learning during the less intensive rotations. In their feedback, students highlighted that they wanted to apply the knowledge they learnt in school through more exposure to patients.

**Conclusion:** Students appreciated most the opportunities to be immersed in real-world practice when they are exposed to patient-care realities, and favoured well-paced rotations.

**Take Home Messages:** Important to relook and redefine 1) how rotations should be structured, and 2) how to sufficiently bridge the gap between classroom and reality for students, given that hospital settings usually face issues of manpower and location constraints.

#3FF14 (131757)

**High workshop course satisfaction means greater teaching achievement? Correlate to students' DOPS (Directly Observation Procedural Skills) evaluation? CVC (Central Venous Catheter Insertion) workshop reflection**

*Kuan-Chih Chung\*, Kaohsiung Chang Gung Memorial Hospital and Chang Gung University College of Medicine, Kaohsiung Hsien, Taiwan*

*Chih-Hung Chen  
Ching-Jung Hsieh  
Li-chueh Kuo  
Wei-Sin Li  
Meng-chih Lin*

**Background:** High workshop course satisfaction means greater teaching achievement? Correlate to student's Directly Observed Procedural Skills (DOPS) evaluation? CVC (Central Venous Catheter Insertion) workshop reflection

**Summary of Work:** 1.Monthly CVC (Central Venous Catheter Insertion) workshop since 2015, Oct, each echelon 12 students, course contains classroom lecture, video introduction, teacher's demonstrations and student's actual practice. 2.Evaluated 28 DOPS check list to simulate student's actual practice after course finished. 3.9 grades of satisfaction and total satisfaction, corresponds to CVC teaching operative procedures.

**Summary of Results:** 1.Aseptic concepts, setting practice, course satisfaction positive correlation to student's aseptic place CVC. 2.Positive correlation of CVC placement introduction to course satisfaction and student's CVC preparations, blood withdrawn assurance, patient proper position and identify anatomic puncture position correctly. 3.No correlation to course satisfaction and student's DOPS scores.

**Discussion:** 1.High satisfaction student's aseptic, CVC introduction to associated techniques, technique teaching match student's anticipation and efficiency. 2.Hand-washing technique satisfaction not correlated to DOPS, student careless technique makes mistakes during practice, score poorly. 3.Course satisfaction not related to student's score, indicated detail discussions truly reflect student's perception.

**Conclusion:** 1.Technique oriented teaching course and presentation methods indicated student learning efficiency differences. Reverse thinking might achieve high satisfaction but poor score, adjust proper course to improve leaning efficiency. 2.Total course satisfaction sometimes seems fformality, score each items high to true satisfactory degree to reflect future course adjustments.

**Take Home Messages:** Total course satisfactory did not match technique orientated teaching course, detail anal size satisfactory aspects and student's performance. Discover teaching deficiency sections and adjust presentation methods to improve higher teaching efficiency.



#3FF15 (130654)

**Competence, knowledge and clinical skills assessment in ophthalmology of undergraduate medical students in Thammasat University**

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Sutee Ananprasert*

**Background:** To assess competence, knowledge and clinical skills assessment in ophthalmology of undergraduate final year medical students in Thammasat University according to the recommendation of Medical Competency Assessment Criteria for National License 2012 from the Medical Council of Thailand and the International Council of Ophthalmology.

**Summary of Work:** Final year medical students from all campus of Thammasat University were invited to complete a questionnaire-based cross-sectional survey before graduation. Data on cohort demographics, undergraduate ophthalmology exposure, clinical skills, and primary diagnosis and management competencies were collected and analyzed.

**Summary of Results:** From 112 questionnaires, the cohort comprised 41 males and 71 females. Sufficient exposure to several subspecialty areas was reported, including glaucoma (60.7%), lens/cataract (55.3%) and refractive error (52.7%). Proficiency in performance of Medical Competency Assessment Criteria, the majority were competent at visual acuity testing (84.8%) pupil dilatation (83.0%) and confrontation visual field examination (76.8%). The majority could confidently diagnose and treat conjunctivitis (74.1%) pterygium (67%) and refractive error (65.2%). There were no statistically significant in all knowledge and skills between campuses.

**Discussion:** The Medical Council of Thailand need General physician to have sufficient experience in eye diseases. Sufficient exposure to several subspecialty areas was reported, including glaucoma, lens/cataract and refractive error. Proficiency in performance of Medical Competency Assessment Criteria, the majority were competent at visual acuity testing, pupil dilatation and confrontation visual field examination. The majority could confidently diagnose and treat conjunctivitis, pterygium and refractive error.

**Conclusion:** This survey showed gaps in the undergraduate ophthalmology exposure, clinical skills and primary management competencies.

Standardizing the undergraduate medical education ophthalmology curriculum may be useful in bridging this gap.

**Take Home Messages:** This survey showed gaps in the undergraduate ophthalmology exposure, clinical skills and primary management competencies. Standardizing the undergraduate medical education ophthalmology curriculum may be useful in bridging this gap.

#3FF16 (131762)

**Undergraduate students' perceptions of medical education in Poland**

*Aleksandra Likonska\*, Medical University of Lodz, Lodz, Poland*

*Michal Pers (Jagiellonian University, Krakow, Poland)*

*Mateusz Marynowski (Medical University of Lodz, Lodz, Poland)*

*Michal Cholubek (Medical University of Lublin, Lublin, Poland)*

*Adrian Skowronski (Medical University of Warsaw, Poland)*

*Ewa Pawlowicz (Medical University of Lodz, Lodz, Poland)*

**Background:** It is crucial to gather information how students evaluate their curricula. In Poland, where medical education is a new research domain, our study is a first attempt to analyse students' opinions about the quality of medical education.

**Summary of Work:** The AAMC Medical School Graduation Questionnaire (GQ) was translated and adjusted to Polish educational context. This survey comprises 64 close- and open-ended items concerning the quality of courses, self-assessment of clinical skills, sociocultural aspects of studying and choices of residency programmes, and workplaces. The survey was distributed via social media and 796 responses were received from undergraduate students of all Polish medical schools.

**Summary of Results:** 62.2% students claimed that they are satisfied or very satisfied with the quality of medical education. There are significant positive correlations between students' satisfaction and the amount of practical procedures they performed during particular courses. 7.5% of respondents participated in interprofessional courses and they rated them as beneficial or very beneficial. 75% of students do not plan to work in rural areas with impeded access to high quality healthcare. Moreover, only 6% of participant consider family medicine as future speciality. 22.6% of respondents indicated that their school helped them with residency programme choices.

**Discussion:** The GQ is a well validated tool previously used for curriculum evaluation not only in the USA but also in Taiwan, Japan and Iran with results indicating context-specific needs for improvement. Our data will form a foundation for discussions with medical schools' boards and Ministry of Health in Poland.

**Conclusion:** While generally satisfied with their training, Polish students indicate numerous areas for improvement of curricula. Increasing the community orientation of local programmes would be needed to prepare and encourage graduates to apply for residency programmes in rural and underprivileged areas.

**Take Home Messages:** Evaluation of students' opinions on their education is a crucial activity informing effective curricular decisions.

#3FF17 (132861)

**Does current provision of undergraduate education prepare UK medical students in ENT? A systematic literature review**

*Gary Ferguson\*, Cumberland Infirmary Carlisle, Carlisle, UK*

*Irina Bacila*

*Meenakshi Swamy*

**Background:** ENT is the third largest surgical specialty with related problems frequently encountered in other disciplines. Despite this, ENT forms only a small part of the UK undergraduate medical programme. This systematic literature review provides a starting point to better understand the provision of undergraduate education for preparedness in ENT.

**Summary of Work:** A systematic literature review was conducted by searching five databases: MEDLINE, EMBASE, Cochrane Library, Web of Science and ERIC. Search terms used involved the combination and variation of five key concepts, namely: medical student, clinician, ENT, undergraduate medical education and UK. Textual narrative synthesis was used for data analysis.

**Summary of Results:** Four themes were identified from the seven studies included in the review: confidence in managing patients, teaching delivery, assessment and duration of rotations. A consistent finding was that final year medical students and junior doctors did not feel adequately prepared to practise ENT. Important factors influencing preparedness in ENT included the duration of clinical rotations, the opportunity for hands-on learning and formal assessment.

**Discussion:** The lack of preparedness for ENT among junior doctors is not specific to the UK, with similar findings reported internationally. To help overcome the time constraints placed on the undergraduate curriculum medical schools are increasingly adopting an integrated approach towards education. This includes the use of simulation training and e-learning, alongside clinical rotations. Employing such an approach towards ENT would be time effective and also provide the opportunity for hands-on learning and assessment.

**Conclusion:** The findings of this review suggest the need for further development of the ENT undergraduate curricula across the UK.

**Take Home Messages:** There is insufficient evidence from which to draw strong conclusions regarding the provision of undergraduate education in ENT; this in itself is beneficial as it highlights a gap in the existing literature and supports the need for primary research.

#3FF18 (129040)

**Assessing the evidence-based medicine training needs of community pharmacy preceptors as part of an experiential training program**

*Bridget Javed\*, Qatar University College of Pharmacy, Doha, Qatar*

*Noha El Sakrany (Qatar University College of Pharmacy, Doha, Qatar)*

*Shahd Shaar (Qatar University College of Pharmacy, Doha, Qatar)*

**Background:** As part of community pharmacy experiential experience at Qatar University College of Pharmacy, students are required to complete drug information assignments and journal club presentations. Observational findings have shown community preceptors are not familiar in critically evaluating studies or conducting literature searches to answer drug inquiries. Majority of preceptors graduated from pharmacy programs where these skills had limited focus.

**Summary of Work:** A questionnaire was developed and validated to assess attitudes, barriers, and knowledge of community pharmacy preceptors related to evidence based medicine (EBM). Knowledge-based questions were mapped according to National Association of Pharmacy Regulatory Authorities professional competencies for pharmacists with focus on drug information and critical appraisal skills.

**Summary of Results:** Knowledge questions linked to drug information resulted in 18%, 36%, and 46% of correct, incorrect, and unsure responses respectively, while critical appraisal questions showed 18%, 27%, 55% of correct, incorrect, and unsure responses respectively. Barriers included lack of EBM training (81%), interpreting study results (80%), limited physician interaction (72%), and applying results to practice (65%). Google (58%) and consulting peers (35%) were utilized to answer drug questions.

**Discussion:** Equipping preceptors with knowledge and skills in EBM will enhance the learning experience for students during their experiential training.

**Conclusion:** Preceptors showed poor knowledge in drug information and critical appraisal skills. These results and expressed needs by preceptors for further training support development of a supplementary course to improve EBM competencies.

**Take Home Messages:** Assessing educational needs of learners is essential when developing a course to address knowledge gaps.

### 3GG Posters: Early Postgraduate Training/Training for Family Medicine

Location:

#3GG01 (133542)

Enhancing Surgical Handover in a District General Hospital

*Laura Mulligan\*, Hairmyres Hospital, Glasgow, UK*  
*Alexis Riddell (Hairmyres Hospital, Glasgow, UK)*

**Background:** "Patient handover between shifts and teams is a necessary and vital part of practice in order to reduce the risk of medical errors. It is important to optimise communication of critical information as an essential component of risk management and patient safety"

**Summary of Work:** Aim: To introduce a robust written handover between surgical foundation year 1 (FY1) doctors in a district general hospital to enhance patient safety. Method: A written handover proforma was introduced to surgical wards for handover between day and evening teams. Handover forms were collected for the initial 8 weeks after the introduction and analysed. A questionnaire was then distributed to all FY1s at the end of the 8 week period for feedback on the handover process.

**Summary of Results:** 93 handover forms were reviewed over the 8 week period. The most common tasks handed over were chasing bloods, chasing scan results and taking drug monitoring levels. 15 FY1s completed the questionnaire (8 surgical, 7 medical). 73% of FY1s felt that patient safety had been compromised in their current job due to poor handover. 87% of FY1s felt they would benefit from local teaching on handover prior to starting work. 87.5% of surgical FY1s felt that handover had been improved with introduction of the written handover.

**Discussion:** Our findings support that the implementation of a standardised written handover proforma enhances communication between surgical foundation doctors, and subjectively improves patient safety.

**Conclusion:** Good handover of information between doctors is vital for ensuring safe and effective clinical practice. Further research would be required to identify the effect of the new handover system on morbidity and mortality

**Take Home Messages:** Junior doctors may benefit from formal teaching on handover locally prior to starting work.

#3GG02 (131912)

Medical interns participating in evaluation and development of their medical training

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*Katarina Sandström*

*Caterina Finizia*

*Paulin Andrell*

**Background:** The internship at Sahlgrenska University Hospital (SU) consists of a growing number of interns in three different hospitals including 25 clinical departments. This calls for a structured method for evaluation and development to withhold the quality of the internship. To cater to this need of communication the SU Intern Administration Office (SUIAO) formed the Intern Council (IC).

**Summary of Work:** The IC continuously collects comments from fellow interns. In regular meetings the IC compile their findings, follow up improvements, plan future actions and map out specific questions to pursue. IC members meet with the SUIAO and clinic representatives to discuss conceivable improvements and development plans based on the interns' input. The SUIAO and the IC hand out an annual award to an advisor as well as a director of studies chosen by the interns and the SUIAO.

**Summary of Results:** Influence of the interns over their training has increased and improvements are implemented regularly. Internship at SU is steadily ranked top 20 (out of around 70) in national annual ratings. A survey presented at the AMEE 2014 Conference shows that the IC members gain experience in leadership and communication skills among other areas.

**Discussion:** The IC can identify areas in need of improvement, of which a great deal concerns clinical advising. The IC communicates this to the SUIAO and the departments and follows up the results. This ensures a structured feedback process. IC members gain valuable experience, useful in their future careers.

**Conclusion:** The IC enables sustained influence from the interns and facilitates communication between the interns, the SUIAO and the rotation directors, improving the quality of the postgraduate education for physicians.

**Take Home Messages:** Interns influence over their clinical training in a geographically diverse and growing organization can be enhanced at all levels through a structured pathway for communication.

#3GG03 (132617)

**Violence perceived by medical interns: bullying, harassment and humiliation in training process**

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Liliana Ortiz

Cristhian Perez

Humberto Müller

Eduardo Maurelia

Carolina Marquez

**Background:** The educational environment is a key factor for learning, but is not exempt of problems such as harmful interactions and even bullying. The British Medical Association defines bullying as a persistent behavior towards an individual consistent of being intimidating, demeaning, offensive or malicious, and undermines the trust and esteem of the receiver. In Chile, although there are studies in students, there are no studies in Medical interns.

**Summary of Work:** The objective of this study was to identify the perception of bullying of Medical interns during their training process in a traditional university of Concepcion, Chile. A quantitative study was performed, sponsored by Proyect FONDECYT 1161541. 121 medical interns in a traditional university responded, prior informed consent, an Spanish adaptation of Quine's Inventory Bullying. This inventory shows 20 behaviors of bullying, harassment and intimidation, and asks to participants about its frequency, the rotation where it was happening and stalkers agents.

**Summary of Results:** Students reported that the most frequent violence behaviors were the excessive demands. By contrast, physical violence and violence against property - although present - were the least common. These behaviors were more frequent in the rotation of Internal Medicine and least in Pediatrics. Men were identified as a offending party more often than women. Between roles, Physicians teachers were the most common offenders, although students reported suffering violence even from classmates, from scholars and from administrative statement.

**Discussion:** Violence is part of the training process of Medical interns. It comes from everyone who is involved in the training process but it is more common from men and physicians.

**Conclusion:** It is important to maintain a positive work environment, free of bullying, considering its effect on the formation of students, especially at the level of transversal skills.

**Take Home Messages:** The training centers must implement policies against violence as part of their training processes.

#3GG04 (135711)

**Challenging Conversations, A Simulation Based Approach**

**Saadia Shad\***, MED - NHS Lothian, Edinburgh, UK

Connie Swenson (MED NHS Lothian, Edinburgh, UK)

Nathan Oliver (MED NHS Lothian, Edinburgh, UK)

Kirsty Boyd (MED NHS Lothian, Edinburgh, UK)

Simon Edgar (MED NHS Lothian, Edinburgh, UK)

Hannah Monaghan (MED NHS Lothian, Edinburgh, UK)

**Background:** As trainees make the transition into their second year of foundation training and beyond they begin to take on leadership roles requiring effective communication, sometimes in challenging circumstances. We evaluated foundation doctors' confidence in handling communication within the workplace and developed a programme of simulation-based training in clinical communication.

**Summary of Work:** We surveyed doctors >6 months after completion of FY2 to establish their experience of existing training and what they perceived their further training needs to be. Based on this feedback we developed a simulation-based curriculum-aligned workshop to improve competency and confidence in managing challenging conversations. Pilot workshops will take place this year and after further refinement we plan to offer this training to all foundation doctors in NHS Lothian.

**Summary of Results:** 42% of trainees stated they had received no training on clinical communication during foundation. Of those who had received training 37% felt it had not prepared them adequately for practice. Almost all trainees expressed enthusiasm for attending additional training with a focus on developing their ability to communicate more effectively with patients, relatives and colleagues. Feedback from the simulation programme pilots will be presented.

**Discussion:** Trainees feel inadequately prepared for the challenging conversations they encounter in the workplace and would welcome an opportunity to develop their ability to handle these in a safe learning environment. We anticipate our simulation-based clinical communication programme will improve trainees' communication competencies and build confidence in situations that are particularly challenging.

**Conclusion:** There is an identified need to formalise training for foundation doctors in clinical communication.

**Take Home Messages:** Involving trainees in the development of new training programmes is a core aspect of adult learning and increases both engagement with the learning and application to future clinical practice.



#3GG05 (131899)

**Improving the pedagogical proficiency among junior doctors through organizing an educational day: Focus on Palliative Medicine**

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Johanna Hedström (Sahlgrenska University Hospital, Gothenburg, Sweden)

Paulin Andréll (Sahlgrenska University Hospital, Gothenburg, Sweden)

Caterina Finizia (Sahlgrenska University Hospital, Gothenburg, Sweden)

**Background:** Pedagogical proficiency is a key part of the medical profession, both in regards to teaching younger colleagues and in conversations with patients. Junior doctors at Sahlgrenska University Hospital in Gothenburg Sweden have the opportunity to organize educational days on subjects that they find important and/or lacking in their medical intern education.

**Summary of Work:** The first aim was to increase the knowledge in Palliative Medicine among junior doctors. The second aim was to enhance the pedagogical skills among junior doctors through organizing an educational day for their peers. An educational day, compulsory for all Medical Interns at SU, was planned and executed with a mix of lectures and practical case-based discussions with specialists in Palliative medicine. All participants filled out an evaluation form.

**Summary of Results:** The aims were reached. The vast majority of the interns thought the educational day as a whole was very well executed and formed a large value for them in their professional role. During the educational day the participants received a pocket-sized, concise and quick reference guide on what to think of when planning and conducting a conversation with patients in palliative care.

**Discussion:** It is of great importance to have a clear focus for the educational day. As an organizer one has to be flexible and solution oriented, prepared to rapidly solve upcoming challenges.

**Conclusion:** Medical knowledge, organizational- and pedagogical skills are improved through organizing educational days.

**Take Home Messages:** Organizing educational days brings great value for the peers as well for the junior doctors organizing.

#3GG06 (133816)

**Implementation and Evolution of the SingHealth ACGME-I Transitional Year Residency Program**

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Boon Leng Lim

Haresh Tulsidas

Joseph Li

Jesylin Koh

Zhimin Goh

**Background:** Post Graduate Year 1 training for doctors in Singapore is a crucial transition between undergraduate medical school and full medical registration. During the 12-month period, PGY1 doctors (PGY1s) are provisionally registered and rotated through general medicine and surgical postings to gain the necessary clinical experience and skills needed for independent practice.

**Summary of Work:** Prior to the introduction of ACGME-I Residency Programs in Singapore, there was an absence of an appointed Program Director (PD) and Faculty to ensure proper training for PGY1s. Responsibility fell onto individual departments, where standards often varied. The ACGME-I Transitional Year (TY) Residency Program was implemented in Singapore in 2010. This provided a standardized structure in multiple clinical disciplines and appointment of sufficient faculty (1 core faculty appointed for every 6 residents) to oversee TY Residents.

**Summary of Results:** With the conscious efforts of the SingHealth TY PD, Associate PDs, Faculty and Program Admin Executives, program and faculty evaluations, and core skill requirements was introduced to assess the performance of TY residents in different competencies in the departments. Duty hours, protected training time and regular meetings between the PD and residents were organized.

**Discussion:** The program's close monitoring of the resident's competencies and duty hours ensured lapses are quickly addressed and training requirements are met. In Singapore where high patient load is a norm, manpower allocation of teams were looked into to ensure off-days, guaranteed fair distribution of workload and time off for TY residents to attend educational activities. Regular meetings between the PD and residents provided a platform for regular feedback.

**Conclusion:** The structure of the TY program resulted in well-trained TY residents who were assessed under a structure that was monitored by PD and Faculty. The intake of PGY1s into the TY programs nationwide increased as a result, and this prompted a restructuring of PGY1 training in Singapore, where Ministry of Health has since adopted and developed the National PGY1 Training and Assessment Framework which all PGY1s are now required to undergo.

**Take Home Messages:** With a combination of efforts, various measures were implemented and monitored to ensure proper training for TY residents, resulting in

the successful national wide reform of PGY1 training in Singapore.

#3GG07 (132295)

**Satisfaction survey of 2-year medical staff training program**

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H.Y. Chiu

H.C. Su

H.C. Chung

C. I. Huang

H. J. Lin

**Background:** Ministry of Health and Welfare has implemented post-graduate 2-year medical staff training program from 2007. The total 14 categories of clinical medical staff have been included; moreover, the program contributed some parts of newly medical staff at teaching hospital, assist in connection with schooling and clinical practice. Owing to have the capability of medical fundamental practice, newly medical staff has to be accepted the core program.

**Summary of Work:** The survey subjects include 14649 trainees who registered with the program from January to August 2015. The questionnaire survey contents include five perspectives : Work satisfaction, hospital resources, tutor assistance, self-growth, and program support. The 5-point Likert scale was adopted for online survey conducted from 1st October 2015 to 31st October 2015.

**Summary of Results:** A total of 10049 trainees responded to the survey questionnaires. The trainees deemed that after undergoing the post-graduation 2-year Medical Staffs Training Programs, the clinical practice was effectively improved (89.30%), better interactive and communicative ability with the group members (88.63%), better communicative ability with patients, or patients' families (87.93%), and schooling was applied in clinical work (86.53%). The majority of the trainees reflect that given the chance they would be willing to act as a tutor. Most of them agreed with the sustained promotion and implementation of this training program undertaken (80.21%).

**Discussion:** The majority of trainees express that they will recommend graduating students to adopt training programs.

**Conclusion:** The trainees generally gave positive recognition for the program implementation. The higher degree of satisfaction from the trainees has engaged in the 2-year Post-graduation Medical Staffs Training Programs, the higher the work satisfaction will be.

**Take Home Messages:** The implement of training program can be effective to connect between schooling and clinical practice, which could base on the perfect satisfaction from newly staff once the program has been implemented.

#3GG08 (134656)

**Development, assessment and acceptance of immunology instructional learning-modules developed for postgraduate medical trainees to refresh their knowledge**

**Vernon Richardson\***, Memorial University School of Medicine, Health Sciences Centre, St. John's, Newfoundland, Canada

**Background:** The loss of Basic Science (1) and Rheumatology knowledge (2), by undergraduate medical students, has been reported previously. However, little has been studied at the postgraduate level. A survey identified over 40 areas of weakness in the retention of immunology knowledge by post graduate medical trainees (PGMT). Although no formal teaching of Immunology is given at this level, the question remained as to whether (PGMT) would accept refreshing their Immunology knowledge when offered at distance.

**Summary of Work:** Twenty-one Instructional Learning-Modules (ILM) were developed covering a number of areas of immunology. These were assessed online by 23 PGMT volunteers from several Medical Disciplines. Usage of the ILM was monitored and data collection was done with Desire 2 Learn (D2L).

**Summary of Results:** PGMT reported that they could not remember more than 30% of their undergraduate immunology knowledge. A pre-test assessment gave an average of 71%. Post-test assessments, on ILM content, varied depending on the subject matter. All PGMT thought the ILM added to their knowledge, 94% thought they refreshed previously forgotten knowledge, 69% thought that they sustained their interest in Immunology and would like to have more modules. All the ILM were assessed to be at an appropriate level and delivery at distance was liked by 94%. The average rating of the modules was 67% (range 47-84%).

**Discussion:** PGMT self-estimates of their retained knowledge was grossly under estimated, as shown by the pre-test scores. The ILM were accepted well and most of the volunteers wanted more modules. Delivery of the ILM through D2L and at distance was ranked high

**Conclusion:** Loss of immunology knowledge continues through to the postgraduate medical training years. PGMT are interested in improving their Immunology knowledge. Delivery at distance was accepted well. References 1. Ling, Y., Swanson, D.B., Holtzman, K. and Bucak, S.D. Retention of basic science information by senior medical students. Acad Med. 2008 Oct;83(10 Suppl):S82-5. doi:

10.1097/ACM.0b013e318183e2fc.. 2. McCredie M. and Brooks PM. Rheumatology teaching in Australia: the need for review. Med J Aust. 1985 Nov 25;143(11):492-5.

**Take Home Messages:** It is never too late to refresh your medical immunology knowledge.

#3GG09 (133637)

**Without a shadow of a doubt; enhancing teaching programme for Foundation doctors through direct observation**

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**Foundation NHS Trust, Ashford, UK**  
Rags Subramaniam  
Dr Prathibha  
Lara Pimblett

**Background:** Traditional curriculum-led teaching programmes for Foundation Doctors were regarded as requiring improvement via the GMC NTS survey resulting in a Red Flag for East Kent Trust in 2014. Teaching topics had been rated consistently poorly by foundation doctors when asked for feedback of responses using a Likert scale ratings from poor, satisfactory, no comment, good and excellent and free text comments.

**Summary of Work:** Shadowing doctors enabled direct observation of clinical practice and identification of practice-based learning needs. Observations were used to revise the weekly teaching programme to include: • multi-disciplinary team working, • clinical practical procedures • managing the emergency sick patient • communication • RCAs from serious incidents

**Summary of Results:** When compared between 2014 and 2015, foundation doctors rated their teaching showing a marked improvement in their satisfaction: • 28% improvement ratings as Excellent • 31% improvement ratings as Good • A fall of 46% and 12% in the ratings of Satisfactory and Poor respectively • Qualitative feedback included the following: - 'Very interesting & helpful'. - 'Importance of good communication coming from health professionals'. - 'Very well presented case - life lessons learnt'. - 'Fantastic session with excellent examples'.

**Discussion:** Should direct observation and shadowing of training doctors in clinical practice be a mandatory component when designing teaching programmes for all postgraduate doctors in training across all specialties including general practice? Should the designing of training programmes be exclusively confined to clinical faculty staff or should administrators be actively involved in their creation?

**Conclusion:** Direct observation of practice via shadowing is an innovative approach to improving teaching programme development. Practice-led programmes lead to improved satisfaction learning experiences. Shadowing provides an excellent method for improving teaching programmes and learner experience.

**Take Home Messages:** Training administrators and educational faculties should incorporate direct observation through shadowing of doctors practice as a vital and innovative approach to improving teaching programmes designed for doctors in training.

#3GG10 (133220)

**Implementing Novel Core Principles for a Local Academic Programme: impact on educational outcomes**

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**Background:** Local Academic Programmes (LAPs) have been a staple of a clinician's week for generations. Historically they have been where interesting cases or novel research are presented and discussed, in an effort to keep clinician's "up to date". The Royal College of Psychiatrists states that an LAP is a requirement for training schemes to be approved. However no guidelines exist regarding the composition of LAPs or what makes an LAP educationally effective.

**Summary of Work:** A qualitative study into what constitutes an educationally effective LAP was performed which led to a set of 13 'Core Principles'. These were adopted by a local mental health NHS trust and applied to 6 LAPs which take place across it's clinical sites. Each LAP was evaluated against the 'Core Principles' and an action plan developed to assist individual LAPs increase the number of principles attained. Attendees at each LAP were surveyed before and after the implementation of each action plan to determine the impact on various measures of educational outcomes.

**Summary of Results:** The majority of LAPs were meeting only a small number of the 'Core Principles' initially. Educational outcomes were rated poorly by attendees at these LAPs. All LAPs where an implemented action plan resulted in an increase in principles attained, showed an improvement in a variety of attendee rated educational outcomes.

**Discussion:** Resistance to change of LAPs was often high initially. Specific strategies were required in order to change the features of many LAPs. However, outcomes and experiences of LAPs following at least 6 months of the changes were viewed as positive.

**Conclusion:** The '13 Core Principles' detailed in this poster are effective in improving educational outcomes of LAPs.

**Take Home Messages:** The implementation of locally performed qualitative educational research projects can result in significant improvements to educational practices.

#3GG11 (135221)  
**Gripes Reporting Tool**

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*Tapas Mukherjee*

*Sue Carr*

*Moir Durbidge*

*Rob Powell*

*Carolyn Tarrant*

**Background:** For healthcare organisations to improve quality and safety of patient care it is essential to enable staff to report concerns. Although junior doctors often have such concerns, they often fail to report them due to difficult to use reporting systems, a perception that reporting results in no action, and a lack of feedback.

**Summary of Work:** In 2015 The University Hospitals of Leicester developed and piloted a web-based tool called The GRIPE Tool – It enabled junior doctors to report concerns easily and confidentially. Following focus group evaluation the project was relaunched in December 2015. Workshops will take place in February 2016 to co-design a feedback strategy with junior doctors. A survey in April 2016 will assess effectiveness of the different feedback methods.

**Summary of Results:** During the pilot 111 concerns were reported; stakeholders in the trust viewed this as useful information enabling them to address several patient safety risks. Evaluation of the subsequent focus groups indicated the tool was acceptable to junior doctors but work was required to develop ways of feeding back concerns raised, and actions taken, to the junior doctor body. The results of the work to develop new feedback methods will be available in summer 2016.

**Discussion:** The gripes tool has been well received by junior doctors and has generated useful information for the trust to act upon before concerns become major issues. Continued engagement will require continued action resulting from submitted concerns and effective feedback to users. The feedback workshops will enable a feedback strategy to be piloted and evaluated.

**Conclusion:** The gripes tool has been successful in the pilot stage and is now permanently open for submission of concerns. Work to assess methods to feedback is ongoing.

**Take Home Messages:** The gripes tool is an effective approach to encouraging junior doctors to report concerns. Developing an effective feedback strategy is critical to maintaining junior doctor engagement.

#3GG12 (135069)  
**Predictors of Fellowship assessment performance - the Hallmarks of Education and Learning Progress and Exam Results (HELPER) Project**

*Allison Turnock\*, University of Tasmania, Hobart, Australia*

*Rebecca Stewart (Medical Education Experts, Townsville, Australia)*

*Graham Emblen (General Practice Training Queensland, Brisbane, Australia)*

*Nicholas Cooling (University of Tasmania, Hobart, Australia)*

*Parker Magin (University of Newcastle, Newcastle, Australia)*

*Amanda Tapley (General Practice Training Valley to Coast, Newcastle, Australia)*

**Background:** Certified competence for independent practice in Australian general practice requires satisfactory summative examination performance (of the Royal Australian College of General Practice (RACGP) and/or the Australian College of Rural and Remote Medicine (ACRRM). The predictive value of formative assessments and remediation processes on exit examination performance is unknown. Previous research suggests registrars (trainees) attributes such as being overseas-trained; taking leave early in training, and having had unsatisfactory evaluations in either 360-degree feedback or direct observation of practice, are associated with requiring remediation. Remediation predictors however, may not necessarily be determinants of examination performance.

**Summary of Work:** Multivariate logistic and linear regression analyses will be conducted with outcome factors “RACGP and ACRRM examination performance (as dichotomous and continuous outcomes). Independent variables will be demographic factors, formative assessment modalities and having undergone remediation. Formative assessments include in-vivo (e.g. direct observation) and in-vitro education activities (e.g. simulated consultations).

**Summary of Results:** An analysis of examination performance adjusting for having undergone remediation will provide a more robust evidence for the predictive value of summative assessments in exam performance.

**Discussion:** Fiscal and workforce determinants contribute to policies requiring that GP Registrars progress expeditiously through their training. Financial and supervision resources are concentrated early in GP Training where ideally GP registrars who are not progressing should be identified, and remediation offered. However, early identification is of limited benefit if there is no correlation with the desired outcome of competent and independent General Practice.

**Conclusion:** Mapping of demographic and education activities that can predict the final outcome of assessment performance (and practice competency) is integral to providing consistent education and training in Australian post-graduate General Practice that is



financially viable, trainee acceptable and safe for patients.

**Take Home Messages:** Findings from this project will inform policy in general practice vocational training regarding formative assessment and remediation processes. References: 1. Stewart R, Magin P, Turnock A, Cooling N, Tapley A, (2015) The Hallmarks of Education and Learning Progress Project, Education Integration Project: AGPT.

### #3GG13 (133538)

#### **Assessing Interpersonal Skills in UK Postgraduate Medical Examinations: A Consensus View**

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*MeiLing Denney*

**Background:** Good interpersonal skills are generally accepted as a core competence for doctors in postgraduate specialty training in the UK: but what does 'good' really look like and how should we assess these skills in postgraduate medical examinations?

**Summary of Work:** A cross-specialty seminar was held on 6/11/15 at the RCGP, to explore through appreciative inquiry whether current approaches to the assessment of interpersonal skills are still valid. A literature review was undertaken prior to the seminar and the format of the day included a combination of expert presentations and small group work.

**Summary of Results:** A consensus definition of interpersonal skills was developed. The strengths and weaknesses of our current approaches to the assessment of interpersonal skills were discussed. Recommendations were made for all Colleges and Faculties to improve the assessment of interpersonal skills in postgraduate medical examinations.

**Discussion:** There was an overwhelming consensus that it is essential to assess interpersonal skills in postgraduate examinations. As there are constraints to any form of assessment a combined formative and summative approach was felt to be necessary, with an increased focus on assessment in the workplace. Assessments should be dynamic and develop in line with changes in clinical practice and research.

**Conclusion:** Interpersonal skills are important for all doctors and it is essential to assess interpersonal skills in postgraduate examinations

**Take Home Messages:** There should be a combined formative and summative approach to the assessment of interpersonal skills in postgraduate medical examinations, with an increased focus on assessment in the workplace.

### #3GG14 (135833)

#### **Utilizing blended MOOC class as an additional course in family medicine residency training program. Is it useful and practical?**

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*Yu-Ching Lin*

*Chi-Wei Lin*

*Ru-Yi Huang*

*Wei-Chieh Hung*

**Background:** Implementing high quality family medicine residency training program is challenging. Besides formal clinical rotation, self-directed learning on selected subjects plays an important role for developing the lifelong learning ability of family physicians. Massive open online courses (MOOCs) may provide the possible solution, yet how to judiciously utilize this tool remain uncertain. Our aim is to design a practical blended course and study on the satisfaction for implementing MOOC during the residency training course in family medicine.

**Summary of Work:** Three interesting courses (clinical problem solving, epidemiology and the science of everyday thinking) were carefully selected from the major MOOC platforms for blended learning. Residents were asked to follow the schedule and attend meetings once a week to share their learning reflection and experience with their colleagues. Faculties would also provide comments during this meeting. A questionnaire was distributed to evaluate the spending time, learning efforts and satisfaction of practicability, comprehensiveness and class organization.

**Summary of Results:** Six family medicine residents and nine faculties were recruited in this preliminary study. Most of them spent 2-4 hours per week in studying the MOOC course and considered arranging 2-3 courses per year to be suitable. The total satisfaction is 4.2/5, with positive feedback including interesting material and flexible learning time, as well as negative feedback such as too much time-consuming homework.

**Discussion:** The high satisfaction and positive feedback indicated the possibility to integrate the online courses into the family medicine residency training program if being carefully organized. One-hour meeting with faculties per week may also needed for the residents to ensure them keep up with the schedule and offer the opportunities for sharing opinions with colleagues.

**Conclusion:** Blended MOOC can be an effective additional course for residency training if carefully selected and well organized.

**Take Home Messages:** Utilizing modern technology and open resources appropriately can create new possibility for clinical training.

#3GG15 (132759)

**Role of Health Advocate in Family Medicine and Psychiatry Residency Curricula**

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*Carrie Bernard, Toronto, Canada*

*Lisa Andermann, Toronto, Canada*

*Mark Fefergrad, Toronto, Canada*

*Kenneth Fung, Toronto, Canada*

*Morag Paton, Toronto, Canada*

*Cynthia Whitehead, Toronto, Canada*

**Background:** The health advocate role is an essential competency for advancing the health and well being of patients, communities and populations. Although interest in the health advocate role is high among residents and faculty members, there remain several barriers related to teaching and learning about this role. In addition, no study, to date, has looked at how the health advocate role is constructed in residency curriculum.

**Summary of Work:** We conducted a qualitative constructivist grounded theory approach to explore family medicine and psychiatry faculty and resident perceptions of the health advocate role and its implications for teaching, learning and professional practice. We convened 19 individual interviews with FM and psychiatry faculty and two focus groups with residents from each program to draw upon their attitudes, beliefs and experiences of the health advocate role. Data analysis: Data was coded by team members and a research analyst and thematically analyzed using a constant comparative analysis approach.

**Summary of Results:** Themes around how advocacy is practice and understood; the tensions with how it should be taught formally in the curriculum and modeled day-to-day and; recognition of the power/privilege held by being a resident/ physician (including their own history and past/current SES) and its impact on advocacy were prominent.

**Discussion:** Throughout this project we were looking to identify areas of tension, divergence, and implications of how health advocacy is constructed.

**Conclusion:** Providing faculty and residents with an opportunity to discuss advocacy, along with the unwritten social and cultural values that shape behaviour will allow us to unpack why this role is considered to be one of the most difficult competencies to teach and evaluate.

**Take Home Messages:** Strategies for increasing knowledge, skills and attitudes towards health advocacy include providing a spectrum of opportunities for engagement in advocacy work; include discussions of ethics and social justice when possible and create opportunities to learn how to discuss health advocacy in healthcare.

#3GG16 (133315)

**A blended learning program of home health care for family physician residents**

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*Lin-Yang Chi (Taipei City Hospital, National Yang-Ming University, Taipei City, Taiwan)*

*Chin-Yu Ho (Taipei City Hospital Yang-Ming Branch, Taipei City, Taiwan)*

*Li-Lin Kuo (Taipei City Hospital Heping-Fuyou Branch, Taipei City, Taiwan)*

*Oscar K. Lee (National Yang-Ming University, Taipei City Hospital, Taipei City, Taiwan)*

**Background:** Home health care is provided by doctors and registered nurses for professional health care services and life assistance services in Taiwan. Family physician residents are trained to provide a comprehensive care to people with special needs. Traditionally, residencies learn home health care by lectures and clinical observations. However, the actual clinical situations are diverse and there has been little emphasis on training of residents in a blended learning environment focusing on home health care.

**Summary of Work:** This program is a 2-month blended learning online- and simulation-based courses for first-year residents prior to approaching the patient and the patient's family independently. The goal is to educate residencies how to deliver comprehensive care and communicate well during their home health care visits.

**Summary of Results:** By using a "flipping classroom" structure, residents have to take online courses and finish online homework before attending to face-to-face discussions. By using a manikin with features that mimic patients' responses and appearances and asking an experienced faculty as the caregiver, the simulation courses are able to provide a learning environment in order to develop technical and communication skills and cover the broad breadth of clinical situations. This program has been started since early 2015 and all family medicine residents in Taipei city hospital Yangming branch have participated this program.

**Discussion:** Online courses offer residents opportunities to learn the basic knowledge around the rest of their work hours and discuss with peers and teachers more in-depth. In the simulation, residencies are able to make mistakes, correct those mistakes in real time and get feedback from experienced faculties.

**Conclusion:** All residents are found to be more confident and have performed well.

**Take Home Messages:** The blended learning program of home health care is useful for family medicine residency training.

#3GG17 (133787)

**Telephone Triage: a workshop for the GP Trainees**

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Kelly Thresher (GP Education Unit, Southampton, UK)  
Sandy Miles (GP Education Unit, Southampton, UK)

**Background:** There has been a significant shift in consultation patterns which has seen movement from face-to-face to telephone; this is both in practices and in OOH services which are designed around triage. Registrars need to have a sound and confident approach to consulting in potentially high risk working circumstances. There is variable opportunity for teaching and supervision in this area, and it is becoming more important to encourage development in this type of consulting.

**Summary of Work:** To address this need an educational a day long session was designed for the ST3s with a specific focus on telephone triage (TT). The morning explored the context of TT and the afternoon comprised a 'mock' 6 case surgery specifically chosen to ensure the trainees were required to manage risk and demonstrate their awareness of the particular pressures of TT. To add authenticity to the session simulated patients who were based at home were used. They were called back as would happen for telephone consultations, and the conversation relayed to the group of trainees and the facilitator.

**Summary of Results:** The workshop was evaluated: post-session feedback was collected from trainees and again a month later. Consent was also given for the facilitator to access their reflective log entries written in follow-up.

**Discussion:** This presentation will give an overview of the session and evaluation TT is becoming more widely used in primary care, thus would benefit from more research and development

**Conclusion:** Simulated TT is a valued way of learning the skills & issues of telephone consultation.

**Summary of Work:** 17 structured interviews were conducted with the heads and quality coordinators of the eight institutes. They were asked about the implementation process, starting from the development of the quality system until the system was taken into use. All interviews were audio-recorded and transcribed. Two researchers separately analysed the data using a theoretical framework and discussed the results until consensus was reached.

**Summary of Results:** All institutes (n=8) introduced GEAR. The strategies helped the institutes to prepare themselves to work with the system. Sufficient practical resources (e.g. time, staff) were available. Not everybody regarded GEAR beforehand as an improvement for their institute as compared to the prior situation. Furthermore, there were doubts whether the system measured quality. People also experienced working with GEAR as demanding and stressful, whereas there were almost no concrete results. It was difficult to integrate GEAR into their local activities. However, implementing GEAR with all institutes together created a sense of commitment to each other. This togetherness appeared important in stimulating the institutes to take GEAR into use.

**Discussion:** More strategies were needed to help the institutes to integrate GEAR with local quality activities and policy. Furthermore, expectations of the people involved should be managed concerning the fact that results of quality improvement are not directly visible.

**Conclusion:** To prepare the institutes for the coming of GEAR, the strategies used were helpful. More focus on the context in which the institutes operate, would have been helpful to integrate GEAR at the institutes.

**Take Home Messages:** Stimulating factors are vitally important for a successful implementation.

Togetherness, based on the fact that this was a common initiative, appeared a major stimulus.

#3GG18 (135452)

**Implementing a quality system in the Dutch GP specialty training: Barriers and facilitators**

**Nienke Buwalda\***, Academic Medical Center, Amsterdam, Netherlands  
Jozé Braspenning  
Nynke van Dijk  
Mechteld Visser

**Background:** The importance of quality assurance in medical education is generally acknowledged. In the Netherlands, the General Practitioner (GP) specialty training institutes developed and implemented a quality system (called GEAR). An attempt has been made to take account of a number of possible barriers and facilitators that could be foreseen. The aim of this study is to gain insight into the success of these strategies, and to learn about the additional factors that affected the use of GEAR.

#3GG19 (135030)

**No change in rates of perceived intimidation, harassment and discrimination in family medicine residents in Alberta (Canada) over a 10-year period**

*Maria Palacios\*, University of Calgary, Calgary, Canada*

*Rodney Crutcher*

*Charles Leduc*

*Olga Szafran*

**Background:** The Departments of Family Medicine (FM) at the Universities of Alberta and Calgary surveyed two cohorts (C) of Alberta FM graduates who completed residency training during 2001-2005 (C1), and 2006-2011 (C2). The goal of the study was to examine their experience with intimidation, harassment and discrimination (IHD) during FM residency training (RT).

**Summary of Work:** Cross-sectional retrospective study. Mailed out questionnaire surveys were self-administered by participants. Frequency, type, and source of IHD were examined. Statistical analyses included descriptive and inferential statistics.

**Summary of Results:** Response rates were 64% (n=242) for C1, and 43% (n=309) for C2. 44.7% of respondents in both cohorts experienced IHD while in RT. There was no significant difference in prevalence of IHD by gender in C1 (men 40.4%, 44/109; women 48.0%, 60/125), whereas significantly more women in C2 experienced IHD (men 28.7%, 39/136; women 71.3%, 97/136; p=.003). The most commonly reported form of IHD experienced in both cohorts was inappropriate verbal comments (94.3% and 88.7% respectively). 72.5% (C1) and 72% (C2) of respondents experienced IHD more than once.

**Discussion:** Overall experiences with IHD among Alberta FM graduates appear to have remained consistent over the 11-year period. These study findings are consistent with the scientific literature of IHD in medical education. These results should be interpreted with caution since IHD was not operationally defined, and respondents may have interpreted IHD differently.

**Conclusion:** Perceptions of IHD have remained prevalent among Alberta FM graduates over a 10-year period. A thorough understanding of the underlying causes of IHD is needed to address this serious problem. Further research is needed to understand these causes, and the impact IHD has on residents.

**Take Home Messages:** IHD appears to be a serious problem in family medicine residency training. Residency programs should acknowledge and address this alarming issue, while actively implementing preventative strategies.

#3GG20 (132326)

**Innovative teaching on Reflective Practice: Learning to be a doctor through photography**

*Clare Wedderburn\*, Dorset GP Centre, Bournemouth, UK*

*Dr Emer Forde*

**Background:** Self-awareness is recognised as a fundamental skill in the core curriculum for General Practitioners in the UK. "As a GP you should understand how your attitudes, feelings and values are important determinants of how you practice" (RCGP Curriculum). Clinicians need to understand that medical decision-making is complex and that these factors can have a significant impact. 'Knowing yourself' is most effectively developed through reflective practice.

**Summary of Work:** A highly innovative series of photography workshops for GP trainees was developed, led by a doctor and a photographic artist. Participants were introduced to the idea that "what we photograph and the way we photograph it can provide us with a means to self awareness" Rutherford (2009). The Shadow of the Photographer. Participants took a series of photographs over 3 months, and were then asked to write a piece of reflective prose on their learning.

**Summary of Results:** A standardised questionnaire on reflective practice (Lawrence-Wilkes & Chapman, 2015) was utilized to assess the extent to which GPs engaged in self reflection before and after the workshops, as well as qualitative feedback and analysis of their prose.

**Discussion:** There is a growing awareness that the Arts can be used to develop doctors. There are workshops on a few UK medical school programmes (e.g. University of Bristol <http://www.outofourheads.net>). However, this is the first course in the UK which uses photography to improve GP trainees' skills in reflective practice.

**Conclusion:** Following the success of these workshops, we aim to expand the programme to include a range of Arts, include drawing, sculpture, film and literature.

**Take Home Messages:** The Arts are an underutilized resource that can enrich medical training.



#3GG21 (131832)

**Recently graduated (Foundation Year 1) Doctors feel unprepared for leading ward rounds; could an aide memoire help?**

*Melody Redman\**, *Hull York Medical School, York, UK*  
*Sareena Gajebasia\**  
*Jessica Pearce\**

**Background:** Recently graduated Foundation Year 1 Doctors (FY1s), may have to conduct medical ward rounds alone without any specific prior training[1]. There are a number of aspects which are often forgotten[2] when conducting ward rounds, but acknowledging human factors with the use of a checklist may help here, subsequently improving patient care[3].

**Summary of Work:** We disseminated an online survey to the FY1s in North Lincolnshire and Goole NHS Foundation Trust in June 2015 inquiring about their experiences of ward rounds.

**Summary of Results:** We disseminated an online survey to the FY1s in North Lincolnshire and Goole NHS Foundation Trust in June 2015 inquiring about their experiences of ward rounds.

**Discussion:** The response rate suggests good internal validity, but further study is needed to determine the results' applicability elsewhere. More training/support was clearly desired, so when the new FY1s were inducted in August 2015, we distributed a credit-card sized aide memoire to prompt them to consider important aspects on ward rounds, and delivered a brief teaching session explaining the aide.

**Conclusion:** Support and training is required to help FY1s to deliver and lead safe, systematic and thorough ward rounds; we have implemented an aide memoire and brief teaching session and will re-survey in May 2016 to evaluate these interventions. References (1) General Medical Council. Outcomes for Graduates (Tomorrow's Doctors). Available from:

[http://www.gmc-](http://www.gmc-uk.org/Outcomes_for_graduates_Jul_15.pdf_61408029.pdf)

[uk.org/Outcomes\\_for\\_graduates\\_Jul\\_15.pdf\\_61408029.pdf](http://www.gmc-uk.org/Outcomes_for_graduates_Jul_15.pdf_61408029.pdf) [Accessed 26th Jan 2016]. (2) Royal College of Physicians. RCP Ward Rounds in Medicine: Principles for best practice. Available from:

<https://www.rcplondon.ac.uk/sites/default/files/documents/ward-rounds-in-medicine-web.pdf> [Accessed 26th Jan 2016]. (3) Norris B, Currie VL, Lecko C. The importance of applying human factors to nursing.

Nursing Standard. 2012;26(33):35-40.

**Take Home Messages:** FY1s were regularly delivering ward rounds alone yet did not feel prepared to do this. We distributed credit-card sized aide memoires and delivered a brief teaching session and will re-survey in May 2016 to assess whether the interventions have supported the FY1s.

### 3HH Posters: Simulation

Location:

#3HH01 (132557)

**Influence of situational simulation in nursing education on the new staff retention in intensive care units (ICUs)**

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Hui-Fen Hsianh

Shu-Liu Guo

Shu-Tai Sheen Hsiao

Chang-Jenn Yeh

Meng-Chun Tu

**Background:** Early evidence has showed that new staff nurses lacked confidence and adequate skills when they were not fully prepared to practice safely and effectively. The purpose of this study was to explore the effects of simulation education to assist new staff nurses to survive successfully in ICUs.

**Summary of Work:** Fifteen new staff nurses were recruited from three ICUs in Taiwan. They completed the simulation education consisted of literature courses and three categories of clinical scenarios, and completed a questionnaire of satisfaction (5-point Likert scale). Descriptive statistics were used to summarize their satisfaction of education program.

**Summary of Results:** Participants had higher satisfaction after this program ( $M=4.6$ ,  $SD=0.1$ ). The majority (>91%) agreed that they increased understanding in clinical working, reduced anxiety and increased confidence to practice in clinical. Three nurses didn't work after following-up six months. The retention rate (80%) was higher than one during previous 3 years (46%).

**Discussion:** The results of this study showed that new staff nurses increased their confidence to do the clinical practice and reducing their anxiety after this education program. This finding consisted of previous study (Ruth, 2009) which simulation experience was rated as the most useful teaching method to get better learning experience.

**Conclusion:** New staff nurses could work in ICUs when they completely prepared to practice safely and effectively. The retention rate of new staff nurses was increase in this study. Comparing the traditional orientation program, it was great influence of simulation education on the retention of ICU new staff nurses.

**Take Home Messages:** The results showed that the real-existing scenarios orientation program increased nurses' confidence and reduced their anxiety. It may be not only useful for ICU new staff nurses, but also be suitable for other health care providers. The simulation education might be developed and provided for all new employees in hospital.

#3HH02 (136148)

**Student opinions to identify motivational aspects - facilitators and barriers for educational innovation**

**Jeannette Unge\***, Division of Health Sciences, Physiotherapy, Lund, Sweden

Christina Gummesson, Center for teaching and learning, Faculty of Medicine, Lund university, Lund, Sweden

**Background:** To become a skilled practitioner, experience and reflection on multiple situations may promote professional development. Complex decision making with considerations as well as opportunities for feedback, learning and adjustment of strategies for the future can be imitated for learning purposes. One vehicle to obtain this is by simulated scenarios in a digital environment.

**Summary of Work:** To add more emphasis to reflection, two scenarios of virtual training were created and used both by undergraduate physiotherapy students as well as professional physiotherapists. Feedback from users were collected during the developmental process, targeting the perceived usefulness of the modules.

**Summary of Results:** The settings of the scenarios were considered realistic by the professional physiotherapists. Motivational aspects were addressed such as recognition, the use of a structure, becoming reminded and thus facilitated conquering new strategies. The undergraduate students were more concerned about the urgency of timing with such activities, in relation to other assignments. External motivation seemed to be the main drivers.

**Discussion:** To maintain good compliance, aspects such as timing may influence the perceived usefulness more among users who do not have own experience to reflect upon as internal motivation. Then the tool may be seen more as a guide or external motivator, than a tool for reflection. For the skilled practitioner this could instead create a situation where reflection as well as feedback enabled further development of their professionalism.

**Conclusion:** The use of simulated scenarios in a digital environment proved to enhance several skills but learning activities needs to be evaluated within the target group.

**Take Home Messages:** When developing new learning tools an ongoing evaluation process for motivational drivers may be important to achieve good compliance.

#3HH03 (134594)

**In Training Physician Associates: which aspect of Clinical Learning Does Simulation best support?**

**Adam Ryder\***, Worcester University, Worcester, UK  
Janina Iwaszko (Worcester University, Worcester, UK)  
Neil Howie (Worcester University, Worcester, UK)

**Background:** Training Physician Associates is relatively new in medical education in the UK. These healthcare practitioners need to be trained within a limited timeframe to be both safe and effective. If simulation could be shown to be more effective at providing certain aspects of clinical training, then both curriculum design and choice of the methodology of teaching can be optimised.

**Summary of Work:** A mixed methods study was carried out to determine which aspect of clinical knowledge simulation best supports. Two cohorts of ten first year Physician Associate students undertook either simulation training or lecture based teaching in core clinical topics, then they sat an MCQ test. Qualitative feedback was obtained to determine the student perspective. An analysis was undertaken of the MCQ to determine which aspect of the topics studied were best supported by either simulation or lecture style teaching. A follow-up questionnaire was conducted three months later.

**Summary of Results:** Simulation offered a better understanding and recall in pathophysiology and the management of clinical conditions, particularly with reference to practical pharmacology. Whereas, lecture based teaching was as effective as simulation in teaching anatomy and physiology. These differences were still present at follow-up.

**Discussion:** This clear difference in efficacy of simulation training versus lecture based training probably demonstrates the power of simulation to integrate knowledge through guided physical activity. This then aids memory formation and subject recall.

**Conclusion:** This study that showed a distinct difference in the efficacy of a choice of teaching methodology, simulation versus lecture based teaching. This difference will aid better course delivery and curriculum design, and have a lasting effect on knowledge recall.

**Take Home Messages:** This study that showed a distinct difference in the efficacy of a choice of teaching methodology, simulation versus lecture based teaching. This difference will aid better course delivery and curriculum design, and have a lasting effect on knowledge recall.

#3HH04 (132398)

**Can Simulation Help our Students "Choose Wisely"?**

**Thiago Appoloni Moreira\***, Sunnybrook Health Sciences Centre, Toronto, Canada

Mabel Choi (Sunnybrook Health Sciences Centre, Toronto, Canada)  
Agnes Ryzynski (Sunnybrook Health Sciences Centre, Toronto, Canada)  
Susan DeSousa (Sunnybrook Health Sciences Centre, Toronto, Canada)  
Anita Sarmah (Sunnybrook Health Sciences Centre, Toronto, Canada)

**Background:** Recently there has been a shift in Canada's health care philosophy towards "less is more". Choosing Wisely (CW) Canada is part of a global campaign to help physicians and patients engage in conversations about unnecessary tests, treatments and procedures. CW has collaborated with the Canadian Anesthesiologists Society to develop a list of "Five Things Physicians and Patients Should Question." One of these is a Chest X ray (CXR).

**Summary of Work:** We highlighted this to 250 University of Toronto medical students during core Anesthesia Simulation. To keep costs down, we customized our existing pre-operative scenario. Students extract the history from a Standardized patient (SP). Based on examination findings, students justify appropriate investigations. Competition is introduced and teams who choose CXR automatically lose points. This is where the discussion becomes rich and heated! Finally teams explain their rationale to the SP.

**Summary of Results:** Among the answers to "What will you take away from this to apply to your practice?" our learners specifically commented "investigation selection", "Choosing Wisely" and "don't order unnecessary tests!"

**Discussion:** Introducing the concepts of CW in anesthesia rotation curriculum, we encourage the discussion about the best way to proceed, contemplating patient safety and responsible resources usage. This process shifts away from generalized protocols for groups of patients, towards individualized approach.

**Conclusion:** As Anesthesiologists, we are "gatekeepers" for elective surgical patients. Educators must implement CW early in the curriculum to promote learners developing patient-centred management plans

**Take Home Messages:** Implementing CW in undergraduate medical education targets a grassroots' change in culture necessary for transformation.

#3HH05 (134241)

**A systematic approach to simulation based procedure training increases resident satisfaction**

*Shunsuke Kosugi\*, Iizuka Hospital, Fukuoka, Japan  
Takayuki Hashimoto (Hashimoto Municipal Hospital, Wakayama, Japan)*

**Background:** In recent years, simulation training in the medical field continues to expand. Various simulation courses are held. However there is no standard method for procedure training such as BLS or ACLS held by the American Heart Association. We developed the “Seven Steps Method for Procedure Simulation” for PGY2 residents Iizuka Hospital, Fukuoka. The goal of our courses is not only to learn how to perform procedures but also to learn how to consider the whole procedure. We designed three courses, central venous catheter insertion, lumbar puncture and intratracheal intubation.

**Summary of Work:** Study design: Cross-sectional study by questionnaire. Setting & Participants: We held all three courses twice, from April 2014 to March 2015. In total, 34 PGY2 residents, 1 PGY1 resident and 1 PGY3 residents at Iizuka Hospital participated in our courses. Outcome: Satisfaction of participants Measurements: Questionnaire at the end of the courses. Satisfaction was assessed by asking “This program helped prepare me for my practice” on the four grade Likert scale (Strongly agree – Agree – Little – Not agree). It also asked “What is the most important thing in this program” as an open question.

**Summary of Results:** We were able to collect all questionnaires (N=37, collection rate=100%). For the first question, 64.9% answered “Strongly agree”, 32.4% answered “Agree”, 2.7% answered “Little” and none of them answered “Not agree”. For the second question, 37% answered importance of a systematic approach of procedure.

**Discussion:** Previous studies about simulation showed various effects such as reduction of complication or contribution of self-confidence. However we don't know which factor of simulation led these outcomes. In this study, we can show which factor is important for the simulation.

**Conclusion:** Our results suggest that a systematic approach for simulation training can increase resident satisfaction.

**Take Home Messages:** We may need not only to learn how to perform procedures but also to learn how to consider the procedure in its entirety.

#3HH06 (134294)

**Immersive Audiovisual Aids Enhance Interprofessional Point of Care Simulation Education in Major Haemorrhage Protocol Testing**

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Patrick Harris, Burton, UK  
Louise Baxendale, Burton, UK  
S Kilkie, Burton, UK*

**Background:** An interprofessional point of care simulation event was devised to test the ability of a team to recognise and manage all aspects of major haemorrhage in a patient after laparoscopic cholecystectomy against our hospital's policy.

**Summary of Work:** The scenario took participants from the recognition of blood loss to arranging for the delivery of blood products and a return to theatre. All those involved in the delivery of this protocol were invited and included managerial staff, porters and laboratory technicians as well as medical and nursing staff. The scenario was run in a theatre suite with observers seated in patient reception area. The scenario was streamed live via 4 Gopro cameras linked to the performance analysis software used for coding the team performance. The observers had the ability to tag a video timeline with a variety of technical and human factors indices on iPads.

**Summary of Results:** Team performance was observed, recorded and measured against the hospital protocol using video performance analysis software (Studiocode). Scenario facilitators observed and recorded behaviour against the published policy. A team of observers from all professions involved also recorded Human Factors performance using the same software. They were tasked with recording noteworthy instances of leadership, team working and communication.

**Discussion:** Over 30 participants were involved in the testing of this protocol. Using video playback to augment the debrief, the team were given the opportunity analysis its episodes of good practice and to devise strategies to improve future performance.

**Conclusion:** As well as resilience testing the protocol we have a powerful and effective way to improve performance by the use of video performance software. We can revisit the scenario with the a team and record the effectiveness of any changes made.

**Take Home Messages:** Using simulation and video analysis to test the effectiveness of all aspects of a complex rarely occurring event may improve patient safety.



#3HH07 (133468)

### Hernias on a Shoestring

**Deborah Mann\***, Bath Academy, University of Bristol, Bath, UK

Elena King (Bath Academy, University of Bristol, UK)

Nicholas Adams (Bath Academy, University of Bristol, UK)

Amy Tomsett (Bath Academy, University of Bristol, UK)

Rina Adhikary (Bath Academy, University of Bristol, UK)

Rebecca Gayner (Bath Academy, University of Bristol, UK)

**Background:** The examination of inguinal and femoral hernias is an important skill for doctors and it is therefore essential that medical students are taught how to perform this skill proficiently. With increasing medical student numbers the opportunity to perform this intimate examination is limited. Initial clinical skills lab training enables students to learn and gain confidence, whilst relieving the burden on patients. Many purpose-built models are available, although most medical educators do not have access to these or the funds to purchase them.

**Summary of Work:** A novel, low cost and wearable hernia simulator was developed to enable students to examine hernias for the first time on a real person in the safety of a classroom environment. This was then incorporated into undergraduate medical student teaching.

**Summary of Results:** Feedback from year 3 students was extremely positive. They reported increased confidence in hernia examination and felt more comfortable practising in this learning environment.

**Discussion:** Hernia simulators are useful in the initial stages of intimate examination training. They allow students to master the basics of the technique in a non-threatening environment and build students' confidence in examining real patients. A low cost model is a viable alternative to expensive simulators.

**Conclusion:** The hernia simulator is well liked by medical students and is valuable as an additional method of teaching intimate hernia examination.

**Take Home Messages:** A low cost and wearable hernia simulator is an effective teaching tool.

#3HH08 (135155)

### Application of high fidelity patient simulator in teaching pediatric primary assessment and basic life support for the medical clerks

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Yu-Chun Chiu

Ting-An Yen

Shih-Yao Liu

Chih-Wei Yang

Huey-Ling Chen

Tzong-Shinn Chu

**Background:** Simulation is popular in advanced clinical training and considered to reduce errors made during learning. Medical beginners feel more unfamiliar in managing the pediatric patients. Whether simulation facilitates medical clerks to learn initial patient assessment and management needs further survey.

**Summary of Work:** Fifth-year medical students rotated pediatric clerkship in National Taiwan University Hospital in Sep.2014 to Mar.2015 were enrolled. Students were separated into two groups. Conventional group received video-assisted teaching of pediatric assessment triangle(PAT) and learned basic life support(BLS) by practicing teaching aid. Experimental group had 30-minutes of practice-debriefing with high-fidelity-simulator after the conventional course. Self-evaluated confidence and ability for initial patients assessment and management, and evaluation for the course were surveyed by questionnaires before/after the class. The answers were scored with Likert scale 1to5. Satisfaction of the class was scaled from 1to10. P value $\leq$ 0.05 was statistically significant.

**Summary of Results:** Seventy-five students were enrolled with 66(88%) students completed the questionnaire. After the class, experimental group had statistically higher self-evaluated ability( $p=0.022$ , OR=1.93) and confidence( $p=0.014$ , OR=1.90) to patient evaluation, ability to initial management of emergency( $p=0.017$ , OR=1.86) and considered debriefing by the teacher( $p=0.04$ , OR=2.87) and groupmates( $p=0.04$ , OR=2.57) is beneficial for learning. The satisfaction of the class was higher in experimental group(9.29 v.s. 8.93) but not statistically significant( $p=0.09$ ).

**Discussion:** Besides the advanced training of intensive and emergency care, simulation may help the medical beginner to learn pediatric patient assessment and management safely and enhance their learning effect and confidence.

**Conclusion:** Simulation-assisted teaching is beneficial for medical clerks to learn and establish their confidence in primary assessment and initial management for the pediatric patients.

**Take Home Messages:** Simulation-assisted teaching is beneficial for medical clerks to learn primary assessment and initial management for the pediatric patients.

### #3HH09 (134658)

#### Using multidisciplinary high-fidelity simulation training model to enhance learning for junior respiratory therapists: the pros and cons

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Hsiu-Feng Hsiao (1. Department of Respiratory Therapy, Chang Gung Memorial Hospital, Linkou 2. School of Medicine, College of Medicine, Chang Gung University, Taoyuan, Taiwan)

**Background:** Respiratory therapists (RTs) are expected to be the experts not only on the application of mechanical ventilator, but also the competencies in all aspects of patient care. A high-fidelity simulation team-based training model was implemented for enhancing the learning of junior RTs and the pros and cons of this model were reviewed.

**Summary of Work:** Twelve teams were enrolled and assigned randomly into experiential or controlled groups. Except for one newly registered RT, each team comprised of a resident and a nurse. They collaboratively run a scenario by transporting a ventilator-dependent patient. The learning outcomes were evaluated by mixed methods; including quantitative competence measurements in pre-test, training sessions, and post-test, and qualitative analysis of group discussions. The difference between this training model and traditional way was explored.

**Summary of Results:** The junior RTs achieved higher level of competence in post-test. During training sessions, most RTs were inadequate in checking vital signs of the simulated patient, preparing end-tidal CO<sub>2</sub> detector, pre-use check and proper setting of the portable ventilator, an alarm troubleshooting and recharging portable ventilator. Junior RTs less interacts with team members in simulation training. As compared to using test-lung, this model provides learners opportunity of practicing communication and teamwork. However, the simulated lung composed of plastic bands and bags could not tolerate normal positive end-expiratory pressure, which restricted the fidelity of the scenario design.

**Discussion:** The junior RTs are apt to be responsible only for ventilator setting and monitor. The simulation training facilitated their learning of other competency in transporting critical patients. The material of current simulated lung restricts the variety of scenario design.

**Conclusion:** The multidisciplinary simulation training model uncovered inadequate skills or lower level of

competency of newly registered RTs during patient transport. Using high fidelity simulator has limitation in teaching ventilator setting.

**Take Home Messages:** Using high-fidelity simulation training for junior RTs has the pros and cons.

### #3HH10 (129826)

#### Task Trainer Simulation Training, A New Curriculum For National Healthcare Group Internal Medicine Residency Program

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Cherng Jye, Seow (Tan Tock Seng Hospital, Singapore)  
Ser Hon, Puah (Tan Tock Seng Hospital, Singapore)  
Nien Yue, Koh (Tan Tock Seng Hospital, Singapore)

**Background:** Supervised procedural training is an essential component of residency training. Differing clinical opportunities among residents had led to a lack of standardization of the training on practical procedures. We believe that simulation based training can standardize learning and improve residents' procedural skills and confidence.

**Summary of Work:** The residency program initiated quarterly task trainer sessions for Internal Medicine residents since 2012. The sessions comprised lumbar puncture, knee aspiration, abdominal paracentesis and thoracocentesis stations. Upon completion of the session, feedbacks were gathered via questionnaire and the effectiveness of individual facilitators with overall effectiveness of learning experience were obtained.

**Summary of Results:** 182 residents had participated in the sessions. 154 (86%) residents provided feedback. Almost all residents (97.4%) felt that the format of the session was effective. 149 (96.8%) residents agreed that the overall session was useful for improving their patient care skills. 160 (88.3%) residents agreed that all the procedures were useful.

**Discussion:** The positive feedbacks were primarily on opportunities for hands on practice (46/99; 46.5%), the presence of good tutors (20/99; 20.2%), small group size (8/99; 8.1%), use of checklist (6/99; 6.1%), and organizational efficiency (5/99; 5.1%). There were strong requests for simulation on bone marrow biopsy and chest tube insertion.

**Conclusion:** Simulation-based procedural training curriculum is shown to be well-received among the residents. The opportunity for hands on practice and good tutors are the key elements to a successful task-trainer session. An unintended consequence of collecting feedback is identifying learning gaps and monitoring the effectiveness of intervention at addressing learning needs.

**Take Home Messages:** Task trainer simulation training is an essential adjunct to procedural training. Moving forward, it would be useful to study if such curriculum translates into improved techniques and patient care.

#3HH11 (127649)

**"Can liver lower edge be palpated?" Simulation-based instruction reduced anxiety**

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Junko Minagi (Kawasaki medical museum, Kurashiki, Japan)

Nobuhiko Nakamura (Kawasaki medical museum, Kurashiki, Japan)

Takuya Moriya (Kawasaki medical museum, Kurashiki, Japan)

Kozo Kawasaki (Kobe city medical center general hospital, Department of pediatrics, Kobe, Japan)

**Background:** We have previously reported hands-on practices reduced anxiety regarding bone marrow aspiration. To assess the same effects on palpitation, we have developed a novel manikin with the liver moved like respiratory motion.

**Summary of Work:** This study aimed to assess whether simulation-based instructions improve medical students' palpation skill's knowledge and reduce anxiety. Undergraduates were asked to answer four multiple-choice questions on liver palpitation, and complete a questionnaire concerning anxiety and confidence in performing the procedure using 5-point rating scales (1-5: worst–best). Then, they were taught hands-on practices in small groups using the manikin and asked to answer the tests and questionnaire again.

**Summary of Results:** Seventy-two fifth year student volunteers from Kawasaki Medical School participated. The outcome was a change in the percentage of correct answers and scales between pre- and post-practices. The percentage of correct answers increased from 76.7% to 95.1%. The scores increased in post-practices compared to pre-practices: (anxiety:  $2.06 \pm 0.74$  versus  $2.42 \pm 0.83$ ,  $p < 0.005$ ; and confidence:  $1.68 \pm 0.64$  versus  $2.31 \pm 0.86$ ,  $p < 0.0001$ )

**Discussion:** Simulation-based instruction reduced anxiety.

**Conclusion:** Hands-on practices reduced anxiety regarding liver palpitation.

**Take Home Messages:** Experiential learning could reduce students' anxiety.

#3HH12 (136093)

**Analysis of Feedback from Simulation**

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Penny Smith (Royal Free Hospital, UK)

**Background:** Within the North East and Central London (NECL) region, all Foundation Year (FY) doctors undertake a one-day simulation course. This tackles common acute medical problems from clinical and human factors perspectives. Locally FY doctors report good experiences of this training. However a multi-centre analysis of participant feedback is unpublished.

**Summary of Work:** We are analysing data from feedback forms completed by FY doctors, after participating in simulation, in 2014-2015, in the NECL region. The answers to questions asked were in various formats, including the Likert Scale, Yes-No and free text. They explored course relevance, interest, participant satisfaction, improving patient care, key areas of learning, and areas for course improvement.

**Summary of Results:** Thus far we have collated feedback from 162 doctors. Further data collection is underway. In summary over 90% of doctors reported the highest response levels on the Likert scale or agreement with Yes-No answers. There were common themes in the learning points reported including around management, and communication. Doctors reported that team-work, communication and management skills and time management were better taught in simulation than elsewhere.

**Discussion:** The analysis of some answers confirm anecdotal evidence that FY doctors find simulation training interesting, useful and relevant. More interesting is the qualitative data obtained, identifying areas where participants derive most benefit from simulation training. This might be of particular interest with more limited simulation training resources to best effect.

**Conclusion:** Analysis of feedback is not widely published. Often simulation centres only reflect on feedback locally. This work is helpful in sharing feedback from a much larger group of participants bringing new insights into the benefits of simulation training for FY doctors.

**Take Home Messages:** By sharing this data we hope to engender increased response to feedback and adaptation of future simulation training to best effect. Further we would wish to encourage the sharing of experience cross-centres.

#3HH13 (134599)

**Is debriefing necessary in medical simulation-based learning?**

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**Background:** Simulation-based learning (SBL) is a teaching method that replicates or initiates real clinical situations in standardized environment. Debriefing is an essential component of simulation-based learning. A systematic and structured debriefing delivered by the professional facilitator allows achieving learning outcomes. Debriefing creates the best learning environment that help consolidate knowledge, skills and self-confidence for students.

**Summary of Work:** The study aimed to evaluate importance, benefits and effectiveness of debriefing in simulation-based workshop concerning acute coronary syndrome (ACS) for medical students. Eighty fifth-year medical students were enrolled to the study and were randomly assigned to the two study groups: group D - students participated in the simulation workshop with debriefing and control group (C) took part in workshop without debriefing. Anonymous questionnaire was distributed before and after workshop. Collected data were analyzed using SPSS software.

**Summary of Results:** The simulation-based workshop was evaluated significantly ( $p < 0.001$ ) higher by students from group D compared to group C ( $4.98 \pm 0.16$  vs.  $3.90 \pm 0.81$ ). There were statistically significant ( $p < 0.001$ ) differences in satisfaction with workshop indicating that satisfaction with workshop among students who had debriefing was higher than in those without debriefing ( $4.95 \pm 0.22$  vs.  $4.45 \pm 0.71$ ). Statistically significant ( $p < 0.001$ ) more students from group D reported learning outcomes were achieved compared to students from control group (90.0% vs. 50.0%). Level of knowledge concerning ACS and self-confidence after the workshop was statistically significant ( $p < 0.001$ ) higher in group D than in group C ( $4.33 \pm 0.15$  vs.  $2.38 \pm 0.54$ ).

**Discussion:** Our results demonstrate that debriefing after simulation had a positive effect on level of students' knowledge and self-confidence. The measured differences support the view that debriefing increases the simulation-based workshop evaluation and satisfaction.

**Conclusion:** Debriefing after a simulation-based learning showed to enhance the impact of simulation-based education by increasing students' knowledge and self-confidence. Therefore we recommend

debriefing should be an integral part of simulation-based training.

**Take Home Messages:** Debriefing positively influence on students knowledge, self-confidence and satisfaction with SBL. Debriefing allows achieving learning outcomes in SBL.

#3HH14 (135685)

**Spontaneous evolution of medical students' interpersonal skills in the context of simulated ambulatory consultations, between October 2015 and February 2016**

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**Background:** This study is a part of a PhD project. It aimed at evaluating the variation over time regarding medical students' interpersonal skills in the context of simulated ambulatory consultations.

**Summary of Work:** A first phase of a quantitative study was conducted on October 2015 during ambulatory consultations using professional actors as SPs. This study aimed at identifying 4th year medical students with low interpersonal skills. Each student conducted three ambulatory consultations. At the end of each consultation SPs completed the validated French version of the Standardised Patient Satisfaction Questionnaire (SPSQ\_SP), intended at assessing their interpersonal skills. SPSQ has also been completed by the students as a self-questionnaire (SPSQ\_student). Students were randomly assigned to three groups of twenty students: a control group of students having a high score on SPSQ (group\_1), and two groups among students with the lowest SPSQ scores of the class (group\_2 and 3). Those two latter groups were created for the purpose of a further study aiming at evaluating the impact of coaching sessions (which will begin in March 2016) in students with relational difficulties. In a second phase, the same questionnaires have been completed in February 2016 during the same session of simulated consultations.

**Summary of Results:** Mean SPSQ\_student at to were  $33.0 \pm 5.4$ ,  $30.2 \pm 6.0$  and  $31.1 \pm 6.6$  in group 1, 2 and 3 respectively (max:150). Mean SPSQ\_student at t1 were  $91.4 \pm 14.5$ ,  $92.1 \pm 11.5$  and  $92.4 \pm 13.4$  in group 1, 2 and 3 respectively (max:150) with a significant difference between to and t1 in each group ( $p < .0001$ ). Mean SPSQ\_SP at to were  $78.7 \pm 3.6$ ,  $48.8 \pm 8.1$  and  $49.1 \pm 6.8$  in group 1, 2 and 3 respectively (max:150) with a significant difference between SPSQ\_student at to in each group ( $p < .0001$ ).

**Discussion:** SPSQ\_SP at t1 will be available in March 2016.



**Conclusion:** Students have underestimated their interpersonal skills compared to SPs at to. Student's estimation of their own interpersonal skills was significantly increased by a factor 3 over a period of three months without any coaching sessions.

**Take Home Messages:** These preliminary data suggest a favorable spontaneous evolution of students' self-estimation of interpersonal skills over a period of three months.

#3HH15 (133563)

**Realism and Learning: Comparing In Situ and Centre Based Simulated Learning Environments**

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*Jenny Peat (Australian Catholic University, Sydney, Australia)*

*Ingrid Wolfsberger (The Sydney Children's Hospitals Network, Sydney, Australia)*

*Ruza Novakov (The Children's Hospital at Westmead, Sydney, Australia)*

*Fenton O'Leary (The Children's Hospital at Westmead and Sydney Medical School, Sydney, Australia)*

**Background:** Simulated Learning Environments (SLEs), either in situ or within a simulation centre, are used to enable healthcare workers to learn to respond to different clinical scenarios through the creation of realistic patient encounters. The level of realism within a simulated scenario has the potential to influence the learner's engagement with the scenario as well as their overall learning. In situ SLEs use lower fidelity manikins and a concern could be that these scenarios are considered less real by participants and hence less of a learning opportunity.

**Summary of Work:** The aim of this study was to compare the degree of realism, engagement and learning of participants undertaking in situ simulations compared to centre based simulations. Participants in both programs were surveyed after each scenario and asked to rate the realism of 12 specific items on a Likert scale of 1-9. They were also asked to rate overall realism, engagement and learning. Faculty were also asked to fill in the same survey.

**Summary of Results:** There were 276 participant and 106 faculty responses, 241 from the in situ and 141 from the centre based simulations. Participant responses showed significantly higher rating for the centre based simulations for respiratory rate ( $P=0.006$ ), pulse ( $P=0.035$ ), breath sounds ( $P=0.001$ ), heart sounds ( $P<0.001$ ), patient noises ( $P<0.001$ ) and overall reality ( $P=0.004$ ). However there was no significant difference when rating participant engagement ( $P=0.114$ ) and participant learning ( $P=0.613$ ).

**Discussion:** These findings are consistent with the literature describing in situ simulations producing positive learner outcomes.

**Conclusion:** Some aspects of in situ SLEs may be less 'real' than centre based SLEs, but there was no

significant difference in overall engagement or learning by participants.

**Take Home Messages:** Low fidelity in situ simulation provides adequate realism for engagement and learning.

#3HH16 (134961)

**Medical Students Simlympic Games, the first team-based clinical skills competition event in Japan**

*Kazunobu Ishikawa\*, 17th Educational Materials' Development Committee, Japan Society for Medical Education, Fukushima, Japan*

*Taichi Shuto*  
*Masahiro Ito*  
*Hiroyuki Komatsu*  
*Yoko Moroi*  
*Kazuhiro Hirohashi*

**Background:** To encourage broad use of simulation-based medical education and to establish partnership for objective structured clinical examination after clinical clerkship among medical teachers, we hosted the first team-based clinical skills competition events for medical students in Japan, named 'Medical Students Simlympic Games 2014 & 2015'.

**Summary of Work:** Thirty-six (12 teams of three) open recruited 5th or 6th grade medical students participated in this event. Student teams challenged OSCE-style skills tests in 6 stations, which actively utilized the strength of simulators or simulated patients. Contents, composition, difficulty level and validity were tested by trainee doctors and examined by committee members in advance.

**Summary of Results:** Students, participated on a voluntary basis, earnestly challenged clinical tasks, and most of them adequately prepared for this competition. They showed friendly attitude all the time each other and exchanged information about their learning opportunities such as clinical skills trainings / clerkship.

**Discussion:** Different from conventional OSCE, which assess learner's personal competency, our Simlympic games imposed clinical skills tests on 3 members. Team effort and leadership were assessed as well as personal skills such as medical interview, physical assessment and clinical decision making. For teachers, forming a committee for this national event have led to further understandings of clinical education and alliance among medical schools.

**Conclusion:** The first team-based clinical skills competition events for medical students in Japan, named 'Medical Students Simlympic Games promoted understandings of simulation-based learning and enhanced their motivation.

**Take Home Messages:** A national event transcending barriers of school highly enhances for both students and teachers to aware the benefits of simulation-based learning.

### 3II Posters: Lectures and Flipped Classroom

Location:

#3II01 (135646)

**The importance of lectures from the students' and from the teachers' point of view**

**Adam Schlegl\***, *University of Pecs, Medical School, Pecs, Hungary*

Balazs Ernyey (*University of Pecs, Medical School, Pecs, Hungary*)

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**Background:** Previously used and widely accepted form of teaching that is giving lectures is seemingly considered to be not the most efficient tool of teaching in the medical education. Our previous studies concentrated on the evaluation of the lectures from the students' point of view. The goal of this study was to examine the question from the teacher's point of view and to make a comparison with the previous data.

**Summary of Work:** 12 997 anonymous questionnaires of the students and 230 anonymous questionnaires of the teachers of the University of Pécs Medical School were processed in the research. Explorative and confirmative factor analyses were used to validate the inventory. Mathematical weighing was applied to examine the importance of each question.

**Summary of Results:** The most important factors of a good lecture from the teacher's point of view were its logical structure, its comprehensibility as well as it should form a viewpoint. The least important ones are that the lecture should be easily noted, should give new information, and it should be used for the exam preparation. As opposed to the above mentioned the most important factors for the students were that a lecture should be used for the exam preparation and it should be easily noted.

**Discussion:** To sum it up, there were differences regarding the answers of the teachers in age, language of the course and in the fact whether they teach in lectures. There were interesting differences regarding the factors. To answer these major differences in the judgements of the lecture we started a new program, called Development of the lecturers' skills in the Medical School.

**Conclusion:** There are major differences regarding what makes a "good lecture" from the student's and the teacher's point of view.

**Take Home Messages:** In the judgement of lectures the factors being least important for the teachers were the most important for the students.

#3II02 (133002)

**Attitudes of Medical Students regarding Interactive Lectures with a Power Vote Application**

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Ryan Andrew Loyd, *Institute of Medicine, Suranaree University of Technology, Nakhon Ratchasima, Thailand*

Chaline Minkuntod, *Institute of Medicine, Suranaree University of Technology, Nakhon Ratchasima, Thailand*

**Background:** A new generation of medical students needs to learn the new format of instructional media which stimulates interest and helps learning. This study aims to evaluate the attitudes of medical students toward interactive tools within the lecture.

**Summary of Work:** All 80 medical students of the 3rd year at SUT participated in this study. Almost all of them had electronic devices which able to download the free power vote application named "Socrative". A basic radiology lecture was delivered which included the use of this application. Student attitudes were evaluated using a questionnaire via an online survey tool which had 5 levels of attitudes.

**Summary of Results:** Sixty-three students (78.75%) were willing to fill out a questionnaire including their opinion and suggestions. The results revealed that the levels of attitudes were good to very good. The level of attitudes was very good for interesting interactive tool within the lecture (55.56%) and daring to answer questions (58.73%). The level of attitudes was good for enhanced knowledge after study (55.56%), encouraged active learning and helped them stay focused during the lecture (49.21%), appropriateness of the interactive tool (42.86%), facility of the interactive tool (50.79%) and satisfaction with the interactive lecture (53.97%).

**Discussion:** Most of the students felt the use of the Socrative application made the lecture more interesting and enjoyable while also assisting in knowing the emphasized content, enhancing a clearer picture of the information, and enabling the students to capture the picture after reviewing. Their criticisms were internet instability and not having clear time limits for voting.

**Conclusion:** This equipment facilitates students in making the lecture interesting, enjoyable, helping them dare to answer questions, enhancing their knowledge, encouraging active learning and helping them stay focused during the lecture.

**Take Home Messages:** The selection of suitable instructional media for students will stimulate learning efficiency.

#31103 (136115)

**Actual Versus Perceived Understanding of Concepts in Neuroscience among Medical Students: Assessment by Audience Response System**

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*R. Duncan Kirkby, St George's University, Grenada  
Walter Kolbinger, St George's University, Grenada*

**Background:** In-office meetings revealed misconceptions by select students regarding key neuroscience concepts (i.e., direct and indirect basal ganglia pathways). On this basis, we used a simple Audience Response System (ARS) to quantify the prevalence of such misconceptions among enrollees. We further explored the apparent discordance between perceived and actual levels of understanding regarding elemental course-related concepts.

**Summary of Work:** In normally scheduled interactive sessions held in a lecture hall environment (Buzz Groups), 543 first-year postgraduate medical students (from four cohorts) answered four multiple choice questions concerning basal ganglia pathways (using ARS): 1) How well do you understand the direct/indirect pathway concept? 2) What is the function of the indirect pathway? 3) What is the role of dopamine in the direct and indirect pathways? 4) Where do the direct and indirect pathways begin?

**Summary of Results:** Seventy-seven percent of respondents (417/543) reported understanding the concept of the direct and indirect pathways. Yet, 41% of these students misidentified the role of basal ganglia dopamine. Moreover, whereas only 19% correctly identified the origins of the direct and indirect pathways as the striatum, 27% incorrectly indicated the substantia nigra as the originating nucleus.

**Discussion:** Results suggested that students generally overestimated their understanding of the basal ganglia. As a short-term remedial measure, relevant material was immediately reviewed during the Buzz Group with three of the four cohorts. The data also led teaching faculty to scrutinize teaching materials and methods in an attempt to identify the origins of students' misconceptions regarding their proficiencies.

**Conclusion:** ARS's represent a means by which faculty can easily and frequently probe the accuracy of students' perceived levels of understanding, and resultant data can facilitate brisk remediation and improve teaching practice.

**Take Home Messages:** The use of ARS's to gauge medical students' actual versus perceived understanding can be used to diagnose and address knowledge gaps.

#31104 (136183)

**Can TED talks "inspire" a new lecturing technique?**

**Ahmed Ibrahim\***, *University of Manchester, London, UK*

**Background:** The lecture in the traditional sense was and is one of the most common forms of teaching in medicine. Lecturing attitudes and aptitudes vary from one teacher to the other. Therefore lectures can vary accordingly from highly stimulating to painfully boring. TED (Technology, Entertainment, and Design) talks are short presentations undertaken by scientists, leaders, and other inspired thinkers. Its main platform is the internet. Over the past decades these talks sustained an unexpected fame and appeal from a worldwide audience with millions of online views for some of these talks.

**Summary of Work:** A review of literature that discusses the TED phenomena and evaluates the applicability of the speakers' presentation skills in the medical lecture context.

**Summary of Results:** TED speakers were successful in engaging the audience for several reasons but mainly because they arouse emotions in the audience. Their main tool was storytelling or narrating. Preparation is a major contributor to this success.

**Discussion:** Narration is a recognized method for improving the effectiveness of medical lectures but at the same time is frequently neglected. The art of rhetoric described by Aristotle 2000 years ago is arguably why TED speeches are very appealing. Also there is a debate on whether the art of rhetoric can be taught or its mastery is due to natural talent. But preparation prior to speeches and lectures is shown to improve outcomes.

**Conclusion:** TED talks teach us that audience can be engaged via appealing to their emotions and feelings through sharing personal stories. The purpose of the teacher is to stimulate and motivate its students to learn. By using storytelling lecturers can stimulate students to go and learn more.

**Take Home Messages:** Medical teachers should learn from TED speakers how to become better lecturers.

#31105 (132639)

**Flipped classroom to teach electrocardiogram: an effective model for undergraduate medical students**

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Shu-Meng Cheng (National Defense Medical Center, Department of Medicine, Taipei, Taiwan)

Chin-Sheng Lin (National Defense Medical Center, Department of Medicine, Taipei, Taiwan)

**Background:** Flipped classroom, an educational technique that has interactive group learning activities inside the classroom and technology-based instruction outside the classroom, has opened a new avenue in medical education. However, it has not been applied to electrocardiogram (EKG) teaching for medical students.

**Summary of Work:** In acute myocardial infarction (AMI) EKG interpretation classes for forth-year medical students, traditional lecture and flipped classroom were performed in 2013 and 2014 respectively. In contrast to traditional lecture, which had a lecture of 50 minutes, the flipped classroom included a 20-minute pre-class video instruction, a 10-minute pre-class test, a 20-minute focused talk, and a 10-minute discussion. Students in both groups were given the same post-class test to evaluate the capacity of AMI EKG interpretation.

**Summary of Results:** Compared with traditional lecture, the satisfaction of flipped classroom significantly increased from 67.4% to 84.3%. Moreover, the post-class test indicated students in flipped classroom (92.63) got higher score than in traditional lecture (86.27). Students suggested EKG teaching by flipped classroom is interesting and entertaining, which is efficient to get clinical knowledge and learn new things. In addition, via more interaction during in-class activities, teachers realize the learning problem of students and provide precise information that students need.

**Discussion:** In the previous lecture, which emphasizes more on information transmission, students are prone to passively learning and even disconnecting from the lectures. Application of flipped classroom in EKG teaching revealed that students are involved more in higher order thinking, problem finding and solving. Besides, flipped classroom provides a learner-centered model, which further promotes active learning attitude of students.

**Conclusion:** With pre-class instruction, and in-class evaluation and discussion, students learned efficiently about EKG interpretation of AMI through flipped classroom.

**Take Home Messages:** Flipped classroom could be an effective and promising teaching technique in EKG interpretation of AMI for medical students.

#31106 (134566)

**Is flipped classroom learning associated with better learning retention than the traditional classroom learning – A systematic review**

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Ming-Ru Hsieh

Chang-Chyi Jenq

Yeu-Jhy Chang

Chien-Da Huang

**Background:** The flipped classroom model is designed in an aim to promote higher cognitive level learning, enhance comprehension and improve learning outcome. However, results regarding the outcome of flipped classroom were conflicting. Despite some studies reported that flipped classroom increases examination scores, others showed that the academic outcome was equivalent to or even worse than that of the lecture-based learning. To investigate the exact outcome of flipped classroom learning, we conduct a systematic review to compare the academic outcome of flipped classroom learning with that of the traditional classroom learning.

**Summary of Work:** We systematically searched the electronic database (including Medline, ERIC, and EMBASE), reference list, conference material and dissertation for relevant publications. Controlled studies which quantitatively compared the learner's academic performance of flipped classroom with those of traditional classroom learning were considered eligible. Pooling of the quantitative data was performed in random effect model by Review Manager Software.

**Summary of Results:** Twelve cohort studies with a total of 1805 participants were included. Study population, methods of classroom flipping, and outcome measurement were diverse between studies. Pooled data analysis showed that there was no statistical difference in the examination scores between flipped and traditional classroom groups [SMD=0.89 (95%CI:-0.26,2.03), p=0.13]. However, statistical heterogeneity was very high (I<sup>2</sup>=99%). Sensitivity analysis showed that omitting one study (study no. 4) from pooled analysis resulted in a significant better outcome in flipped classroom group [SMD = 1.27(95%CI: 0.17,2.37), p=0.02].

**Discussion:** Flipped classroom learning, although advocated as a preferred learning style, did not display a better learner's outcome at the knowledge retention level. However, the strength of evidence for this conclusion is not strong because study designs were diverse and statistical heterogeneity was very high. Moreover, it is unclear whether high or low cognitive level items were incorporated in the examination questions. Different levels of learning outcome may be mixed within these results.

**Conclusion:** Based on the currently accumulated data, flipped classroom learning style did not show significant advantage over the traditional didactic lecture at knowledge retention level. More future studies are needed to solve this controversial.



**Take Home Messages:** Flipped class style learning did not show obvious superiority in knowledge acquisition than traditional lecture learning in current available information.

#31107 (134816)

**Implementing flipped classroom methodology in Embryology courses: Analysis and reflections**

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Santos Guzman-López

Ivan Vladimir Davila-Escamilla

Martha Susana Hernandez-Garza

**Background:** Within undergraduate medical curricula traditional approaches to teaching consisting of mainly lectures have been applied for a long time. However, due to the changing medical student profile which is characterized by an increasing access to ICTs, classroom practices need to be reconsidered.

**Summary of Work:** During the first semester of their medical program, a group of six professors implemented the flipped classroom methodology focusing mainly on a selected course unit. Students consulted online lectures already recorded by the professors. Such lectures included visual representations of specific topics. Later on, class discussions including case studies were scheduled during regular class time. At the end of the module, a total of 430 undergraduate medical students answered a semi-structured questionnaire in order to analyze their learning experience, in addition, test scores were compared to the ones obtained in the first course module.

**Summary of Results:** Data suggest that the flipped classroom methodology may result in tangible benefits since 62 percent of the students increased their test scores. Questions related to attitude changes toward subject matter, easier access to medical terms and principles were highlighted (73%) as well as the motivation to deepen scientific information (81%).

**Discussion:** Using flipped classroom strategies has provided the basis for revising the way professors handle assignments and maximizing class time.

Corrective feedback, discussing in medical terms and monitoring practice have been improved significantly.

**Conclusion:** The proposal of inverting classrooms represents an innovating approach to teaching and learning that leads to a paradigm that modifies the perspective of the professor as a mere imparter of knowledge to the one who coaches by guiding to higher cognitive processes.

**Take Home Messages:** To present medical content prior to class allows organizing time more efficiently and it offers the possibility to have team-based learning sessions consolidating knowledge by applying

it more professionally in undergraduate existing academic programs.

#31108 (131052)

**Using the flipped classroom pedagogy in preparation for American Board of Surgery In-Training Examination (ABSITE) for General Surgery Residents**

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**Background:** Since the introduction of the ACGME-I General Surgery Residency Program in Singapore in 2010, the ABSITE has become an annual examination for the residents. Over the last 5 years, our residents performance has not improved and the 2015 ABSITE results for our program showed a median score of 5.5 percentile (range 0-85).

**Summary of Work:** A new annual ABSITE preparation program was introduced in July 2015, using a flipped classroom pedagogy. The questions are given to the residents 3 days before the session and attempted at home. During the one hour session, the answers are discussed and further viva-style questions are posed by the content experts. A survey was performed to identify strengths and areas for improvement.

**Summary of Results:** The survey was conducted using a 5 point Likert scale and the response rate was 57.9% (22/38). 100% of the residents felt that the new program was much improved and they felt more prepared for the examination. The cited strengths were that of a regular, structured program and the flipped classroom pedagogy, which encouraged preparation and reading beforehand. (At present, the 2016 ABSITE results are not released. However, this will be presented at AMEE 2016)

**Discussion:** Due to the breadth of general surgery, it is daunting for the surgical resident to read an entire topic for each session. Employing the flipped classroom pedagogy, they are able to read around the questions and address their queries during the one hour session. This platform also allows the facilitators to explain key concepts and share clinical PEARLS to improve the learning value of these teaching sessions.

**Conclusion:** The flipped classroom pedagogy is a useful tool as the learners are prepared beforehand and the facilitator is able to actively engage the learners, asking more complex questions requiring analysis and evaluation. This process helps to emphasize, clarify and consolidate key concepts for the learners.

**Take Home Messages:** The flipped classroom pedagogy maximizes the use of “in-class” time especially in a system where duty hours are restricted and facilitates active learning for the learners.

#31109 (133337)

**The Flipped Versus Lecture-Based Classroom: The Approach in the context of Thai Medical Education**

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Supalert Nedsuwan (Chiang Rai General Medical Educational Center, Chiang Rai, Thailand)*

**Background:** Thai medical education traditional teaching style for students has been focusing on lecture-based classroom. The flipped classroom model, which allows the students to prepare before and focus more on problem based discussion in classroom, is a new paradigm in the recent years. We introduced and examined the flipped classroom approach in our setting together with students' satisfaction.

**Summary of Work:** Twenty-three 4th year medical students were divided into two groups. Both groups were assigned to study fever without localizing signs topic. Lecture-based classroom were introduced to the first group whereas the flipped classroom approach were introduced to the second group. The flipped group were assigned to watch a video lecture with a hand out and read a paper before class meeting then participated in case discussion. The MCQ and MEQ were performed and compared the score between two groups. The questionnaire was used to evaluate the satisfaction in the flipped group.

**Summary of Results:** The flipped group had higher MCQ score than the lectured group ( $P < 0.01$ ). There was no difference in MEQ score. The students reported flipped classroom enhanced the learning, increased understanding the lesson and they thought that they would understand the lesson more.

**Discussion:** This is the first topic using flipped classroom approach in our setting. It demonstrated that it was useful and feasible to apply. However, it needs to be expanded to other classes to affirm its benefits.

**Conclusion:** Teaching method by using the flipped classroom model enhances students' positive attitude and improves learning abilities of students.

**Take Home Messages:** Promoting the transition of traditional lecture-based teaching to active learning such as flipped classroom approach should be considered in Thai.

#31110 (135284)

**Is the flipped classroom conducive to the introduction of self-directed learning?**

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Kazunori Sumitani  
Hiroki Okada*

**Background:** Recently, it has been reported that the introduction of the flipped classroom resulted in improved class attendance and improved grades, but there are few studies on whether the flipped classroom is conducive to the introduction of self-directed learning.

**Summary of Work:** In 2015, a questionnaire survey was conducted on a 5-point Likert scale (5=totally agree) in 29 freshmen of the Faculty of Medicine, Kagawa University who attended the medical professionalism course that has introduced the flipped classroom. This survey assessed (1) whether the flipped classroom resulted in increased readiness to learn, (2) whether the knowledge gained from preparatory videos was stimulated in face-to-face classes, and (3) whether self-directed learning was introduced. In addition, semi-structured individual interviews were conducted with 2 students regarding similar items.

**Summary of Results:** The response rate was 100%. The introduction of a flipped classroom resulted in increased readiness to learn (1) as indicated by a response of  $4.3 \pm 1.0$  (mean  $\pm$  SD). The knowledge gained from preparatory videos was stimulated in face-to-face classes (2) as indicated by a response of  $4.5 \pm 1.0$ . Self-directed learning was introduced (3) as indicated by a response of  $4.1 \pm 0.5$ . In addition, a qualitative analysis of interview transcripts identified 9 topics in 4 domains, including readiness to learn and stimulated knowledge. However, concepts related to self-directed learning were not identified.

**Discussion:** The survey and the interviews yielded similar results with regard to readiness to learn and stimulated knowledge, but the interviews failed to reveal evidence of the introduction of self-directed learning. This finding suggests that we may not properly assess the introduction of self-directed learning to students.

**Conclusion:** We properly have to assess whether the flipped classroom is conducive to the introduction of self-directed learning.

**Take Home Messages:** Further qualitative study is required to evaluate the effectiveness of the flipped classroom at a deeper level.

#3111 (131618)

**Cards: a novel, case-based method for undergraduate medical students to learn key concepts in Geriatrics**

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**Background:** The flipped classroom is a reversal of conventional teaching models: learners obtain first exposure to material through independent study and then in-class time is dedicated to activities for learners to apply the knowledge. Cards are a novel method of “flipping the classroom” using adaptive multiple-choice questions with patient cases containing randomized demographic data. The purpose of this project was to implement a flipped classroom model on Geriatrics topics to determine if Cards provide an additional benefit to podcasts in learning outcomes for second-year medical students.

**Summary of Work:** Three distinct modalities were used: traditional lectures, podcasts, and Cards. All of the material was covered in lectures and podcasts. Half of the material was randomized to be presented in Cards. Recall and comprehension were tested as part of a formative examination. After the exam, students were asked to evaluate each teaching method based on a Likert scale: 1 (strongly disagree) to 5 (strongly agree).

**Summary of Results:** Students performed better on exams when faced with material covered by Cards compared to material covered by only lectures and podcasts ( $37.8 \pm 16.5\%$  correct responses versus  $30.3 \pm 14.3\%$ ;  $n=131$ ;  $p < 0.01$ ).

**Discussion:** The students viewed Cards as a valuable supplement to lecture material ( $4.2 \pm 0.56$ ;  $n=41$ ) that helped add to their knowledge about the topics ( $4.2 \pm 0.61$ ). The majority would want more instructors to incorporate Cards into their teaching ( $4.2 \pm 0.67$ ) and preferred Cards over the traditional lectures ( $3.8 \pm 0.92$ ).

**Conclusion:** Further studies will be required to see if Cards alone can show improved learning outcomes or if the other components of the flipped classroom are needed to supplement Cards.

**Take Home Messages:** Cards reinforce knowledge acquisition through repetition and are a well-received teaching method.

#3112 (133169)

**Advanced level teaching in Africa: A Preliminary Report From Two Flipped Web Courses**

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**Background:** There is a need for long-term capacity building in low- and middle income countries. We initiated a web-based teaching with flipped classroom on advanced level for African students in Africa. Each course was given under 10 weeks as a part time course between October 2015 and March 2016. The first course was in Pharmacometrics (PhX) and the second in Clinical Trial Management (CTM). These topics were considered as primary targets as they contribute to the countries capacity in evaluating new drug applications, and to perform clinical research based on national preferences.

**Summary of Work:** Each course started with an introduction week to secure digital literacy and code of conduct. The courses consisted of asynchronous and synchronous webinars, group works, and individual tasks. The context was flipped classroom where tasks, cases and reading material was supplied in advance, and discussed during the webinars. Group-works under supervision by a facilitator were done by creating smaller digital rooms. The learning management system at KI, PingPong, was used, except for webinars where we used Adobe Connect. Examination was done by participation in a group essay covering learning objectives, and an individual reflective essay based on a learning diary.

**Summary of Results:** 298 applications were considered as fully applicable, 28% female. These were ranked and categorized into the two courses according to applicants wish. For this reason 28 seats were allocated to Pharmacometrics, and 57 seats to Clinical Trial Management, in total 85 seats. 48% of the accepted applications were female. Student ages ranged from 20-29 years ( $n=16$ ), 30-39 ( $n=50$ ), 40-49 ( $n=15$ ), and 50-60 ( $n=5$ ).

**Discussion:** Two web based courses, in Pharmacometrics and Clinical Trail Management, with flipped classroom pedagogy attracted a range of African professionals and students. The two courses are on-going. Further reports will follow.

**Conclusion:** We attracted a lot of highly qualified students and achieved balanced gender distribution for participation in a tutored e-learning. Further results will be reported at the conference.

**Take Home Messages:** It is possible to present student-centred advanced level distant learning for students in low- and middle income countries by flipped pedagogy.

#31113 (135085)

**Learning achievement of the second year dental students using flipped classroom approach in anatomy of base of skull class at the faculty of Medicine, Thammasat University**

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**Background:** Nowadays, the life-long learning is the most important aim of the educational plan for. The purpose of this study are to evaluate the effect and assess the students' attitude toward learning achievement of anatomy of base of skull flipped classroom at the Faculty of Medicine, Thammasat university.

**Summary of Work:** Thirty-two 2nd year dental students who enrolled the neuroanatomy course in academic year 2/2014 were used flipped classroom model for anatomy of base of skull class. Evaluation of student effectiveness was achieved by multiple-choice examination at the beginning and the end of the class. Students' attitude was done by questionnaire.

**Summary of Results:** Student's learning performance on posttest examination (13.94) was significantly improved ( $p \leq 0.05$ ) compare to pretest examination (10.18) in anatomy of base of skull lesson. Students' opinions of using flipped classroom model in anatomy lesson were mostly positive.

**Discussion:** The flipped classroom model is more effectiveness in 2nd year dental students. The factors that contributed to improve the students' scores included: the early contact with the course material before class hour, homework and interactive class activity.

**Conclusion:** Our findings showed that flipped classroom model help to improve the student performance resulted in increasing MCQ scores. Moreover, the flipped classroom class could make the student feel free to should the way to learn that matched to themselves.

**Take Home Messages:** Happiness class and more varieties of resources maybe the clue for stimulating a comfortable learning environment and improving the effectiveness of student's learning outcomes.

#31114 (133617)

**Flipped classroom and its effectiveness compared with traditional-style lecture in stroke rehabilitation medicine course for medical students: randomized controlled trials**

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**Background:** Flipped classroom is new instructional strategy to promote active learner-centered class that explore topics in greater depth and create more meaningful learning opportunities than traditional didactic lectures. However; Flipped classroom has never been used with medical student at Ratchaburi Hospital before.

**Summary of Work:** 33 fourth year medical students were divided into 2 groups of 16 and 17 by randomization. Both group received the reference paper. First groups were explained about the concept of flipped classroom and receive DVD about stroke rehabilitation to study before class. In classroom, the instructor will encourage the student to discuss about content and interesting case, practical point, new research on stroke rehabilitation. While the second group receive traditional didactic lecture. After finishing the class, both groups were tested with MCQ question, graded satisfaction and opinion about learning.

**Summary of Results:** Students in flipped classroom received a better score in examination than traditional didactic lecture group ( 89.7% vs. 78.4%), better overall satisfaction ( 8.4/10 vs. 7.5/10). From opinion, student in flipped classroom have more confidence to apply the knowledge to improve patient care.

**Discussion:** Flipped classroom is one effective way of learning for medical students. Good content preparation and adequate time to study were the key of success.

**Conclusion:** Flipped classroom is more effective than traditional didactic lecture on student knowledge, satisfaction and student have more confidence to apply knowledge with patients.

**Take Home Messages:** Medical education center should consider the use of flipped classroom in the future.



#31115 (132267)

### Using smartphone to flip your class

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**Background:** The students complained that they did not receive effective feedback during the flipped classroom (FC). And the faculty responded that they did not have an efficient tool to track the students learning. Nowadays almost all of our students and faculties have a smartphone, so we designed a FC in an integrated course Infection and Immunity at Shantou University Medical College by using the smartphone as a tool to help the teacher to track the students' learning. The students' views about the FC compared with those of last year were investigated.

**Summary of Work:** Twenty-five year 3 medical students from Batch 2013 participated in this study. Smartphone were used in all three steps of the flipped classroom including pre-class self-study, student-centered class and peer assessment. The students scanned the QR code to get the learning materials and questions, and answered the questions online. Then the teachers could track the students' learning easily by their phone. Twenty-five students from Batch 2012 also participated in the flipped classroom last year, but all the materials were sent to the students by U disk.

**Summary of Results:** 1. More than 90% of the students strongly agreed or agreed that self-study could promote their understanding of the knowledge, and quiz and discussion enhance their learning. There were no difference between these views of the students from Batch 2013 and 2012. 2. The overall view of FC from the Batch 2013 is higher than that of Batch 2012 (4.16 vs 3.38,  $P < 0.05$ ). 3. The students commented that the FC was well organized and efficient, time is under good control and answer is given as a feedback.

**Discussion:** The teacher responded that they are easily tracked the students learning by their smartphone and could give feedback timely. The smartphone could be a very effective tool to help the teacher to flip their classroom.

**Conclusion:** Tracking the students' learning by smartphone can improve the students overall view of the FC.

**Take Home Messages:** Smartphone could be an effective tool to help you to flip your class.

#31116 (132308)

### Effects of Four Learning Methods on Medical Students' Learning Outcomes in Pediatrics

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**Background:** The traditional learning method in Thailand is lecture-based learning. Modern learning methods including flipped classroom, and e-learning, have been recently applied at Faculty of Medicine, Chiang Mai University (CMU), Thailand. The study aims to compare learning outcomes among different learning methods.

**Summary of Work:** This was a retrospective study, comparing MCQ scores of four learning methods including lecture, flipped classroom, e-learning and assigned reading. The student's satisfaction was also recorded. The data were analyzed using the regression analysis.

**Summary of Results:** Compared to lecture-based learning, e-learning and flipped classroom showed significant better outcomes. The scores of assigned reading were significantly lower than lecture-based learning. Medical students were most satisfied with flipped classroom and least satisfied with assigned reading. The satisfaction was not different between e-learning and lecture.

**Discussion:** The learning outcomes of e-learning and flipped classroom were superior to those of lecture-based learning and assigned reading. The superior performance could be related to the satisfaction of those methods which could strengthen critical thinking.

**Conclusion:** The e-learning and flipped classroom are the effective learning methods which facilitate students' active learning and reinforce lifelong-learning skill. Longitudinal studies are required to verify these effects on learning motivation.

**Take Home Messages:** The e-learning and flipped classroom learning methods should be encouraged in medical education.

#31117 (128194)

**Using The OSCE Assessment to Compare FLIP Teaching and Transitional Lecture in Nurse Practitioners**

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**Background:** The role of nurse practitioners (NP) becomes more important in Taiwan. How to educate NP to become competent health care providers is a critical issue. Here, we applied serial FLIP courses to NP training and assessed their different kinds of clinical skills by objective structured clinical examination (OSCE).

**Summary of Work:** We designed two types of courses; one was FLIP and the other traditional. The NP chose the course to join by themselves. After the course was finished, all the NP submitted the completed questionnaire for regression analysis. Meanwhile their different kinds of skills were evaluated using OSCE.

**Summary of Results:** Using OSCE as an assessment tool for clinical skills, the performance of communication, history taking, physical examination, diagnosis making, and management skills in FLIP group was superior to the traditional group. Most of the NP enjoyed FLIP course with detailed discussions which promoted creative thinking, group interactions and avoiding errors.

**Discussion:** The FLIP course puts emphasis on preparation of basic knowledge before attending the lessons, and it reinforces clinical skills after active discussions and practices in the class. Our results of OSCE prove that performance of active learning is better than passive learning, including clinical knowledge, interpersonal communication, and practiced skills.

**Conclusion:** The FLIP learning is one of the effective education tools for NP's clinical training. The OSCE assessment can help instructors evaluate if practiced skill of individual learners is good or poor. We hope that this observation can assist our teaching strategy in improving and enforcing NP's clinical skills.

**Take Home Messages:** Well prepared teaching materials and sufficient flexible time for learning is the key to successful teaching and learning. Practicing more skills and prompt correction of errors are suggested. Using OSCE as an assessment tool helps instructors observe what kind of clinical skills has to be reinforced for each individual learner.

#31118 (136061)

**Head Over Heels in Gastrointestinal Anatomy: A Case Study**

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**Background:** The classical teaching model consists of lectures where students passively receive information. In the flipped classroom, lecture content is available for students online, and the lecture time is utilised for problem solving and active learning. This project set out to compare these models in a "traditional" anatomy course.

**Summary of Work:** Activity logs for Year 2 recorded lectures in the anatomy of the gastrointestinal tract were downloaded from Moodle (VLE). Results of a mock topic test administered under exam conditions and student feedback were analysed.

**Summary of Results:** 61 participants submitted voluntarily to the written test; 38 (62.3%) had watched the online lectures. No difference was found in marks between students who did/did not participate (54.0+/-18.6 vs 59.9+/-14.1, p=0.1699) respectively. The response rate was 73%: All watched online lectures, 70% used them to replace contact teaching entirely on at least some occasions. 60% preferred video lectures, 51.2% of whom preferred full-face video recording of the traditional lecture, 16% audio alone and 18.6% a full flipped classroom model. 39.5% felt their performance was negatively affected by this approach due to their lack of motivation to engage with the lecture videos.

**Discussion:** The similarity in student marks between the two teaching approaches suggests that the flipped classroom model may be a suitable alternative, especially when resources are limited. The preference of some students for the traditional model could suggest a reluctance to participate in active learning activities or room for improvement in the video lectures provided.

**Conclusion:** The majority of students accessed online lectures. Those who did performed as well as those who did not in a mock test.

**Take Home Messages:** Flipped classroom teaching is an effective alternative to traditional anatomy teaching.

#31119 (135462)

**The power of peer to peer learning within a traditional lecture based course**

*Chris John\*, Imperial College London, London, UK*

**Background:** The lecture remains one of the primary and most cost effective ways of teaching university students enrolled on large courses. However, cognitive science indicates that human short term memory is limited and can only process so much information at once. As a result, lecture based courses tend to encourage students to passively absorb information and subsequently learn through rote-memorization. The challenge for the lecturer is to introduce activities that encourage students to engage with, and develop an understanding of the material being taught. Peer to peer learning within the large lecture offers the opportunity for students to compare their understanding and learn from each other.

**Summary of Work:** The lectures within a Year 2 Pharmacology course frequently include multiple choice questions to test understanding. An audience response system (mentimeter) is utilised to visualise student responses. Students are asked to submit choices without peer interaction (i.e. in silence), and subsequently are allowed to resubmit their choices after discussing their answer with their peers. Students are then shown the responses, before and after peer-to-peer interaction.

**Summary of Results:** Student responses to twelve multiple choice questions were analysed. Without peer interaction, the mean percentage of students identifying the correct answer was 65.4%, whereas peer-to-peer interaction increased the mean percentage to 79.6%.

**Discussion:** Inclusion of multiple choice questions during the lecture allows students to consolidate material submitted to short term memory. Peer-to-peer interaction within a large lecture based class ensures that many more students choose the right answer after they have talked to their peers and thus increases student understanding.

**Conclusion:** Inclusion of this process throughout the course has the potential to encourage a deeper understanding of fundamental concepts.

**Take Home Messages:** Peer-to-peer learning within the large lecture can increase student understanding of the taught material.

### 3JJ Posters: Career Choice

Location:

#3JJ01 (132601)

**Factors influencing preferred specialty and future locality in first year graduate entry medical students**

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**Background:** Recruitment into certain specialties in medicine can be very difficult in the current climate and is often coupled with problems recruiting depending on locality. The purpose of this study was to assess student's aspirations early in their medical training with the aim of determining what influences contributed to their specialty and locality preferences.

**Summary of Work:** A questionnaire was distributed to a cohort of first year graduate entry medical students at Swansea University. They were asked to state which medical specialty they wished to pursue as well as preferred locality for the future. They were also asked to comment on what had influenced them to make their decisions.

**Summary of Results:** 72 data sets were collected and analysed (100% response rate). 62% of the cohort cited training experiences to date as the biggest influence of specialty preference. Preferred medical specialties included Emergency Medicine (11%) and General Practice (30%). 13% of students did not yet have a preference. In terms of locality 675 of the cohort cited family and friends as the largest influencing factor, with only 65 of students citing career choice as their motivation to choose a particular location.

**Discussion:** Results suggest that early medical training does influence specialty choice. Locality preferences appear to be largely influenced by family and friends rather than experiences during training. Other external motivating factors may also influence both specialty and locality preferences.

**Conclusion:** As these results were obtained prior to any clinical attachments this study is encouraging for General Practice and Emergency Medicine and highlights the importance of positive early experiences. Further investigations are necessary to establish trends.

**Take Home Messages:** Knowledge of the influencing factors may be important in medical education possibly improving recruitment to understaffed specialties and localities in the future.

#3JJ02 (136177)

**Extracurricular activity counts — The impact of experiences in students' extracurricular activities on future career choice**

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*William J. Huang*

**Background:** In Taiwan, many of the medical students join in the service teams as volunteers to the less-served areas, majorly aboriginal villages, in their summer vacation. They offer knowledge of health care, public awareness of official health policy. On the other hand, they also hold educational summer camp activities for local students of primary schools. During the activity, volunteer medical students learn about the aboriginal culture and understand the challenges the village faces. When available, they observe the practice of local doctors, and cooperate with them. Will the student voluntary experiences in service team during medical school affect medical students' future career or specialty choices?

**Summary of Work:** The study was conducted in National Yang-Ming University. Two service team clubs were included, which are aboriginal medical service team and mental sanatorium service team. We retrospectively traced the information of the graduates who had been a member of the two service teams, and analyzed their specialty choices. Matched number of graduates without such experiences were also included for control. Besides, we conducted a poll for undergraduate students on their possible specialty choices and the reason for the decision.

**Summary of Results:** We found the graduates who had joined in the service teams during their medical student era are more likely to choose family medicine, public health, internal medicine, surgery and pediatrics as their specialty. Also evident is that substantially more graduates from this cohort joined the medical services to the rural or less-served areas in Taiwan or pursue academic career in public health domain.

**Discussion:** Although selection bias may be a limitation of the study, the results provide an insight that curriculum of medical education needs to provide the opportunities of exposure for students to various patterns of practice or services, especially the less-served communities or cohorts.

**Conclusion:** Extracurricular activity for students to experience volunteer work to the less-served areas could potentially impact career choices for students.

**Take Home Messages:** Medical education needs to provide the opportunities of exposure for students to various patterns of practice or services, especially to the less-served communities or cohorts. Extracurricular activity for students to experience volunteer work could potentially impact career choices for students.



#3JJ03 (133218)

**Changes over time concerning factors influencing medical specialty choice**

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**Background:** The choice of a medical specialty comprises an important issue not only for individuals but also for healthcare systems. Studies have indicated that the prevailing factors that influence choices have been changing in the last decades. Nevertheless, this issue is still open to investigation.

**Summary of Work:** We have studied the factors that influenced medical specialty choice in two groups of specialists representing 38 different specialties: consultants (N=85; median age=39 years) and final year specialist trainees (N=35; median age=29 years). Median time after graduation was 15 years for consultants and 4 years for residents. Participants from both groups answered to a structured questionnaire on factors that determined the choice of their current specialty.

**Summary of Results:** For the whole of participants, the most frequently reported factor that influenced specialty choice was the matching between personal interests and specialty characteristics (87.5%). Participants also reported the possibility of lifestyle control (35%), influence of role models (27.5%), financial reasons (11%) and influence of family members (5%). Comparison between groups showed that two factors were significantly more frequently reported in the residents group than amongst the consultants: possibility of lifestyle control (60% vs. 24.7;  $p=0.003$ , Fisher test) and financial reasons (31.4% vs. 3.5;  $p=0.001$ ).

**Discussion:** Although the findings of this work must be confirmed in further investigations, they agree with those from previous studies and are in line with the reported trends of increasing individualism and decreasing altruism amongst graduating medical students.

**Conclusion:** Possibility of lifestyle control and financial aspects as factors influencing medical specialty choice are presently more important than used to be.

**Take Home Messages:** The importance of lifestyle control and of financial aspects as factors currently exerting major influences in medical specialty choice should be taken into account by institutions involved with medical workforce planning, as well as by those concerned with careers guidance programmes.

#3JJ04 (135984)

**Personality profiles among physicians correlate with career choices**

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*Alain Boyer*  
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*Alain Dupuy*

**Background:** We all recognize that different types of physicians may have different ideas about their interactions with patients or students, and that mismatches in personality-dependent motivations and needs between these interaction partners may lead to inefficiencies and frictions. Here, we asked how well personality profiles of medical doctors correlate with their career choice.

**Summary of Work:** We used Process Communication Model (PCM) to assess the prevalence of personality profiles among 161 physicians (general practitioners and specialists, either in private practice or engaged in an academic career). The goal was to describe their self-assessed personality profiles and to explore whether these profiles differed according to gender, specialty choice, or private versus academic practice choice.

**Summary of Results:** We found that the typical academic doctor envisions the world predominantly through his or her thoughts and logic and is motivated most easily by recognition of his or her opinion and beliefs. On the other hand, the typical private practice doctor views the world through his or her feelings, is people-oriented, and is motivated most easily through recognition of personhood.

**Discussion:** This clear correlation between personality traits and career choices leaves us with a remaining problem: are the correlations indicative of causality? Are trainees with certain personality traits attracted to certain specialties/practice modes, or is it the specialty environment that shapes the trainee's personality? Do academic admission committees select trainees in their own image?

**Conclusion:** We are firmly convinced that knowing how personalities may shape career choices, may offer deeper insights into how medical professionals communicate with their interaction partners, in particular patients and students. Likewise, we believe that such communications could be refined to the benefit of all involved when doctors of any personality types are willing to move into another person's frame of preference.

**Take Home Messages:** Personality profiles among physicians correlate with career choices: PCM knowledge may help medical doctors communicate with others.

#3JJ05 (136000)

**Future Specialty Preferences and the Factors That Shape Them: A Saudi Arabian Perspective**

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**Background:** With a diverse range of specialty choices available for medical students, it should be a well-planned decision. In this study, we look at factors affecting specialty choices and whether preferences differ among males and females.

**Summary of Work:** A cross-sectional study of 223 medical students from years 1 to 5 was done at Alfaisal University in Riyadh, KSA. A thorough investigation through a comprehensive questionnaire looked at the most frequent specialty choices among males and females, and the major factors that influence these choices.

**Summary of Results:** Some of the factors that were considered most important for medical students were: A higher chance of matching abroad (73%), multiple sub-specialty career paths to choose from (72%), higher salary (49%), and the reputation of the specialty (45%). Results also showed that females are much likelier to select paediatrics, obstetrics and gynaecology whereas males lean more towards surgery and internal medicine.

**Discussion:** Our results show similar findings to international studies on preferences of specialty choices among males and females. The factors for choosing these specialties differ significantly however, due to many cultural or regional opinions on career choices.

**Conclusion:** Males and females have a clear split in opinion in actual specialty preference. Since many students at Alfaisal University are foreigners, they prefer to seek career options abroad. Thus, the rate of acceptance into residency abroad is an important factor. Another valued factor is keeping options open by choosing specialties that can further lead to several sub-specialty options such as Surgery and Internal Medicine. Salary and reputation do play a significant role in choice, but not as much as the literature shows from other parts of the world.

**Take Home Messages:** The main factors for choosing specialties remain the same throughout many parts of the world. It is cultural and regional differences that lead to how much a particular factor influences choice over the other.

#3JJ06 (129703)

**Trend to selected career path of Clinical Medical Students in Medical Education Center : Vachiraphuket Hospital**

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*Noppol Thadukul*

**Background:** Nowadays, doctors tend to work out of the system more than the past. Therefore, we would like to know trends of selected career path, qualification and self-development of CPIRD medical students in Vachiraphuket Hospital.

**Summary of Work:** We survey from Medical students in year 4 to year 6 about the main 4 career paths: service, management, academic matter and others. We survey opinion about doctor qualification in the path they chose, and also ask about their self-development for being proper with that way. All data are analyzed by descriptive and qualitative statistics

**Summary of Results:** From 47 medical students, 42.6% would like to work in area of medical care service. 23.4% are interested in public health system management. 21.3% want to work in other field. There are only 12.7% like to work about advanced academic matter. The last year were more incline to be interested in management.

**Discussion:** Knowledgeable, well-communicated, service-minded, continuous learning and extending the connection from observe project, leadership, integrity, human relations, creativity, interprofessional skill, joining the interested workshop, like to eaching, going to observe project and research were importance skill in different career paths..

**Conclusion:** Most of Medical students are still interested in medical care service and incline to be interested in management area when they are nearly graduated. Other careers which are irrelevant to the medical field are interested moderately.

**Take Home Messages:** We should support the medical student in area of leadership, communication skill, interprofessional skill, information monitoring and management skill for working in each career path effectively.

#3JJ07 (135406)

**An exploration of career guidance and planning during medical school, a decade after the introduction of Modernising Medical Careers**

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**Background:** Research prior to the introduction of Modernising Medical Careers (MMC) in 2005, suggested that medical careers guidance was unsatisfactory. MMC proposed national strategies for career management with undergraduate training in mind. This project will explore career planning during medical school and analyse the influence of MMC.

**Summary of Work:** A questionnaire was designed and distributed to Birmingham University medical students placed at Walsall Manor Hospital. The survey looked at students' career aspirations and their methods for exploring these; their view of the advice provided by medical school; the factors influencing their choice of specialty; and their understanding of post-graduate training. The initial provision of questionnaires will be followed up by a reminder email at one month to encourage further participation.

**Summary of Results:** The initial phase yielded a response rate of 54%. This sample shows 92.6% of students have considered their future specialties and 88.9% have some knowledge of the training pathway after graduation. Royal College websites, clinical tutors and trainee doctors are the most commonly used resources for career exploration. 44.4% of students believe that career advice provided by medical school was adequate; however an equal proportion of students felt that it inadequate.

**Discussion:** The findings suggest that a large proportion of students are considering their specialty choices from as early as the third year of undergraduate medical training. Interestingly, there was a divide amongst students about how useful the guidance from medical school had been. Students were informed primarily by websites and medical professionals. With the latter in particular, there is concern about the lack of standardisation and objectivity in the information provided.

**Conclusion:** Medical students have access to variety of different resources to explore their career preferences. The uptake, however, is largely variable and appears to rely upon an individual student taking the initiative to seek out more information. Whilst autonomy is a vital part of adult learning; it could be argued that students need more guidance in developing foresight about their future careers.

**Take Home Messages:** Medical schools need to take a more hands-on approach in providing careers guidance from the start of pre-clinical training.

#3JJ08 (135628)

**A new Curriculum for Dental Core Training that supports entry to multiple career destinations upon the completion**

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Karen Elley, Postgraduate Dental Dean, Health Education England working across the West Midlands

Ian Sharp, Associate Dean Dental Core training and Dental Specialty training, Health Education England working across the West Midlands

**Background:** Dental Core Training is the training period between Foundation and Specialty training for some dentists for others it is an additional period of training to develop additional competences and exit into primary dental care or staff grade hospital posts. There has never been any consistent national approach for this Training.

**Summary of Work:** A UK wide steering group was established with representation from each of the Health Education England teams, deaneries and external stakeholders. A curriculum framework was developed by the group which was then further expanded through a nationwide stakeholder event and a written consultation on the final draft of the curriculum.

**Summary of Results:** The curriculum defines a set of mandatory outcomes at all levels of DCT posts. The DCT 1 focus is on generic outcomes, DCT year 2 and 3 will focus on development of those and the development towards optional specific outcomes within restorative, Orthodontics, Oral Surgery etc

**Discussion:** The range of skills, experience and knowledge acquired through completion of Dental Core Training required a framework that would guide users to the fundamental outcomes required but also those additional training outcomes that would need to be evidenced as a trainee progresses through their training.

**Conclusion:** The new UK wide DCT curriculum will support trainees and trainers by providing a competence framework of knowledge, skills and behaviours which indicate attitudes and appropriate tools for the assessment of their acquisition. Furthermore the programme will meet quality standards to those expected for other postgraduate dental training programmes.

**Take Home Messages:** The new UK wide Dental Core Training curriculum will guide all post foundation dental trainees towards numerous possible career destinations.

#3JJ09 (135742)

**Pre-doctor experience camp of Senior high school students makes a better choice for medical career**

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EnYuan Lin, Taipei Medical University, Taipei Medical University Hospital, Taipei, Taiwan

**Background:** In the past, the career of Doctor is enviable in worldwide. Actually, some medical students give up their learning because they don't like the "real life" in medical training. Therefore, we try to create an experience camp for senior high school students and help them to realize the job of Doctor. It could make their choice in the future to be correct.

**Summary of Work:** There are 128 senior high school students participated in this camp during 2years. The each camp was held for 5 days. We simulated many medical training as Interns/Residents. It is including history taking, physical examination, OSCE, duty on call, and clinical skills.

**Summary of Results:** During 5 day-curriculum, the result showed 128 students have more Interest to be a doctor and their target becomes clearer or more definite by Pre-camp and Post-Camp questionnaires.

**Discussion:** During 2 years data, most students experienced by simulated environment made more motivation to being a doctor. But few student indeed found they is not suitable for this career. It helps these students for confirm their career choice.

**Conclusion:** If we want to choice suitable medical students, we could offer some opportunities to help them realize their job in the future. This Pre-doctor experience camp try to create a simulated environment to let students to make their best decision before they become doctors.

**Take Home Messages:** This Pre-doctor experience camp try to create a simulated environment to let students to make their best decision before they become doctors.

#3JJ10 (128527)

**Specialty choice preference of medical students according to personality traits by Five-Factor Model in Korea**

**Oh Young Kwon\***, Kyung Hee University School of Medicine, Seoul, South Korea

So Youn Park  
Tai Young Yoon  
Yedam Ho

**Background:** Many factors contribute to choosing a medical specialty as a career for medical students. The purpose of this study was to determine the relationship between personality traits, using the Five-Factor Model, and characteristics and motivational factors affecting specialty choice in Korean medical students.

**Summary of Work:** In 2015, 109 Year 4 medical students wrote a questionnaire survey. We evaluated the personality traits of Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness by using the Big Five Inventory-10. Data between personality traits and general characteristics affecting specialty choice were analyzed using Student t test, Mann-Whitney test and ANOVA.

**Summary of Results:** Of the 110 eligible medical students, 105 (95.4% response rate) completed the questionnaire. More Agreeableness students preferred clinical medicine to basic medicine ( $p=0.010$ ) and more Openness students preferred medical departments to others ( $p=0.031$ ). Personal interest was the significant motivational factors in more Openness students ( $p=0.003$ ) and Conscientiousness students ( $p=0.003$ ).

**Discussion:** The characteristics of Agreeableness (trust, altruism, and cooperation) will affect that more Agreeableness students preferred clinical medicine. The students' adaptation of different training and practice environments may be related to the result that more Openness students preferred medical departments.

**Conclusion:** Medical students with more Agreeableness were more likely to prefer clinical medicine, and more Openness students preferred medical departments. Personal interest was a significant influential factor determining specialty choice in more Openness and Conscientiousness students.

**Take Home Messages:** The results of association between medical students' personality traits and the specialty choice may be helpful to medical educators or career counselors in the specialty choice process.



#3JJ11 (134976)

**Undergraduate Specialty Conferences and Career Exploration: Outcomes of a Questionnaire-Based Survey**

**Rafail Kotronias\***, King's College London, London, UK  
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Shruti Jayakumar (King's College London, London, UK)  
Sarah Ayton (University of East Anglia, Norwich, UK)

\*co-first authors

**Background:** The competitiveness of specialist training in the UK encourages early career exploration and CV building. However, the role of undergraduate conferences in this field has yet to be charted.

**Summary of Work:** To determine the role of a specialist (cardiovascular) national undergraduate conference in exploration of career options, 94 delegates were invited to complete a two-part questionnaire, comprised of a pre- and post-conference online survey. The survey incorporated a range of open-ended, multiple-choice and Likert-rating scale (1=lowest and 5=highest) items. Semi-quantitative analyses were performed with SurveyMonkey built-in software, while qualitative analyses were carried out independently by two reviewers.

**Summary of Results:** 94 delegates completed the pre-conference questionnaire, with 94.6% (89/94) responding to the post-conference survey. 80% of delegates had commenced clinical training. Prior to the conference, 74.0% (70/94) of the delegates expressed an interest in a career in cardiology or cardiothoracic surgery. Over half (61.0%) of those attending the conference, stated that the conference was useful in confirming their career choice. In particular, the lectures proved to be the most influential aspect of the conference for 49.4% (44/89) of delegates in confirming their choice, closely followed by the workshops 40.4% (36/89). Less than one third of delegates 31.4% (28/89) felt medical schools offer enough exposure to specialties to facilitate career exploration.

**Discussion:** The results highlight that specialty-specific undergraduate conferences play a role in undergraduate career exploration. Though potentially confounded by sampling bias, the limited exposure to specialties in medical school identified in our survey, along with the increased drive of medical students for early career choices, warrant further appraisal of career exploration services for medical students.

**Conclusion:** Carefully designed peer-led conferences compliment medical school career exploration and can be used as an intervention to increase exposure to specialties medical students have limited exposure to.

**Take Home Messages:** Specialist undergraduate conferences have an important role in career exploration for medical students.

#3JJ12 (135753)

**Medical school experiences and decision to continue medical training as emergency physicians in graduated medical students**

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Prajuab Meelab (Saraburi Hospital, Saraburi, Thailand)

**Background:** Objectives: To identify experiences during medical schools which are associated with decision to continue medical training in emergency medicine in graduated medical students.

**Summary of Work:** Methods: Seventy-one graduated medical students, comprising 28 of those who decided to continue medical training in emergency medicine (cases) and 48 of those who did not (controls). Questionnaires were used to assess their experiences during their medical school years. Questions were focused on their attitudes, training programs, interested topics, and attractive teaching techniques. Associated factors were presented with odds ratio and 95% confidence interval (95%CI) under multivariable binary logistic regression analysis.

**Summary of Results:** Good impression towards emergency physicians during medical school years increased the likelihood of decision to continue medical training in emergency medicine by 8.82 times (95%CI; 2.06, 37.76, p=0.003). Teaching technique with morning report also increased the likelihood by 6.15 times (95%CI; 1.52, 24.95, p=0.011).

**Discussion:** The other factors that may be increase likelihood of decision to continue medical training in Emergency Medicine were 8-hour shift work preferences, emergency room impression and procedural skills preferences but didn't statistical significant due to small study size.

**Conclusion:** A good impression towards emergency physicians and morning report teaching technique during medical school years was associated with increased likelihood of decision to continue medical training in emergency medicine.

**Take Home Messages:** A good impression towards emergency physicians and morning report teaching technique during medical school years was associated with increased likelihood of decision to continue medical training in emergency medicine.

#3JJ13 (136217)

**Family Medicine residents' exposure to Palliative and End-of-Life Care in Canada does not translate into a desire to practice in the domain**

**Charles Leduc\***, University of Calgary, Calgary, Canada

Maria Palacios Mackay (University of Calgary, Calgary, Canada)

Jose Pereira (University of Ottawa, Ottawa, Canada)

**Background:** Medical schools in North America are striving to include clinical experience in Palliative and End-of-Life Care (PEoLC) as an essential component of primary care (PC). In Canada, Family Medicine (FM) defines the learning experiences students have prior to FM residency.

**Summary of Work:** The College of Family Physicians of Canada in partnership with six Canadian Universities is conducting a longitudinal program evaluation of a new curriculum for FM residency. FM residents complete a survey upon entry to the residency. Three cohorts of residents at the University of Calgary have completed the survey (2013, 2014, 2015). The survey consists of multiple choice and Likert scale items where the residents are asked about their experiences in medical school, and their future intentions to practice.

**Summary of Results:** In the University of Calgary program, 60% of residents in the 2013 cohort, 56.3% in the 2014, and 60% of residents in the 2015 cohort reported "none to minimal" exposure to PEoLC. Regarding future practice intentions, 17.1% of residents in the 2013 cohort, 26.3% in the 2014, and 24.2% in the 2015 cohort reported being either "not at all likely or not likely" to provide PEoLC.

**Discussion:** Self-reported exposure to FM domains reflects deficiencies in the scope of comprehensive care covered in medical schools. Undergraduate programs must look at the exposure being provided to medical students in key domains, such as PEoLC. Residency programs expect that accredited programs have provided acceptable experience.

**Conclusion:** The reported exposure to PEoLC in medical school is associated with a very low rate of PEoLC practice intentions after residency. Undergraduate programs will need a design adjustment to help medical students and future family physicians achieve their expected PEoLC competencies.

**Take Home Messages:** In the domain of PEoLC there is a clear relationship between low exposure in undergraduate medical education and future intentions to practice in the domain. We will have to find new ways to enhance readiness for postgraduate education.

#3JJ14 (135017)

**A 6-year UME-GME Pathway to Primary Care Practice**

**Tonya Fancher\***, University of California, Davis, School of Medicine, Sacramento, USA

Mark Henderson (UC Davis, Sacramento, USA)

Hillary Campbell (Kaiser Permanente, Sacramento, USA)

Mark Servis (UC Davis, Sacramento, USA)

**Background:** California and the nation face an urgent shortage of primary care (PC) physicians; yet the popularity of PC careers among medical students has been decreasing for decades. The Accelerated Competency-based Education in Primary Care (ACE-PC) program is designed to rekindle interest in PC by immersing students within a rewarding medical home and preparing them to enter the workforce better prepared, earlier and with less debt.

**Summary of Work:** In partnership with Kaiser Permanente (the largest provider of healthcare in California) and the American Medical Association, UC Davis designed a six-year pathway to PC practice. The program allows students interested in PC careers to complete medical school in three years and receive conditional acceptance to a residency program in Primary Care Internal Medicine or Family Medicine at UC Davis or Kaiser Permanente.

**Summary of Results:** Students start medical school six weeks early and work through the summers. From day 1, students are embedded in a Kaiser clinic that continues for three years, where they learn how to manage a cohort of patients under the mentorship of a dedicated PC physician. Kaiser's integrated health care system and medical home promotes seamless integration between education and practice. Students learn to care for patients with teams of other health care providers. Continuity clinic learning emphasizes chronic illness care, population management and preventative medicine. The ACE-PC program has enrolled two cohorts of 6 students each; a total of 18 students will be enrolled when all three years of the program are in operation in June 2016. Half of current students are first generation college graduates and over 80% speak a language other than English. Students from disadvantaged backgrounds are more likely to practice PC and work in medically underserved communities.

**Discussion:** The partnership has flourished with the ACE-PC program, reflecting a shared institutional commitment to train diverse PC physicians. As the students progress into residency and their PC careers, they will continue to be evaluated to inform future program improvements.

**Conclusion:** Planning is underway to expand the program and add pathways in other shortage specialties including psychiatry, general surgery, and pediatrics.

**Take Home Messages:** Partnerships between healthcare organizations and academic medical centers benefit both institutions when goals are aligned. Choosing the right, diverse students committed to PC careers is a key to success.

#3JJ15 (136173)

**Exploring the Level of Interest Among Undergraduate Medical Students in KSA to Pursue Family Medicine as a Specialty**

**M. Marwan Dabbagh\***, *Alfaisal University, Riyadh, Saudi Arabia*

Abdulaziz Barakat (Alfaisal University, Riyadh, KSA)  
Mohammed Sharique Ahmad (Alfaisal University, Riyadh, KSA)  
Akef Obeidat, Alfaisal University, Riyadh, KSA

**Background:** Family medicine (FM) is a rare medical specialty in the Middle East, where unfortunately, primary health care physicians' role is underestimated. The number of medical students choosing family medicine as a career has steadily declined worldwide in the past 10 years.

**Summary of Work:** This is a cross-sectional study, 1st to 4th year medical students were surveyed at Alfaisal University (AU), Riyadh, KSA. Survey included questions regarding how interested are the students in pursuing FM as a future specialty. Students rank-ordered their choices and provided reasons as to why/why-not choose FM.

**Summary of Results:** Initial data collection yielded 197 responses out of which only 6% considered FM to be their top choice specialty and 14% considered FM among their top 3 choices. It is noticeable that the interest increases linearly with the academic year (6% in year 1 to 23 % in year 4). Generally, 29% of the sample would consider FM. However, there is a lack of knowledge and negative impressions towards FM as they do not know the role of family physicians (12%), 81% not sure if FM yields good annual income and 51% think that FM does not have a good social standing.

**Discussion:** In comparison with similar studies, in which they have an interest rate of 20% as top specialty and 50% among the top 3, the interest towards FM in AU is much lower. However, our findings support the literature such that the experience increases the interest in selecting FM.

**Conclusion:** There is a clear lack of interest towards this specialty. Our findings support the literature in which experience increases the interest in selecting FM.

**Take Home Messages:** Education plays a pivotal role in students' perception towards underestimated yet very crucial specialties like FM. It is our duty as educationalists to make sure that the curricula are designed in a way that sheds adequate light on the important role of family physicians within the healthcare system.

#3JJ16 (134307)

**Personal and motivational factors influencing undergraduate medical students' preferences for general practice career: results of a longitudinal study**

**Milena Abbiati\***, *UDREM, Faculty of Medicine, Geneva, Switzerland*

Zoya Horcik  
Margaret W. Garbase  
Anne Baroffio

**Background:** In Switzerland, like in many EU countries, an insufficient proportion of students choose the general practice (GP) career. GP physicians' shortage is therefore a key issue. We investigated 1) GP career preferences of medical students throughout preclinical years, and 2) whether those choosing GP vs those undecided presented specific personal characteristics and/or motivations.

**Summary of Work:** At the beginning and the end of the 3 preclinical years, 237 medical students (138 women) self-reported their career preferences, level of motivation (1=low to 6=high) for different specialties including GP, personal characteristics (gender, personality, motivation type) and level of attractiveness (1=low, 6=high) of 12 motives for choosing GP. Analyses used paired T-test, chi-square, ANOVA, linear regression.

**Summary of Results:** Throughout preclinical years, the proportion of students' attracted by GP slightly increased (9.5% to 13.4%) and that of undecided students remained stable (20%). Students attracted by GP were characterized by higher instability, agreeableness, intrinsic motivation and undecided students by lower intrinsic motivation. Undecided students were moderately motivated for GP. Diversity of diseases was the strongest motive predicting GP motivation both for students attracted by GP ( $\beta=.30$ ) and those undecided ( $\beta=.25$ ). Among students attracted by GP, salary was the strongest drawback ( $\beta=-.35$ ) in students attracted by GP. Gender didn't significantly predict GP motivation.

**Discussion:** At the end of preclinical years only few students were attracted by GP and several were still undecided though moderately motivated for GP. GP and undecided students present specific personal and motivational characteristics that should be considered to encourage a GP career.

**Conclusion:** Results at one medical school confirm that the proportion of preclinical students interested by a GP career is largely insufficient to meet the needs of the population (about 50%). Undecided students might be a target to fulfill this gap.

**Take Home Messages:** Investigating personal characteristics and motivations for specific students groups could help defining efficient strategies to encourage GP career choices meeting society needs.

#3JJ17 (135955)

### Stability of Medical Student Specialty Choice of Psychiatry in the US

**Matt Goldenberg\***, Yale University, New Haven, USA

D. Keith Williams (University of Arkansas for Medical Sciences, Little Rock, AR, USA)

John Spollen (University of Arkansas for Medical Sciences, Little Rock, AR, USA)

**Background:** Only about 4 percent of US medical school graduates choose psychiatry as a career. Little is known about when students who ultimately choose psychiatry decide on their specialty choice.

**Summary of Work:** We sought to examine the timing and stability of student career choice of psychiatry compared to other medical specialties. Using linked matriculation and graduation survey data from American Association of Medical Colleges surveys from students who graduated medical school in 2013 and 2014 (n=29,714), we determined the rates of psychiatry specialty choice at both beginning and end of medical school and the stability of a specialty choice of psychiatry.

**Summary of Results:** The percentage of students who indicate specialty choice of psychiatry increases considerably (from 1.6% to 3.9-4.1%) over the course of medical school. Just over half (50.2%) of those indicating a preference for psychiatry at matriculation ultimately choose the specialty, a rate of stability higher than any other specialty. Only 20.6 % of future psychiatrists indicated a choice of psychiatry at the beginning of medical school. Students who switch their preference to psychiatry initially preferred internal medicine (18.1%), pediatrics (14.8%), family medicine (9.3%) and neurology (8.4%) among other specialties.

**Discussion:** Students who indicate at matriculation that they will become psychiatrists are rare (1.6%) but are much more likely to choose psychiatry at graduation than other students. Most US students who become psychiatrists make that career decision during medical school.

**Conclusion:** These results could be of particular interest to medical school admissions committees, policy makers and psychiatric leaders and educators and may help target future pre- and intra-medical school recruitment efforts into psychiatry.

**Take Home Messages:** Psychiatry specialty choice was relatively stable but almost 80% of students who eventually chose psychiatry made that decision during medical school.

#3JJ18 (128961)

### The Impact of a Psychiatry clerkship on Undergraduate and Graduate Medical Students' Attitudes to Psychiatry

**Rathi Mahendran\***, National University Health System, Singapore, Singapore

Haikel A Lim

Swapna Verma

Kua Ee Heok

**Background:** Attitudes to psychiatry impact personal and professional behaviors. The psychiatry clerkship is often the only exposure medical students have to psychiatry and the clinical experience and educational environment offer the best opportunity to improve those attitudes. The present study investigated undergraduate and graduate medical students' attitudes to psychiatry in a psychiatry clerkship.

**Summary of Work:** An equal number of undergraduate and graduate medical students (N=200) at two medical schools in Singapore completed the modified Attitudes to Psychiatry Scale (mAPS; Shankar et al., 2011) pre and post- psychiatry clerkship. Total and change scores were calculated. While there were differences in age of both groups (p<.001), the gender, ethnicity, and educational environments in both psychiatry programs were shown to be comparable (Mahendran et al., 2014; 2015).

**Summary of Results:** There were significant improvements in attitudes post-clerkship for both groups (p<.001). However stigma of psychiatry did not improve in both groups (p=.67).

**Discussion:** While age and prior education and training affect attitudes to psychiatry, a psychiatry clerkship can positively impact and change these attitudes. However stigma is not as easily addressed and may be more deeply rooted and related to socio-cultural, familial and religious beliefs.

**Conclusion:** Psychiatry curriculums despite enhancement and innovation need special attention in addressing stigma. Strategies for 'modulating student perceptions' include contact-based educational strategies to focusing on students' internal experiences with mentally-ill patients. The positive improvement in attitudes is the right step in eroding discrimination and stigma.

**Take Home Messages:** Innovative and enhanced Psychiatry clerkships effectively improve undergraduate and graduate medical students' attitudes toward psychiatry. Stigma toward psychiatry still needs special attention.



#3JJ19 (135916)

**Pre- and Intra-medical school factors influencing specialty choice of psychiatry in the US**

**John Spollen\***, *University of Arkansas for Medical Sciences, Little Rock, USA*

Matthew Goldenberg (*Yale University, New Haven, CT, USA*)

D. Keith Williams (*University of Arkansas for Medical Sciences, Little Rock, AR, USA*)  
Sciences, Little Rock, AR, USA)

**Background:** Psychiatry is a shortage specialty internationally. In the US, only about 4 percent of medical school graduates enter psychiatry residencies. Understanding factors associated with choosing psychiatry may inform recruitment strategies.

**Summary of Work:** We sought to determine what pre-medical school and medical school factors, obtained from annual surveys by the Association of American Medical Colleges (AAMC), were associated with a student career choice of psychiatry compared to other specialties. We used linked demographic information, matriculation student questionnaire (MSQ) and graduation questionnaire (GQ) survey data from 29,714 students who graduated medical school in 2013 and 2014 and completed at least one of the surveys. A logistic model was employed to estimate the multivariate adjusted level of association of 29 factors with a student's choice of psychiatry versus all other fields.

**Summary of Results:** A student's rating of the psychiatry clerkship as excellent was the factor most associated with psychiatry specialty choice (OR=2.72). Other highly associated factors include undergraduate psychology major (2.56), reporting work-life balance as a strong influence on specialty choice (2.30), reporting educational debt as having no influence on specialty choice (1.58), age older than 27 at matriculation (1.40) and significant positive pre-med school exposure to people of different sexual preference (1.28). All of these factors were significant at  $p < 0.0001$ .

**Discussion:** An excellent clinical exposure to psychiatry, having a psychology undergraduate major and valuing work-life balance, among other factors, appear to increase the chance of psychiatry specialty choice in the US.

**Conclusion:** Several factors are associated with psychiatry specialty choice and may inform recruitment efforts.

**Take Home Messages:** Having excellent psychiatry clinical training for medical students, recruiting more students with an undergraduate interest in psychology to medical school and stressing the relatively reasonable work-life balance for practicing psychiatrists may increase the percentage of students choosing psychiatry.

## Session 4: Simultaneous Sessions

Monday 29 August 2016: 1330-1515 hrs

### #4A Symposium: Should medical education be based in universities?

Location: Auditorium



**John Cookson\*** (Hull York Medical School, UK)

**Stewart Petersen\*** (University of Buckingham Medical School, UK)

**Jerry Booth\*** (University of York, UK)

The purpose of this symposium is to stimulate debate about the forces that currently shape medical education and to ask if these are now operating in the best interests of society. In particular the three speakers will question:

- whether the historical role of universities to produce the educated person has been lost in the drive for basic competence
- whether the changing role of the regulator, as exemplified by the GMC and the successive editions of Tomorrow's Doctors in the UK represent an important and ultimately deleterious shift in the nature of the medical graduate
- whether universities and health services recognise the particular problems of medical education and their respective roles in its promotion.

The session will appeal to those who are responsible for setting policy in medical education at all levels but particularly for undergraduates.

### #4B Symposium: Globalisation Of Medical Education: Can It Contribute To World Peace?

Location: 211 – P2

**Matthew C.E. Gwee\*** (National University of Singapore, Singapore)

**Maria Athina Martimianakis\*** (University of Toronto, Canada)

**Janneke Frambach\*** (University of Maastricht, Netherlands)

**Dujeepa D. Samarasekera\*** (National University of Singapore, Singapore)

**Representatives from Africa and the Middle East**

We now live in the era of globalisation with unprecedented movement of people (including doctors), goods (including healthcare products) and services (including healthcare delivery) across national borders- often unhindered. Yet, we are still plagued by differences in race, culture, language, religion, ideology and socio-economic-political status which form national prejudices and become flashpoints that readily ignite into open conflict and war among nations, thus threatening world peace. However,

every nation- big or small, rich or poor and developed or developing, strives hard to deliver optimal healthcare to its citizens. But, there is much disparity among nations in the quality of educational preparation of students to become practising doctors. Sharing of expertise and experience in medical education among nations can lead to beneficial health outcomes. The initiatives from Asia, Canada and Europe with some Middle Eastern and African nations to provide strong evidence that medical education, largely free from national prejudices (i.e. globally 'neutral'), is more readily accepted as a potential developmental tool to enhance and enrich the quality of medical education and, consequently, the healthcare delivery system of a nation. The global neutrality of medical education is further evidenced by the diversity of participants attending the annual medical education conferences of AMEE 2015 represented, and also of Asia Pacific Medical Education Conference 2015 with nations represented.

Globalisation of medical education can, therefore, contribute significantly to world peace considering its global neutrality and global reach, and its potential as a developmental tool for enhancing and enriching the health outcomes of a nation.

### #4C Symposium: The Many Faces of Postgraduate Training – the future is here

Location: MR 112 – P1

**Subha Ramani\*** (Harvard Medical School, USA)

**Rille Pihlak\*** (European Junior Doctors, University of Tartu, Estonia)

**David CM Taylor\*** (The University of Liverpool School of Medicine, UK)

**Matthew J. Stull\*** (University of Michigan Medical School, USA)

**(Organised by AMEE Postgraduate Committee)**

Summary (up to 150 words) including why a participant should attend the session:

Junior doctors have long been considered clinical apprentices who learn on the job. A paradigm shift occurred when institutions around the world began designing structured learning experiences for postgraduate (PG) trainees targeting outcomes and framing specific activities that junior doctors should perform independently before graduation.

Today, the medical profession offers a variety of career choices beyond a specific medical specialty, including educationalist, researcher, administrator and advocate. Junior doctors are expected to engage in a host of roles beyond that of a clinician, but does their training prepare them to take on such roles?

This Symposium will review tailored PG tracks already in place in some countries and data from junior doctors on what further career training they feel they require. Participants are invited to share their own experiences with supplemental PG training and debate

the need to train PGs around the world with a focus on  
their career goals.

## 4D Research Papers: Motivation and other predictors

Location: MR117 – P1

#4D1 (127834)

**Understanding the relationship between academic motivation and lifelong learning from residency into practice: a mixed methods study of learners in Psychiatry**

**Sanjeev Sockalingam\***, *University Health Network  
University of Toronto, Toronto, Canada*

David Wiljer (*Centre for Addiction and Mental Health,  
University of Toronto, Toronto, Canada*)

Shira Yufe (*University Health Network, York University,  
Toronto, Canada*)

Sophie Soklaridis (*Centre for Addiction and Mental  
Health, University of Toronto, Toronto, Canada*)

Ara Tekian (*University of Chicago Illinois, Chicago, USA*)

Ivan Silver (*Centre for Addiction and Mental Health,  
University of Toronto, Toronto, Canada*)

**Introduction:** Lifelong learning (LLL) is an essential component to developing future learners who are responsive to the rapidly changing healthcare system. Further, the emergence of competency-based medical education (CBME) has also resulted in greater emphasis on LLL as learners are expected to direct their own educational processes in this learner-centered training model. Central to developing “master learners” for future practice is the concept of motivation. Given the limited literature on motivation for LLL, we explore the relationship between LLL and academic motivation across the training continuum, specifically from graduate medical education to professional practice in this mixed methods research study.

**Methods:** In phase 1 (quantitative) of this study, we administered a questionnaire to Year 1 to Year 5 Psychiatry residents at the University of Toronto (n=175) to assess orientation to LLL and motivation to learn using the Jefferson Lifelong Learning Scale (JLLS) and the Academic Motivation Scale, respectively. Pearson correlations and Mann-Whitney U tests were used to compare JLLS and AMS scores. In Phase 2 (qualitative) of this study, we conducted structured interviews and focus groups of junior residents, senior residents, early career psychiatrists and educators to further understand our Phase 1 results. Data was analyzed with an iterative, inductive method of constant comparative analysis associated with grounded theory.

**Results:** 105 trainees (61%) participated in Phase 1 and 32 individuals participated in Phase 2 of the study. Participants’ orientation to LLL was correlated positively with relative autonomy motivation (intrinsic motivation) scores ( $r=0.39$ ,  $p<0.001$ ) and all three intrinsic motivation sub-domains. There was no significant difference in LLL or motivation scores based on respondents’ training year, gender, or age. Research training stream residents had significantly higher orientation to LLL than non-research stream

residents. Phase 2 qualitative data identified several themes motivating learners to engage in LLL including autonomous motivation, viewing LLL as a professional responsibility, and delivering high quality care and patient safety.

**Discussion:** This study supports the association between intrinsic academic motivation and orientation to LLL in Psychiatry trainees. Engagement in research during residency was associated with increased LLL.

Our qualitative data identified specific factors supporting LLL in residency and in practice in addition to core motivation themes. Motivation themes extended across the learner continuum and reinforced intrinsic motivation as a key driver for LLL both in residency and early in practice.

**Conclusion:** Learning motivation changes through residency training and into the early stages of independent practice. Understanding these motivation changes helps inform the development of LLL skills across the learner continuum. In the era competency-based education, our study results reinforce the need to develop curricula and use clinical teaching approaches that cultivate intrinsic motivation in residency and foster LLL in practice.

**References:** Schumacher DJ, Englander R, Carraccio C. Developing the Master Learner: Applying Learning Theory to the Learner, the Teacher, and the Learning Environment. *Acad Med.* 2013;88(11):1635-1645. Biondi EA, Varade WS, Garfunkel LC, et al. Discordance between resident and faculty perceptions of resident autonomy: can self-determination theory help interpret differences and guide strategies for bridging the divide? *Acad Med.* 2015;90(4):462-471.

#4D2 (128203)

**Factors influencing the situational motivation of medical specialists: A qualitative pilot study**

**Stéphanie van der Burgt\***, *VUmc Medical School of  
Sciences, Amsterdam, Netherlands*

Rashmi Kusurkar (*VUmc Medical School of Sciences,  
Amsterdam, Netherlands*)

Gerda Croiset (*VUmc Medical School of Sciences,  
Amsterdam, Netherlands*)

Saskia Peerdeman (*Department of Neurosurgery, VU  
Medical Center, Amsterdam, Netherlands*)

**Introduction:** Performing well in a medical specialty and maintaining it is considered professional development. Doctors need to develop and learn throughout their career.<sup>1</sup> Given the rapid clinical advances, merely scanning the latest journals does not lead to continued mastery. Autonomous motivation has been positively associated with higher time investment in continuing education activities among other healthcare professionals.<sup>2</sup> To engage physicians optimally in continuing professional development, knowledge about and factors influencing their motivation at work on a day to day basis (situational motivation) might be helpful. Research question: Which factors in the work environment influence a medical specialist’s situational motivation?



**Methods:** In absence of literature on this topic, a qualitative design was used with the aim of identifying as many factors as possible. Self-determination Theory formed the framework for this study with autonomy, competence and relatedness as basic needs for motivation. We adopted a constructivist grounded theory approach. We recruited six medical specialists from VU Medical Center, Amsterdam, through convenience sampling and snowballing. They were shadowed by the first author for one day each and interviewed at the end of the day. Data were transcribed and open coded. Through selective coding and iterative discussion the researchers came to consensus of themes.

**Results:** We found three themes to be of main influence on the motivation of specialists. Working with colleagues has an influence on motivation. Specialists felt relatedness and a positive influence on motivation when colleagues are willing to fill in for each other. When a colleague does not communicate properly it decreases feelings of relatedness and has a negative influence. Being in control of one's own planning, through feelings of autonomy has a positive influence on motivation. Technical issues negatively influence motivation. Initially these issues might be irritating but if they continue to exist they become a demotivating factor.

**Discussion:** Knowing which factors influence a specialist's motivation provides the opportunity to create the best possible environment for specialists to work in, which will positively influence their situational motivation. This in the longer term can have a positive influence on their contextual motivation (overall motivation for their practice) and professional development which leads to a higher level of professionalism. This is expected to be beneficial to the quality of the delivered health care.

**Conclusion:** Factors that trigger and stimulate feelings of autonomy and relatedness, positively influence the situational motivation of a medical specialist and this can subsequently enhance their contextual motivation. A motivating work environment for medical specialists is one where they feel autonomous, related with their colleagues and where they encounter minimal disturbance from technical problems.

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#4D3 (128258)

# **Factors influencing academic motivation of ethnic minority students: A systematic review**

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**Introduction:** Previous research shows that globally ethnic minority students exhibit lower grades, are 2.5 times more likely to fail examinations, and are twice as likely to have a study delay relative to majority background students.<sup>1</sup> Motivation seems to positively influence academic performance.<sup>2</sup> Knowing factors influencing the academic motivation of ethnic minority students could therefore be important in addressing their underperformance. Questions guiding this review were: Which factors influence the academic motivation of ethnic minority students? What is the influence of the factors on the academic motivation of ethnic minority students?

**Methods:** A systematic review was conducted using a search strategy with the words "students" AND "ethnic background" AND "motivation" and their synonyms to search PubMed, ERIC and PsycINFO. Examples of inclusion criteria were ethnic minority students as subjects, and students from primary school onwards. Examples of exclusion criteria were: specific motivation, and perspectives of teachers or parents. The quality of the articles was evaluated, but no articles were excluded on this basis. Included articles were qualitatively synthesized by two independent researchers using meta-ethnography. This method enabled us to establish which factors influence academic motivation, how and in which context.

**Results:** The search yielded 4465 citations. Forty four articles met the inclusion criteria. The main categories of factors influencing motivation were: individual, family-related, social, and school-related factors. Individual factors were: well-being, self-efficacy and confidence, beliefs and values of education, emotions related to learning, personal characteristics and situations, personal skills, and ethnic identity and orientation. Factors in family-related category were: family obligations, family support, parental values, family background, and socioeconomic status. Social factors were: discrimination/racism, neighborhood situation, and peer influence/support. School-related factors were: school/teacher support, academic achievement, and school environment.

**Discussion:** Factors that positively or negatively influence the academic motivation of ethnic minority students were classified as: individual, family-related, social, and school-related. Almost every factor

reported in this review has only been identified in a single study. Therefore evidence for the influence of most of the identified factors is weak. More research into the factors included in this review is needed. Moreover, little research (7 articles) has been conducted on this topic within higher education and no articles were found in medical education. In future research we intend to investigate the academic motivation of students in higher education, specifically medical education.

**Conclusion:** Acknowledging identified factors could facilitate the development of appropriate interventions for the enhancement of motivation and performance of ethnic minority students. In this review we were able to identify a gap in the literature on factors influencing academic motivation of ethnic minority students in higher education, especially medical education and weak evidence for these factors in primary and secondary education.

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#### #4D4 (128307)

**What factors in medical school predict later perceived mastery of clinical work in Norwegian doctors? A 20-year longitudinal NORDOC study**

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Kjersti Støen Grotmol  
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Reidar Tyssen

**Introduction:** Doctors' perceived mastery of clinical work may have an impact on their career and patient care, in addition to their health and wellbeing. We lack knowledge about predictors at medical school of future perceived mastery of clinical work in doctors; such knowledge may also inform the content of the curriculum. The aim of this study was identify factors in medical school that are long term predictors of perceived mastery during the medical career.

**Methods:** N= 631 doctors have been surveyed at the final year of medical school in 1993/94 (T1), 10 (T2) and 20 (T3) years later (YoungDoctorCohort of NORDOC). Perceived mastery of clinical work (PMCW) measured at T2 and T3 by four items selected by factor analyses ( $\alpha$ s=0.88 and 0.84). The predictor variables were measured at baseline/T1 and include personality traits (Basic Character Inventory), medical school stress, (Perceived Medical School Stress Scale), hazardous drinking, drinking to cope, in addition to perceived recording skills, perceived diagnostic skills and identification with the role of doctor (1). Predictor effects were studied by multiple linear regression models.

**Results:** N=260 (42%) responded at T2 and N= 207 (33%) responded at T3. Mean PMCW scores at T2 and T3 were 22.2 (SD=4.3) and 24.5 (SD=3.1) ( $t=8.2$ ,  $p<0.001$ ). There were no sex difference in PMCW, but several personality traits and perceived skills at T1 were unadjusted predictors of PMCW at T2 and T3. Adjusted predictors of PMCW at T2 were: Identification with the role of doctor ( $\beta=0.20$ ,  $p=0.003$ , CI= 0.04-0.20) and drinking to cope with tension ( $\beta=-0.22$ ,  $p<0.001$ , CI= -4.16- -1.19). Adjusted predictors of PMCW at T3 were perceived diagnostic skills ( $\beta=0.17$ ,  $p=0.044$ , CI= -1.78-0.73) and extraversion ( $\beta=0.15$ ,  $p=0.039$ , CI= 0.01-0.33).

**Discussion:** This emphasizes the importance of both role identification and medical knowledge among the students as important qualifications for future mastery of clinical work. Extraversion trait is important for communication skills and success in leading positions, and the present study indicates that use of alcohol to cope with tension not only is a predictor for hazardous drinking (2), but also a possible risk for poor performance among Norwegian doctors. Self-reported mastery gives limited information about the doctors' observed performance. A major strength is a long-term follow-up of a nationwide sample.

**Conclusion:** In this nationwide follow-up study we succeeded in identifying long-term predictors at medical school of importance for future perceived mastery of clinical work, and all these four factors should be emphasized during the medical curriculum. It seems that early role identification is of particular importance at the first stage where relatively more of the doctors are in a training position. Their skills in medical diagnosis become more important as predictor when they achieve more responsible and leading positions.

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#### #4D5 (127581)

**Does the UKCAT predict performance on exit from medical school? A national cohort study**

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Jennifer Cleland  
Dolapo Ayansina  
Sandra Nicholson

**Introduction:** Assessing the predictive validity and reliability of any medical school selection tool, to ensure it measures what it claims to measure, and does so robustly and fairly, is an important issue in terms of ensuring the best applicants are selected into

medicine (e.g., Cleland et al., 2012). Prior academic attainment, the traditional basis for medical school selection, is now recognised as insufficient and so most UK medical programmes use aptitude tests during student selection. However, large-scale studies of their predictive validity are rare. This study assesses the UK Clinical Aptitude Test (UKCAT: <http://www.ukcat.ac.uk/>), and its four sub-scales, along with individual and contextual socio-economic background factors, as predictors of performance during, and on exit from, medical school.

**Methods:** This was a quantitative study grounded in post-positivist research philosophy. This was a prospective study of 6804 students from 30 UK medical programmes who took the UKCAT from 2006 to 2008, for whom selection data from the UK Foundation Programme (UKFPO), the next stage of medical education training in the UK, were available in 2013. We included candidate demographics, UKCAT (cognitive domain and total scores) and the UK Foundation Programme (UKFPO) Educational Performance Measure (EPM) and national exit situational judgement test (SJT) (ie the selection processes for the stage of medical training immediately after medical school - note that the EPM is an average of performance throughout medical school). Multilevel modelling was used to assess relationships between variables adjusting for confounders.

**Results:** The UKCAT—as a total score and in terms of its four cognitive subtests—has significant predictive validity of performance on the UKFPO EPM and the SJT. UKFPO performance was also affected positively by female gender, maturity, white ethnicity, and coming from a higher social class area at the time of applicant to medical school. An inverse pattern was seen for a contextual measure of school, with those attending fee-paying schools performed significantly more weakly on the EPM decile, the EPM total and the total UKFPO score, but not the SJT, than those attending other types of school.

**Discussion:** This is the first study examining the predictive validity of paper and pencil test of personal attributes on admission to medical school against academic and non-academic outcomes on exit, in relation to both school-based and national performance indicators. We found some significant correlations but all with low effect sizes and an overall inconsistent picture. This study is unusual in its scale, allowing for accurate estimates of correlations, subgroup analysis and multilevel modelling to more accurately estimate effect sizes.

**Conclusion:** The data provides modest supportive evidence for the UKCAT's role in student selection. The conflicting relationships of socio-economic contextual measures (area and school) with outcome adds to wider debates about the limitations of these measures, and indicates the need for further research exploring how best to widen access to medicine. We intend to follow up this cohort of doctors to examine the predictive validity of the UKCAT used at admission to medical school against post-graduate outcome measures.

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## 4E Research Papers: Professional identity and leadership

Location: 212 – P2

#4E1 (126933)

### Professional identity development and increasing clinical responsibility: a grounded theory study

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**Introduction:** Professional identity development is described as one of the core goals of medical education (Cruess et al., 2015). A strong professional identity is considered to enable physicians to perform their work with confidence (Monrouxe, 2010). Some medical school curricula are designed with a progressive increase in clinical responsibilities en route to postgraduate training. This might support the development of an early professional identity, which could ease the transition into residency. The aim of the current project is to describe professional identity development during such a curriculum, viewed from the student perspective.

**Methods:** We interviewed 26 students after two years of clerkships and at graduation. They were from two medical schools in the Netherlands, both with a curriculum designed to enhance progressive increase in clinical responsibilities. The interview topics were: To what extent do students feel to be a medical doctor and why, what factors influence specialty preferences, and how does identity development relate to critical experiences during clerkships. The coding of transcripts of the semi-structured interviews and data analysis was performed by three researchers (SB, SQ and MWM), with input and discussions from other members of the research team using a grounded theory approach.

**Results:** We found a desire among students to match their personal identity with the image they have of professional identities of several specialties, and then to obtain confirmation of fit with the profession. Searching for a match was supported by identifying with groups or role models, observing lifestyle factors, and a search for meaningfulness in early clinical responsibilities. Confirmation appeared to be a salient mechanism particularly during electives in which students had substantial responsibilities in patient care. Students seek this by: testing their ability to handle increasing clinical responsibilities, getting involved with colleagues in health care teams, and valuing positive feedback.

**Discussion:** Students appear to form a preliminary professional identity by first comparing and contrasting self-image with the image they have of

professional identities of several medical specialties. Professional identity development is subsequently stimulated by receiving signs that they are eligible for inclusion in the profession. Students appear to experience this when they handle responsibilities successfully and receive positive feedback about their clinical activities, and when feeling welcomed in health care teams. To obtain this confirmation students seem to need the opportunity to fully participate in the community of practice, preferably in a specialty by choice.

**Conclusion:** Next to finding a match between the image students have of professional identities of several specialties and their self-image, obtaining the confirmation of a fit with the profession appears an important dynamic in professional identity development. To obtain this confirmation, students test their abilities in patient care and whether they are welcomed by future colleagues. Students get these opportunities in a curriculum with increasing clinical responsibilities, especially during electives in their desired future specialty.

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#4E2 (128046)

### Implementation of Guided Reflection in Professional Identity Formation in GP Residency Programs in the Netherlands

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**Introduction:** Professionalism appears to be an important theme during reflection sessions throughout medical school clerkships [1]. Besides clinical competence, professionalism is an essential competence in the general practice residency program in the Netherlands. Guided reflection can be of a great value in the process of Professional Identity Formation. That is why guided reflections sessions are an integral part of all GP residency programs in the Netherlands. Although the exact content of these sessions is unknown, many self-reported topics are related to professionalism. In this study, we investigated which topics are discussed during guided reflection sessions in the GP residency program in the Netherlands.

**Methods:** 143 questionnaires were filled out during a mandatory annual symposium for all GP residents enrolled in autumn 2014 at the residency program of the Leiden University Medical Center, the Netherlands.



Participants were asked to report 10 topics that were discussed in the last 3 reflection sessions. Using framework analysis [1], the topics were grouped in domains.

**Results:** The GP residents reported 254 topics. These items were grouped in 12 overarching themes namely: dealing with oneself, dealing with tasks, work/life balance, time management, dealing with others (subdivided into dealing with patients, with family of the patients and dealing with colleagues), difficult patients, end of life, dilemmas, organization, clinical cases, training-related and unclear description.

**Discussion:** 8 of the emerged themes could be grouped under the three internationally accepted professionalism perspectives, i.e. individual, interpersonal and societal-institutional [2]. The themes dealing with oneself, dealing with tasks, work/life balance, time management under the category individual. The themes dealing with others and difficult patients under interpersonal. The themes end of life and dilemmas under societal. The rest 4 categories: organization, clinical cases, training-related and unclear description could not be related to professionalism and were therefore no match.

**Conclusion:** Issues raised during the weekly recurring reflection sessions in GP residency programs in the Netherlands are mostly related to professionalism. Reflection sessions are therefore a vital part in Professional Identity Formation of GP residents. Bringing a structure and thematic overview of the discussed topics can help upcoming GP's identify which aspects of professionalism still need to be improved.

**References:** Dekker, H. Teaching and learning professionalism in medical education. Chapter 5 Hodges BD, Ginsburg S, Cruess R, Cruess S, Delpont R, Hafferty F, Ho MJ, et al. Assessment of professionalism: Recommendations from the Ottawa 2010 Conference. *Med Teach* 2011;33:354–63

#4E3 (127846)

**Being present: A phenomenological study on doing leadership from the perspective of junior managers in healthcare settings**

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Wee-Shiong Lim

Chee-Lien Poh

Yong-Hao Lim

Keng-Kwang Yong

Nicholas Chew

**Introduction:** Much of leadership research stems from the functionalist school of leadership psychology where leadership is understood as trait-based and cognitive, measurable by surveys and scales (Fairhurst, 2007). The social constructionist perspective on the other hand, looks instead at leadership as a process embedded in social and cultural systems. This study focuses on how members of a healthcare team make sense of their interactions with one another in the

context of their workplaces. The epistemological shift calls for a change in the way we study leadership (Fairhurst, 2007). Phenomenology or the study of the fundamental structures of being a leader is a response to that call. Phenomenology provides direct access to what doing leadership means and prompts us to ask, “What does doing leadership mean for some junior managers in various healthcare settings?”.

**Methods:** Twelve trainee leaders across professional groups and institutions were purposively sampled out of 32 participants of a junior leadership development course and interviewed. Their lifeworld and the as-lived meanings immanent in that realm served as data. The interviews were audiotaped and transcribed. The phenomenological approach required that the analyst bracketed out her assumptions and bias. The analyst first read each transcript for an overall sense of the interviewees’ conceptualisation of doing leadership, before marking out a list of significant statements, and then picking out themes, and combining the themes into a composite description of what doing leadership is in respondents’ lifeworld.

**Results:** Four themes and their sub-themes draw out the essential structure: (1) Micrological underscoring the situatedness of doing leadership: ‘hands-on’, ‘involved’, ‘enabling’, ‘immediacy’. (2) Relational: ‘followership’, ‘caring’, ‘solidarity with the team’, ‘teaching’, ‘influencing’. (3) Communicative: ‘asking for feedback and acting on it’, ‘negotiating’, ‘persuading’, ‘speaking up for a cause’, ‘spurring change’, ‘translating vision’. (4) Reflexive: ‘translating reflections, insights and principles into action’, ‘self-knowledge’. Significantly, the fledgling leaders used their supervisors as reference points when describing how leadership was performed in their workplaces. The themes amalgamated into the essential structure of being present.

**Discussion:** Our study highlights the over-arching discursive leadership framework being present from the perspective of junior healthcare leaders. To them, doing leadership means being attentive to the team’s concerns and issues; and attending to them by being accessible, clued-in, introspective yet extending, having insight of oneself as well as oversight of the situation. The essential structure illustrates that leadership is enacted in discourse. The findings also highlight the interviewees’ bridging role between senior management and ground staff. Organisations should recognise these elements as it develops integrated and dynamic teams. The findings have implications for junior managers’ self-concept as leaders. It would be interesting to investigate over time, the changes in identity as an index of leadership development (DeRue & Myers, 2014).

**Conclusion:** A phenomenological inquiry moves away from a limited focus on traits, styles and abilities in understanding leadership development into the direct experience of a social practice. The access reveals that for junior leaders, doing leadership is grounded in action, interaction and reflexivity, and learnt from role-modelling of their supervisors in this fledgling phase of their leadership journey.

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#### #4E4 (128171)

##### **Identifying the Core Elements and Antecedents of Medical Leadership in Junior Doctors**

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*Elizabeth van Rensen (University Medical Center Utrecht, Utrecht, the Netherlands)*

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*Mirko Noordegraaf (Utrecht University, Utrecht, the Netherlands)*

*Margriet Schneider (University Medical Center, Utrecht, the Netherlands)*

**Introduction:** Nowadays it is widely acknowledged that doctors should show medical leadership, i.e. leadership capabilities in order to deal with the ongoing changes in healthcare and to be able to lead in daily practice. So far it remains unclear what medical leadership is, for whom it is important and how it could be developed. Literature on medical leadership is heterogeneous and dominated by stand-alone effectiveness studies. Little research is known about antecedents (personal and organizational) for medical leadership. For these reasons, this study aims to identify the core elements of medical leadership and corresponding antecedents.

**Methods:** The focus of this study is postgraduate medical education, therefore items reflecting frontline medical leadership were extracted from existing medical leadership literature. First, four internationally renowned medical leadership frameworks were selected to compare. The items within the frameworks were aggregated according to content and overall presence in all frameworks. Second, the results were grouped into items which resemble frontline leadership, organizational leadership or administrative leadership. The frontline leadership items were deduced to identify the core elements. Finally, in order to ground frontline medical leadership in theory, these elements were compared to literature from Organizational Sciences, Public Administration, Education and Psychology.

**Results:** Three core elements were identified: self-management, organizational awareness and proactive behavior. In literature, these elements relate to Organizational Citizenship Behavior, Proactive Behavior, Professional Capability and the Job Demands and Resources model. Personal resources are: self-efficacy, control beliefs, normative beliefs and outcome beliefs, optimism, openness and self-esteem. Organizational resources are: job-control, job-clarity,

feedback, training, autonomy, internal and external networks, positive learning climate and effective alignment of appraisal and rewards. Demands are work pressure, emotional demands, physical demands, role-conflict and red tape. Moreover, work engagement is identified as a potential mediating factor. Potential outcomes are physician well-being and increased job performance.

**Discussion:** The results from this study show that frontline medical leadership is a complex interplay of individual and organizational demands and resources and therefore cannot be achieved by medical education alone. In order to develop medical leadership in residents, we have to study how this type of proactive behavior can be fostered on a department and organizational level, instead of relying solely on (postgraduate) education. Furthermore, we propose that leadership education focuses on underlying attitudes and beliefs of residents in addition to knowledge and skills.

**Conclusion:** Medical leadership is an ambiguous concept in a heterogeneous research field. This study provides a theoretical model which could be used as a starting point for medical leadership research and education. By taking into account personal and organizational demands and resources, medical leadership can become part of the professional identity of doctors and subsequently improve quality of care in hospitals.

#### #4E5 (128397)

##### **Association between medical school diversity climate and change in depressive symptoms among medical students: A Report from the Medical Student CHANGE Study**

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*Sara Burke (Yale University, New Haven, CT, USA)*

*Diana Burgess (University of Minnesota, Minneapolis, MN USA)*

*Sylvia Perry (University of Vermont, Vermont USA)*

*Sean Phelan (Mayo Clinic, Rochester, MN USA)*

*Michelle van Ryn (Mayo Clinic, Rochester, MN USA)*

**Introduction:** Medical students are at greater risk for depression in comparison to their similar aged-counterparts in the general population. Personal factors and the stressors of medical school are linked to the causes of depression. However, there is limited evidence addressing the role of the diversity climate in effecting depression throughout medical school. Our primary objective is thus to determine whether the medical school diversity climate is associated with depression symptoms among medical students.

**Methods:** Longitudinal web-based survey conducted in the fall of 2010 and spring of 2014. A national sample of medical students enrolled in 49 medical schools across the U.S. (n=3756). Negative diversity climate as

measured by perceptions of medical student's institution's racial climate; exposure to negative role modeling by medical educators; frequency of witnessing discrimination in medical school.

Depression symptoms measured by the Patient Reported Outcomes Measurement Information System (PROMIS) Emotional Distress–Depression Short-Form

**Results:** 64% of students reported a negative racial climate at their medical school; 81% reported witnessing discrimination toward other students at least once, and 94% reported witnessing negative role modeling during medical school. Negative racial climate, witnessed discrimination, and negative role modeling were independently and significantly associated with an increase in depression symptoms between baseline and follow-up (respective adjusted coefficients [95% CI]: .95 [.74 to 1.16]; .82 [.62 to 1.01]; .59 [.38 to .80]). After adjusting for students' personal experiences of mistreatment, the associations between depressive symptoms and negative racial climate and negative role modeling, remained significant (adjusted coefficients: .72 [.51 to .93]; .33 [.12 to .54], respectively). The association between negative racial climate and depression symptoms did not differ significantly for white compared to all other students (interaction coefficient: -.01 [-.35 to .36]).

**Discussion:** Recent studies have found that medical students from underrepresented groups in medicine are at greater risk for depression in medical school. One might expect that a negative diversity climate would be more damaging for minority students, than for students from majority groups. However, the present results suggest that an inequitable medical school environment is harmful for all students. It seems likely that such a climate fosters alienation among racial/ethnic minority students, but it may also feel unwelcoming for majority group members, interfere with the provision of peer support, or signal insecurity. A negative diversity climate may also reflect a poor climate overall.

**Conclusion:** Among medical students, greater exposure to a negative medical school diversity climate was associated with an increase in self-reported depressive symptoms between the 1st and 4th year of medical school. Creating an institutional environment that is fair, equitable and inclusive is vital to maintaining the well-being of all medical students. In order to do so, medical schools must seek to systematically document and understand the aspects of their institutional climate that contribute to both equity and inequity.

#### **#4F Symposium: The Neglected Competencies in Undergraduate Medical Education in Spanish Medical Schools (Conducted in Spanish)**

**Location:** MR 111 – P1

*Organised by Spanish Society for Medical Education (SEDEM) (Coordinator: Jordi Pales Argullos)*

In the last few years there has been an increased interest in cross-curricular or generic competencies without this having any detrimental effect on the specific competencies. Communication skills, information science, languages, professional empathy, critical thinking, dealing with uncertainty, and many other generic or cross-curricular competencies can be taken as examples to illustrate their growing relevance. In spite of this, these competencies are not given enough relevance in the Spanish medical curriculum. In this symposium we will discuss how to teach and to assess these competencies.

**Intended Outcome:** At the end of this session, participants will be able to:

- Define the role and purpose of peer review in scholarly publishing;
- Understand the evolving opportunities of information sharing and scholarship in digital and open-access platforms;
- Share insider tips from the editors of AAMC's MedEdPORTAL™ and AMEE's MedEdPublish™ that may benefit other potential authors, reviewers, and readers.

**Who Should Attend:** Anyone interested in publishing or reviewing papers in health professions education.

**Level of Workshop:** All

#### **#4G Conference Workshop: Open-access scholarly publishing in the health professions: AAMC MedEdPORTAL™ and AMEE MedEdPublish™ (136481)**

**Location:** MR 113 – P1

**Richard Hays, John Dent, Ronald Harden (Chair), (MedEdPublish™), Chris Candler (MedEdPORTAL™)**

**Background:** Open access publishing in health professions education offers exciting opportunities to authors, readers and reviewers, including rapid publication, easy access to published work and a more transparent review process.

**Background:** Open access publishing in health professions education offers exciting opportunities to authors, readers and reviewers, including new forms of publication, and easy access to published work.

**Summary:** The editors of AAMC's MedEdPORTAL™ and AMEE's MedEdPublish™ will discuss (1) the state of open-access scholarly publishing in the health professions, and (2) the features that make both publication services distinct and attractive to future authors, reviewers, and readers. Audience members are invited to participate in an interactive discussion about each journal's mission, editorial policies, the role and timing of peer review, and scholarly impact. This will be a highly interactive forum with opportunities for participation by those attending. The session will include an introduction to open-access publishing (10 mins), features of AAMC MedEdPORTAL™ (25 mins), and features of AMEE MedEdPublish™ (25 mins). A robust question-and-answer session facilitated by the editors will allow participants the opportunity to discuss publishing in an open-access peer-reviewed journal (45 mins).



## 4H PechaKucha™ 1

Location: MR 114 – P1

#4H1 (127231)

**Medical Education Research as Translational Science**

**William McGaghie\*, Northwestern University Feinberg School of Medicine, Chicago, IL, USA**

**Summary:** Research on medical education is translational science when rigorous studies on trainee clinical skill and knowledge acquisition address key health care problems and measure outcomes in controlled laboratory settings (T1 translational research); when these outcomes transfer to clinics, wards, and offices where better health care is delivered (T2); when patient or public health improves as a result of educational practices (T3); and when collateral effects (e.g., cost savings) are achieved (T4). This presentation covers features of medical education interventions and environments that contribute to translational outcomes, reviews selected research studies that advance translational science in medical education at all four levels, and presents pathways to improve medical education translational science.

#4H2 (132812)

**'Change is the only constant'**

**Lindsay Bank\*, OLVG West, Amsterdam, Netherlands**  
*Fedde Scheele*  
*Albert Scherpbier*

**Summary:** For decades now, the study of change, and in particular change readiness, is one of the important themes in social sciences because change is notoriously challenging and success rates are low. Despite the fact that the field of medical education is constantly evolving and requires the capability to rapidly adapt in order to properly respond to new public health policies, advancing educational insights and changing societal needs, attention for change readiness has only recently increased. Curricula are the product of the culture and values of the society in which they are embedded. Nevertheless, there are principles that provide a generalized understanding of the factors that impede and enhance change. Change experts contend that organizational readiness for change (ORC) is a critical precursor for successful implementation of change initiatives. ORC is a comprehensive construct that collectively reflects the extent to which members of an organization are inclined to accept, embrace and adopt a particular change initiative to purposefully alter the status quo and provides the foundation for either resistance or adoptive behaviors. This PechaKucha will interactively explain: what is change readiness? What is resistance? Are you ready to change?

#4H3 (132818)

**2000 years of Getting it Wrong? - A Brief History of Medical Error**

**Jonathan Round\*, St George's University of London, London, UK**

*Sophie Vaughan*

**Summary:** AMEE showcases the most innovative developments in medical teaching. It is reflective, challenging, honest, at times difficult and almost always informative. It is representative of modern healthcare in which clinicians aspire to learn from mistakes and share our insights so that globally patient care and patient safety is improved. Medical education has not always been so. In this PechaKucha presentation, the four eras of medical error understanding and dissemination are outlined – the denial, ignorance, personal and systematic eras. In the 20 slides, key vignettes in the history of medical error are presented, demonstrating how doctors get it wrong, what they do next, how they learn from their mistakes, or refuse to, who they tell and how. Finally, current and future trends in patient safety are outlined.

#4H4 (134082)

**How to develop a 'yes' culture for HE teaching**

**Debbi Marais\*, University of Warwick, Coventry, UK**

**Summary:** The commonality of experiences of moving to a new higher education environment (twice in the past few years) will be shared. It is not unique for teaching (and research) staff to increasingly say 'no' when asked to support teaching activities. Being able to see independently what needs to change or can improve and then diplomatically, trying to implement changes has been challenging. There seems to be a cyclic restructuring that occurs in higher education and is always in conjunction with decreased number of staff, increased pressure to submit good quality publications and augment grant income as well as an increasing trend of teaching being less important. There are though, developments in higher education that may need certain metrics from teaching activities and hopefully the pendulum is swaying. So how do we get around resistance to change – what to do when people say: 'It works, so why change?' 'We have been doing it like this for years.' 'We don't have the time to change or the manpower.' 'I will teach how I was taught.' 'I don't know how all these new platforms/programmes work and don't have time to find out.' Some ideas for tipping the balance to developing a culture where people say yes to involvement in teaching will be proposed.

## #4H5 (134201)

### What medical students want in resident teachers

**Alan Smith\***, *University of Utah School of Medicine, Salt Lake City, USA*

**Summary:** Medical schools and teaching hospitals rely heavily on residents to teach medical students. While many institutions offer resident teacher programs, student expectations and preferences are seldom addressed in these programs. Moreover, residents may not understand their responsibilities as educators, and receive minimal preparation for their teaching roles or feedback on their performance. We conducted a series of focused interviews with medical students and residents to determine how students want to be taught, and how residents view their teaching role. We found that students prefer learning from residents who deliver relevant case-related information, teach at an appropriate level, structure and simplify content, define expectations and evaluate students on them, integrate students into the clinical team, and value student contributions to patient care. Students considered the teaching-learning situation as a multi-directional exchange of information among near equals, including other team members, rather than one-way information delivery by the resident. They refused to learn from any resident they felt mistreated them, affording them no standing as an authoritative source. Residents and students differed in their perception of the resident's teaching role. Students wanted active, structured teaching appropriate to their level and tied to current cases, and hands on practice in safe situations. Residents saw their role as allowing students to watch and learn, relied heavily on "go look it up" pedagogy, and expected students to ask for information rather than providing it. Our findings should be useful to institutions that wish to incorporate the behaviors, attributes and characteristics that students value into their resident teacher programs. The overall goal for our institution and others is to improve student satisfaction with their resident-led clinical learning experiences, improve student learning outcomes, expand resident teaching and evaluation skills, and reduce stress for students and residents in the high-pressure/high-stakes atmosphere of the clinical learning environment.

## #4H6 (134865)

### Making investing in innovation more realistic with a "realist" approach

**Christel Wittkamp\***, *Dept of General Practice, Julius Centre, University Medical Centre, Utrecht, Netherlands*  
**Saskia Mol** (UMC-Utrecht, Netherlands)  
**Esther de Groot** (UMC-Utrecht, Netherlands)

**Summary:** Aim: To highlight the importance of studying the "how and why" of educational interventions, and to show how this can be valuable for innovation in medical education. Content: You

have this great idea for a major change in the curriculum of your medical school. You spread the word, fly in an expert, and quote important research to convince the faculty. Your colleagues become enthusiastic and a design is made. Time to take it to the directors: "Great idea, do a pilot study to show that this change is worth the while and affordable, and if so we'll implement it". The pilot turns out to be a great success. Outcomes are really positive. But then, just when you are ready to roll out the new curriculum, the faculty finds itself in the middle of budget cuts. Implementing all changes is now too expensive. The director suggests - at random - "just leave out this part and that too". A simple version is implemented. After two years there's an official evaluation. Alas, the results are very disappointing. On analysing what went wrong you realize that during the pilot you didn't study "how and why" the curriculum change worked. So when bits and pieces were thrown out, you didn't know which were the elements of your complex intervention to fight for. You decide that next time you will definitely investigate the how and why of a change, and use the "realist" approach. In this PechaKucha we will introduce the "realist" methodology and two research designs within it: "realist evaluation" and "realist review". We will illustrate this with an example from the medical school in Utrecht: the implementation of longitudinal patient contacts in the years 3-5 of the medical curriculum. By the end of our talk we will no doubt have several converts!

## #4H7 (135249)

### Working towards a culture of consistent quality improvement of postgraduate education

**Arja Zwirs\***, *VU medical centre, Amsterdam, Netherlands*  
**Anneke Bakker**, *VUmc school of medical sciences, Amsterdam, Netherlands.*

**Summary:** Well-trained residents are providing good patient care. Therefore post graduate medical education has to meet high standards of quality. To ensure residents are educated conform these standards the Dutch government is auditing all disciplines each five years. Disadvantage of this method is that attention given to quality of education is particularly concentrated around the audit. The government aims a new way of auditing based on confidence and performed ad random. Hospitals have to possess a system to account how they improve and optimize their postgraduate medical education. Physicians and residents should be aware and motivated on improving quality of education. Most of these systems are related to the operational level of the hospital organization for example evaluating teaching skills and teaching climate. VUmc focusses on three levels within the organization; the operational level, the strategic level (hospital board) and the tactic level (teaching committee). By creating this system we hope that all employees at all levels

feel the responsibility towards optimizing the quality of postgraduate medical education. We pay attention on how to stimulate physicians, residents and members of the board to work on quality aspects on a continuous basis. For example: involvement of supervisors, residents and member of the board at all levels, quality is a continuous agenda item in all meetings about education, physicians and residents are actively participate in evaluating education and are trained in giving and receiving feedback concerning the quality of education. In the teaching committee representatives of all disciplines discuss about evaluation results and share best practices. Internal audits held by members of the teaching committee on a constructive manner This approach is a humble first step to a creating a culture of continuing improvement, so the external control audit can be replaced by a system based on confidence and transparency.

**#4H8 (134306)**

**Visualising professional identities of clinician educators through the lens of visual social semiotics**

**Sik Yin Ong\***, *National Healthcare Group, Singapore, Singapore*

*Mary Lee (National Healthcare Group, Singapore, Singapore)*

*Lee Sian Lee (Institute of Mental Health, Singapore, Singapore)*

*Issac Lim (National Healthcare Group, Singapore, Singapore)*

**Summary:** Clinicians undergo constant reconstruction of professional identities throughout their career journey. An emphasis on clinical skills development and lack of coaching on teaching skills have been found to negatively impact the development of educator identities among clinician educators. To assist educators in becoming more effective educators, it is imperative to gain a deeper insight into the salience of our clinician educators' multiple identities. Thirty-nine physiotherapist and occupational therapist educators with varying years of experience were recruited from two tertiary hospitals. During the focus groups or interviews, participants were provided with Monrouxe's (2010) four identity alignment models. They were asked to sketch their best-fit identity models followed by verbal description of their models. Our analysis of the drawings and transcribed texts was guided by the literature on identity and the visual social semiotics approach. This combined theoretical framework enabled us to identify potential contradictions between spoken and hidden meanings in images. Five identity alignment models were identified: 1) Core-peripheral, 2) Intersectional, 3) Hierarchical, 4) Compartmentalised and 5) Merged. Majority of participants described their primary identities as clinicians while some identified themselves with equally salient educator and clinician identities. None of the respondents saw themselves as having compartmentalised identity (i.e. clinical work

completely separate from their teaching work). Relatively young educators ( $\leq 4$  years teaching experience) were more likely to report having core-peripheral and hierarchical identities, where they described educator work as secondary to patient care though they appreciated the importance of educator work. Many respondents viewed educational work as a significant part of clinician work and a service to the profession. Our study expands our knowledge of the identity salience among young and experienced educators. It illustrates how having a salient clinician identity is integral to developing educator identity. Additionally, educational work also promotes and sustains the salience of the clinician identity.

**#4H9 (132886)**

**Art in medicine and reflection as part of medical education**

**Akshitha Kesharaju\***, *University of Bristol, Bristol, UK*

*Zoe Rachael Bakewell (University of Bristol, Bristol, UK)*

*Jennifer Kingswell (University of Bristol, Bristol, UK)*

*Avgi Loizidou (University of Bristol, Bristol, UK)*

*Nikitha Shrimankar (University of Bristol, Bristol, UK)*

*Justin Morgan (North Bristol Academy, Bristol, UK)*

**Summary:** The second annual "Art in Medicine" exhibition and competition open to University of Bristol medical and dental student will be held in February 2016, with the theme "In the eye of the beholder". The exhibition aims to encourage and celebrate young artists in medicine and dentistry. Interviews, surveys and personal reflective pieces from the artists will be used to explore the relationship between reflective skills, personal professional development (PPD) and medically inspired art. We are focusing on key themes including: types of reflection, enjoyment of reflection, PPD, understanding patients' perspectives and empathy. Selected artwork from the exhibited pieces will be presented using high quality photographs from the exhibition alongside spoken word reflections, inspired by the artists. The aim is to share the insightful and unique medical anecdotes that lead to the creation of the art pieces with the members of the audience. The key themes of reflection and PPD will be established. Reflection is considered essential for the enhancement of medical education and professional development across all healthcare professions. Despite there being various forms of reflection, written reflection is the form that is most discussed in the literature. The role of art in medicine has re-surfaced in recent years, however art within reflective practice is not widely used in medical education. We explore if art can aid select students to reflect effectively. Therefore, can art be integrated into an acceptable form of reflection in medical education? Can reflective practice be made more desirable and enjoyable? Can it establish more effective relationships between patient and healthcare professionals? Can artwork personally and professional develop healthcare professionals?

## **41 Patil Awards 2**

Location: MR 115 – P1

#411 (136053)

### **An Amazing Race for Health Advocacy**

**Culadeeban Ratneswaran\***, University of Alberta, Edmonton, Canada

Mia E. Lang

**Background:** Health Advocate is a CanMEDS 2015 role that requires physicians to be competent in responding to an individual and community's needs. A novel, interactive approach was designed for residents to learn, retain and apply the principles of health advocacy.

**Summary of Work:** During their 4 hour Academic Half-Day (AHD), pediatric residents at the University of Alberta were divided into 5 teams and assigned multiple tasks in the format of the television program "The Amazing Race". Destinations included the food bank and different shelters, where brief presentations were given by facility coordinators. "Road Blocks" included grocery shopping and taking public transportation. Teams also had to submit completed applications for Income Support and for Child Tax Disability Credit. Residents that were not able to participate in this AHD had their instruction on health advocacy from role modeling and ward/clinic discussions. Six months later, all residents did an exam which included questions related to health advocacy; results were compared between those who did or did not participate in The Amazing Race AHD.

**Summary of Results:** Residents evaluated the AHD experience highly. There was no difference in the question results between those who participated in the AHD and those who did not, and both groups answered the test questions well six months later suggesting that regardless of the format of teaching (passive vs active) both groups retained some aspects of health advocacy. Participation in this AHD motivated the residents to develop a longitudinal continuity clinic for a vulnerable First Nations community.

**Discussion:** Through active observation, our residents witnessed directly and experienced some of the challenges faced by our local vulnerable patients.

**Conclusion:** Residents were enthusiastic about this interactive and fun way to learn about health advocacy. Additional benefits included development of collegiality and problem-solving skills, and motivation to contribute more to vulnerable populations.

**Take Home Messages:** Direct exposure to the challenges vulnerable patients face can be a helpful instructional tool that can motivate trainees in the Health Advocate role.

#412 (136182)

### **Distributed simulation using a virtual reality platform for improving skills in infection prevention control (IPC) during an Ebola outbreak**

**Thomas Gale\***, Plymouth University Peninsula Schools of Medicine and Dentistry, Plymouth, UK

Hetty Horton, Mentor Initiative, Monrovia, Liberia

Arunangsu Chatterjee, Plymouth University Peninsula Schools of Medicine and Dentistry, Plymouth, UK

Martin Roberts, Plymouth University Peninsula Schools of Medicine and Dentistry, Plymouth, UK

Nicholas Mellor, Masanga Mentor Ebola Initiative, London, UK

David Luke, Mentor Initiative, Monrovia, Liberia

**Background:** Many healthcare workers died in the recent Ebola outbreak in West Africa, whilst caring for infected patients. High quality standards of infection prevention control regimes are fundamental to preventing the spread of disease and protecting healthcare workers. Distributed simulation utilises low cost training solutions which can be replicated and targeted to provide standardised training to areas of need in a crisis.[1]

**Summary of Work:** • Agile methodology was utilised to develop a distributed simulation module which focuses on standard IPC precautions including hand washing, donning and doffing personal protective equipment (PPE) and identification of potential hazards in the clinical environment. Sequential steps for PPE use were identified from international guidelines and merged into an interactive learning sequence which incorporated gamification, and participants playing the role of on-screen 3D avatar, alongside a virtual buddy who provided learning points, instruction and feedback. The training was targeted at clinics in Liberia where healthcare workers were expected to re-open and maintain clinical services during the Ebola outbreak. Pre / post testing was completed to ascertain differences in attitudes and skills related to the use of personal protective equipment, as a result of the training. A control and intervention group were identified at each locality.

**Summary of Results:** 236 participants were consented to take part in the study. Participant evaluations of the training were extremely positive with > 98% respondents stating that the training increased understanding of Ebola, was useful, relevant and that they would recommend the training to colleagues. Confidence in use of PPE increased after undertaking the training - mean confidence score rose from 4.22 to 4.41 out of 5 (P=0.001). Training significantly improved mean scores for performance in donning and doffing PPE compared to the control group (P<0.001 in both cases).

**Discussion:** Agile methodology and distributed simulation provided added value compared to traditional training and was effective in raising healthcare workers' confidence and skill levels in PPE use.

**Conclusion:** The distributed simulation was well received during training as a result of the agile



methodology set up within the project to enhance stakeholder feedback and input into the project.

**Take Home Messages:** Distributed simulation can be used to provide 'just in time training' to rapidly up skill local workers during major healthcare crises.

#413 (135605)

**Empowering Medical Students To Challenge Hierarchy: an interventional study using simulation and conflict resolution training**

*Samantha Leong\*, University of Bristol, Bristol, UK  
Severn Simulation Collaboration, UK*

**Background:** Pattern-recognition is fundamental to decision-making in clinical medicine and is developed through years of experience. It is then natural for juniors to accept and trust the judgement of senior doctors. However, no one is infallible and errors are inevitable. The authority-gradient that exists in any clinician-student relationship discourages medical students and junior doctors from disagreeing with their superiors. It is therefore, crucial to empower junior doctors and medical students to challenge seniors to avoid serious harm to patients or team members.

**Summary of Work:** In this student-led multi-centre study, final-year medical students will participate in two simulations, where they will be asked to manage and present an ill patient to a consultant. Unbeknownst to them, the consultant will make a deliberate misdiagnosis. We will be assessing whether or not senior medical students will challenge a serious senior error. We will then conduct a debrief, conflict resolution training and focus groups to explore the students' perspectives on the difficulties of challenging hierarchy. The simulations will be video-recorded and rated by multiple investigators using a validated scoring tool. After students have undergone the teaching sessions, they will participate in a second simulation to assess the quality of their challenge of authority, following simulation and conflict resolution training.

**Summary of Results:** This study is currently underway, with data collection due to be completed by April 2016.

**Discussion:** We hope the findings of this study will elucidate the challenges a medical student or doctors faces in challenging authority from their perspective. This will better enable us to develop a curriculum to empower students and doctors to challenge hierarchy in clinical medicine.

**Conclusion:** Medical students struggle with challenging authority in the face of an error. Simulation and conflict resolution training could be an effective tool to empower medical students to challenge hierarchy to ensure patient safety.

**Take Home Messages:** The authority gradient that exists in any clinician-student relationship discourages any challenging or questioning of the senior doctor in the face of an error. Simulation and conflict resolution training could be an effective tool to empower

medical students to challenge hierarchy to ensure patient safety.

#414 (132604)

**Innovative curriculum mapping that 'shows you what others only tell you': preventing first year medical students' failure by visualising their curriculum map and promoting self-regulated learning, facilitating curriculum integration and decreasing cognitive loads: a mixed methods, prospective, randomised controlled educational study**

*Victor Turcanu\*, King's College London, London, UK*

**Background:** Learner disorientation is one of the main difficulties encountered by first-year medical students. They often end up memorising for exams basic science concepts without clearly understanding their clinical applications. A teaching innovation consisting of a workshop providing a video-based reverse curriculum' roadmap was used to clarify first the intended objectives of medical studies and subsequently the educational pathways leading to their achievement.

**Summary of Work:** First-year medical student volunteers were randomized in intervention and control groups. Videos illustrating typical activities medical at different training levels (eg 'Junior doctors', 'A day in the life of a medical student', asthma attack, OSCEs etc), were shown to the intervention group, followed by mini-lectures scaffolding for curriculum integration and discussions. End-of-year exam marks for the two groups were compared. Qualitative data regarding learning strategies and motivation were obtained by questionnaires, focus groups and/or semi-structured interviews. Ethical approval was given by King's College London Research Ethics Committee (KCL/13/14-796).

**Summary of Results:** First year failure of workshop participants was significantly decreased ( $p=0.0380$ ): all progressed to year two, whereas only 85% amongst the control group did. Semi-structured interviews and focus groups revealed an increase in autonomous learning and decrease in starters' anxiety in the intervention group.

**Discussion:** The use of randomized-controlled methodology strengthens the significance of these findings since these were volunteer participants in a workshop organised before the beginning of the academic year and not identified as being 'at risk' of failure.

**Conclusion:** Showing videos of medical activities carried out at different education levels, with commentaries adapted for first year medical students level of knowledge, decreases their cognitive load and improves their academic performance.

**Take Home Messages:** Video-based curriculum mapping for first year students, showing first the performances they need to achieve and then the educational pathway they need to follow makes it more 'real' and increases their motivation and satisfaction.

#415 (133958)

**Widening participation, can everyone Target Medicine?**

**Nimesh Shah\***, UCL Medical School, London, UK  
Nadir Chowdhury (UCL Medical School, London, UK)  
Jayne Kavanagh (UCL Medical School, London, UK)

**Background:** Medicine has been highlighted as an under-performing area in terms of Widening Participation in Higher Education. Target Medicine is an open-access, student-led widening participation scheme at UCL Medical School. We mentor over 200 students over one calendar year culminating in an application to Higher Education for the majority.

**Summary of Work:** Target Medicine has been delivered by medical students since 2007. The Higher Education Access Tracker (HEAT), a nationwide collaborative effort to track students who have participated in outreach activities, allows the monitoring of students' applications to Higher Education. We have compared our cohort to those of similar socioeconomic backgrounds.

**Summary of Results:** Data collection and analysis regarding the effects of participation in this programme are ongoing. We are actively collaborating with UCL Outreach and full results will be available for discussion. The initial results, however, are promising.

**Discussion:** Students from lower socioeconomic backgrounds are underrepresented in Medicine. There has been a significant effort to increase the numbers of student applications from these groups to Medical School, however, a disparity still exists. This data begins to evaluate if widening participation schemes work and what is measured as success.

**Conclusion:** Initial results suggest Target Medicine delivers a high quality, effective near-peer widening participation scheme which is cost-effective. It successfully supports students in their application to Higher Education. We suggest other UK medical schools consider implementing a similar model with variation allowing for local expertise.

**Take Home Messages:** 1. Widening Participation to higher education is a key UK Government initiative; however, Medicine as a profession lags behind in fair access 2. Target medicine improves the rates of success of applicants to Higher Education 3. There needs to be a national concerted effort in facilitating fair access to Medicine.

#416 (134555)

**3D printing Technology in Cost-Effective Simulation Education – Intraosseous Trainer**

**Peter Maroti\***, University of Pecs, Medical School, Pecs, Hungary

Peter Varga (UPMS, Pecs, Hungary)  
Miklos Nyitrai (UPMS, Pecs, Hungary)  
Adam Tibor Schlegl (UPMS, Pecs, Hungary)  
Robert Pilisi (UPMS, Pecs, Hungary)  
Szilard Rendeki (UPMS, Pecs, Hungary)

**Background:** Simulation education in the training of healthcare professionals became a common method recently. Not only high-fidelity patient simulators, but basic skill trainers are important devices in the everyday teaching process. Some institutes are not able to finance continuous work within skills centers with certain simulators, mainly because of the high amount of procedures students have to maintain on each simulator. Giving intraosseous (IO) infusion, as an important intervention in emergency care, must be practiced many times. We assume that 3D printing can be an effective way to reduce the costs of this skill training.

**Summary of Work:** Based on lower-limb CT image sets, we segmented and modeled tibias using Invesalius 3.0 and 3D Slicer 4.5 open source softwares. The 3D printing was done by XYZ Da Vinci 1.0 FFF printer. The skin layer was made of silicone mixtures. The completed skill trainers were used in our Simulation Center, during graduate and post-graduate courses. Written and oral feedback was taken during the debriefing of the education concerning the fidelity. We also compared our product with commercial models, and made financial analysis.

**Summary of Results:** All of the participants reported that the trainers are very useful in understanding and practicing IO process. Making the model using FFF technology and open-source 3D softwares can be maintained by non-professional makers within a simulation center. Compared to other models, we reached 60% cost reduction during our courses.

**Discussion:** Giving IO infusions is an essential skill that future healthcare professionals have to practice regularly. Skills-based simulations are excellent method for that purpose. Reducing the costs with innovative manufacturing technologies can be a solution for sustainable education.

**Conclusion:** 3D printing technology can be an effective way to reduce the cost in simulation education.

**Take Home Messages:** 3D printing technology can extend the capacities in simulation teaching and thus open new opportunities in future education strategies.

## 4J Short Communication: Community-Based Education

Location: MR 116 – P1

#4J1 (132491)

### Redefining Community Service Learning through a Professional Identity Framework

*Javeed Sukhera\*, Schulich School of Medicine & Dentistry, Western University, London, Canada*  
*Teresa VanDeven (Western University, London, Canada)*

**Background:** Community Service Learning (CSL) is defined as a structured learning experience that combines community service with preparation and reflection. Despite being an accreditation standard in North America, there is little research to identify learning outcomes and few programs structure community service learning within an existing curricular framework.

**Summary of Work:** Western University sought to implement a required CSL component to its undergraduate medical curriculum. After a needs analysis and a determination of community capacity, a professional identity formation framework was developed. The framework includes four pillars: reflective practice, community engagement, self-awareness and systems knowledge. Content in each pillar was incorporated and directly connected to CSL through existing courses. A new CSL component was implemented for first year students.

**Summary of Results:** Integration of community-based learning and medical school curricula was achieved by connecting CSL through a professional identity formation framework. Legal and logistical challenges were the main difficulties encountered. Detailed results regarding learning outcomes are pending the completion of the current academic year but will be available for presentation by August 2016.

**Discussion:** CSL curricula reflect a tension between required and elective elements as well as experiential and class-room learning. We sought to address these tensions and produce a meaningful contribution to the learner's professional identity as opposed to an inauthentic curricular experience created to satisfy accreditation standards. Despite numerous challenges, we will continue to further integrate service learning into our undergraduate curriculum.

**Conclusion:** Successful integration of CSL into undergraduate medical curricula requires a strategic approach that should include a conceptual framework as and a conscious effort to bridge community-based and classroom-based learning to combine preparation, reflection and experiential components.

**Take Home Messages:** A professional identity formation framework provides an effective and useful method to integrate CSL into existing curricula.

#4J2 (132958)

### Improving health care education in the community by building networks

*John Spicer\*, Health Education England, London, UK*  
*Ariadne Siotis*  
*Natasha Knight*  
*Sumera Angus*  
*Mia Skelly*  
*Vari Drennan*

**Background:** Delivering a modern health care system depends on a safe and capable primary and community care system, and the evidence for this is overwhelming. In South London we fostered the growth of local networks of educators in primary healthcare to train the workforce needed to provide care in the future. These networks - termed Community Education Provider Networks [CEPNs] - have been running for 2 years and we present preliminary results on their work.

**Summary of Work:** Health Education England - in our local South London team - brought together all stakeholders who provide care, and teach the various disciplines involved, to consider how the future workforce should be planned and educated. Each of the 12 South London boroughs created a CEPN under this plan.

**Summary of Results:** Each CEPN has - generated innovative projects in primary care education - trained increasing numbers of primary care nurses where little was done before - provided continuing professional development for all primary care disciplines - created a network of primary care teachers to mirror that currently in existence in hospitals - and much else besides

**Discussion:** We present evaluation findings conducted by an academic centre into the activities described above detailing progress in these and other areas. There are metrics on future staff training, CPD learning needs assessments and provision, and various other CEPN activities

**Conclusion:** Delivery of modern health care must include the development of community resources in teaching much more than is currently the case in Europe. In the UK context we have identified a model in doing so which will have positive consequences for patients and clinicians alike

**Take Home Messages:** CEPNs are an example of how clinical education can be organised and provided in the distributed and challenging arena of primary and community care, by bringing together those who do both the patient care and the the education delivery. We would wish to offer this model to the wider international audience.

#4J3 (134008)

**A qualitative study of the competencies necessary for becoming a leader of community-based medicine in Japan**

*Mosaburo Kainuma\*, Community Medicine Education Unit, Graduate School of Medical Sciences, Kyushu University, Fukuoka, Japan*

*Makoto Kikukawa*

*Masaharu Nagata*

*Motofumi Yoshida*

**Background:** In addition to the basic curriculum for community-based medical education, we think it important to motivate students to become leaders in this field. Because, there are no established competencies, this exploratory study was designed to develop competencies for our program.

**Summary of Work:** Semi-structured interviews were held with doctors who play an important leadership role in the field of community-based medicine in urban and rural areas of Japan. Transcripts were independently analyzed and coded by the three authors. Doctors were recruited by maximum variation sampling until thematic saturation was achieved.

**Summary of Results:** From the interviews of 19 doctors, six themes emerged. "Long term perspective" (the ability to develop a long-term, comprehensive vision and to continuously work to achieve the vision. Cultivation of future generations of doctors was included) "Team building" (the ability to drive forward inter-professional work that includes residents and local government workers, to elucidate a vision, to communicate, and to accept other medical professionals), "Ability to negotiate", "Medical Ability" (psychological issues and difficult cases in addition to basic medical problems. High Medical ability gives confidence to other medical professionals), "Management ability", and "Enjoying oneself" (doctors need to feel an attraction to community-based medicine, that it be fun and challenging for them)

**Discussion:** There is some literature on leadership in the medical setting that focuses on "Long term perspective", "A team that includes residents and local government workers", and "Enjoying oneself", which would seem to be useful competencies for leadership in community-based medicine.

**Conclusion:** We demonstrated that six competencies are needed by the leaders of community-based medicine in Japan.

**Take Home Messages:** Six competencies are needed by the leaders of community-based medicine in Japan.

#4J4 (135196)

**Global Health Made Local: A curricular program matching medical students with community members to better understand health and social challenges**

*Zachary Morrison\*, Medical School for International Health, Be'er Sheva, Israel*

*Reva Frankel (Medical School for International Health, Be'er Sheva, Israel)*

*Britany Weissman (Medical School for International Health, Be'er Sheva, Israel)*

*Eva-chava Bernfeld (Medical School for International Health, Be'er Sheva, Israel)*

**Background:** A student-initiated program has been incorporated into the formal Global Health course at the Medical School for International Health at Ben-Gurion University in Israel. This program, Global Health Made Local (GHML), has two main objectives: 1. For students, typically from North America, to meet and engage with local families. 2. To empower local families in health-related matters.

**Summary of Work:** First-year students were matched with a local family or community center and met each other twice per month during curricular time. Students learned about health and social challenges specific to their community partners, wrote case reports, and presented their findings in class. Feedback and support from faculty and peer students was in twice monthly meetings. This program, initially a student initiative is integral, now to the first-year Global Health course.

**Summary of Results:** Sixteen of 36 students and 10 of 19 community participants completed mid-program evaluations. The students reported benefits of a long-term community placement that included seeing the medical system from a patient's perspective and understanding disease management. Community participants cited an overwhelmingly positive experience, noting particularly the importance of teaching future physicians to see their patients holistically.

**Discussion:** Our experience has shown that matching medical students with local community members, specifically with patients managing chronic health conditions, is beneficial to both groups. The students see a side of health care not visible in the clinical setting, and the community members gain an "adopted health partner" to help them navigate their medical and social challenges.

**Conclusion:** GHML provides an intersection of medicine, public health, community, and social determinants of health. Through meeting local families, students were able to better understand chronic disease management, and families were helped in negotiating health care issues.

**Take Home Messages:** Linking medical students with families allows students to better understand local health and social challenges.



#4J5 (136232)

**Education and community integration in search for health promotion**

*Elaine Ribeiro\*, Faculdade Pequeno Principe, Curitiba, Brazil*

*Izabel Cristina Meister Coelho*

*Leide Sanches*

*Raquel Ferrero Cubas*

*Leandro Rozin*

*Priscilla Dal Prá Campos*

**Background:** This is a teaching experience report of teachers from the Module of Education and Community Integration (IEC) in a medical school.

**Summary of Work:** IEC promotes closer approximation of medical students and the community, and highlights the notion of the physician's social role in face of diversity, of determinations of the cultural, behavioral, psychological, ecological, ethical and legal health and disease process, both in individual and collective levels. Its objective is to show the experience of IEC, from the perspective of students and teachers.

**Summary of Results:** It is observed that the experience of IEC students and teachers has allowed an important link among the school, health services and the local community. The Health Units have become an important social space where teachers and students get closer not only to the users, but to their families and professional teams that accompany them. The practical activity allows students to always follow the same community, enabling narrowing of social relations that are established, as well as reinforcing commitment and responsibility of teachers and students for the community.

**Discussion:** The continued practice leads to an inevitable approaching to the community, with problems thus emerging and degrading before the students' eyes; these problems would not be noted if the students were there only temporarily. It is the approximation established by the planned routine activities that allows an approach to the daily health practices

**Conclusion:** In addition to the exchange of experiences, the space of sociability of Health Units fosters the growth of all the involved ones. Health promotion is a result of the maturity of both faculty and students, and occurs in the approaching to the reality of health and community services.

**Take Home Messages:** It is the presence in the daily social space of the users of the health system that allows an extension of the world view to understand the meanings of health promotion.

#4J6 (133657)

**One-month pilot rotation in clinical teachers' private practice in Geneva: what are the stakes, the challenges and the risks?**

*Virginie Muller-Juge\*, Unit of Primary Care, Faculty of Medicine, Geneva, Switzerland*

*Anne Catherine Pereira Miozzari*

*Cédric Gillabert*

*Johanna Sommer-Bühler*

*Arabelle Rieder*

*Marie-Claude Audétat*

**Background:** The predictable shortage of primary care physicians emphasizes the need to increase workforce in family medicine. Therefore, Swiss universities develop clerkships in primary care private practices. The aim of our study was to identify difficulties met by clinical teachers who supervised final year students from Geneva Medical School in their private practice during a one-month pilot rotation in primary care.

**Summary of Work:** We used a purposeful sampling strategy to recruit our participants. Data was collected via a focus group using a semi-structured interview guide. Participants were asked about their role as a supervisor, their difficulties and positive experiences. The focus group was transcribed and analyzed qualitatively, with a deductive and inductive approach.

**Summary of Results:** Our results show the nature of pressures felt by clinical teachers. First, participants realized the difficulty to have dual roles: the more familiar one of clinician, and the new challenging one of teacher. Second, they felt compelled to fill the gap between the academic context and the context of private practice. The clinical teachers were surprised about the intense load, so adaptive, as cognitive, and even emotional that represents the presence of a trainee in their clinical context.

**Discussion:** Clinical teachers supervised the student by using their personal resources and thanks to their motivation to define objectives and use pedagogical methods.

**Conclusion:** These findings show that future training programs will have to address the needs of clinical teachers who feel pressurized to accomplish different roles, as well as bridge the gap between students' academic training and skills needed for outpatient care. Professionalizing the role of clinical teachers will contribute to reach these goals.

**Take Home Messages:** As this rotation is now obligatory and important, we want to keep the clinical teachers engaged, by avoiding exhausting them, so that they will be able to receive other students in their private practice.

## 4K Short Communication: Competency-Based Education 2

Location: MR 118 – P1

#4K1 (134713)

**A theory of competencies development in the health professions: a metasynthesis of qualitative studies**

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Louise Boyer (Université de Montréal, Montréal, Canada)

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Marc-André Maheu-Cadotte (Université de Montréal, Montréal, Canada)

Patrick Lavoie (Université de Montréal, Montréal, Canada)

**Background:** Theoretical underpinnings of the competency-based approach to education (Benner, 2004; Dreyfus, 2004) inspired researchers to identify learning milestones in health professionals' competencies development. Previous qualitative studies generally focussed on the development of one competency at a time, in one health profession. There is a need to synthesize qualitative research on competencies development across various health professions to identify common and specific learning milestones. This work would inform health professionals' education and guide curricula design. The purpose of this metasynthesis (Paterson et al., 2001) was to theorize about the common and specific learning milestones in the development of competencies across health professions.

**Summary of Work:** An extensive literature search resulted in the selection of 57 references addressing the development of health professionals' competencies. Professions studied included mostly nursing (38), with a smaller proportion medicine (5) or other health professions (9). Five studies compared competencies across professions. Researchers from nursing and education compared and contrasted the findings, research methods, and theoretical frameworks of the primary studies.

**Summary of Results:** Indistinctly of professions, the most frequent competencies in the sample were critical thinking, clinical judgement or decision making, leadership, communication, and advocacy. Variations in the definition of competencies, the contexts of studies, and the organization of the milestones were major challenges.

**Discussion:** Based on these findings, a preliminary theory of the development of competencies across health professions will be disclosed. This theory built on the substantial findings and various research methods of the primary studies. It describes common grounds in health professionals'

competencies development, regardless of their specific discipline.

**Conclusion:** We hope that the theory stimulates discussion and guides the design of educational curricula to promote interprofessional education.

**Take Home Messages:** This metasynthesis allowed for the development of an overarching theory of competencies development in the health professions to guide curricula design.

#4K2 (134804)

**From Time to Competencies: a Dutch treat?**

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Fedde Scheele (VU medical centre and OLVG-teaching hospital, Amsterdam, The Netherlands)

Henk Sluiter (Deventer Teaching Hospital, Deventer, The Netherlands)

Ide Heyligers (Maastricht University, Maastricht, The Netherlands)

**Background:** Competency Based Medical Education is worldwide implemented in Post Graduate Medical Education. Despite the educational advantages the transition to CBME often leads to organisational friction, barriers and conflict. The questions addressed in this communication are: how do these organizational challenges manifest in teaching hospitals? How we can address them? And how they can be dealt with.

**Summary of Work:** The main focus of our research was to construct an analytical perspective and analysing the organisational frictions that emerge when implementing competency based curricula. This resulted in an analytical perspective based on complexity theory and diffusion of innovations theory that we used for a stakeholder analysis of teaching hospital organisations. With these insights we formulated strategies that help to overcome these problems.

**Summary of Results:** We argue that the dominant approach used for implementing CBME doesn't fit the complexity of a teaching hospital. These insights resulted in two strategies to implement CBME in teaching hospitals.

**Discussion:** There are serious contradictions between the dominant diffusion of innovation theory and the complexity of a teaching hospital. To avoid organisational tensions when implementing CBME we have to recognize the complexity of the teaching hospital organisation.

**Conclusion:** Implementing competency-based curricula has effect on teaching hospital organisations. There are organisational barriers that emerge at different organisational levels. These barriers can influence a smooth transition to competency-based education but can also reflect on health care quality.

**Take Home Messages:** It is possible to make a smooth transition from TBME to CBME when the complex context of a teaching hospital is taken into account.

#4K3 (130810)

**What is the evidence for competence decisions?  
Examining amounts of assessment information  
generated when using a competency-based  
assessment framework**

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Canada

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Jamie Stobart (University of Alberta, Edmonton,  
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Pawandeep Kaur (University of Alberta, Edmonton,  
Canada)

Paul Humphries (University of Alberta, Edmonton,  
Canada)

Mike Donoff (University of Alberta, Edmonton, Canada)

**Background:** Competency-based assessment is intended to be a more defensible way to make competence decisions. One implicit consequence of this shift should be an increase in the amount of assessment evidence that is used to make decisions about competence. We wished to explore the extent to which an increase in assessment information could be seen when comparing resident records before and after implementation of a competency-based assessment framework (CBAS).

**Summary of Work:** Secondary data analysis. Data was collected from the archived files of residents from 4 years pre-CBAS (2003, 2005-2007; n=53) and 5 years post-CBAS (2009-2014; n=74) with a random sample of 25% from each cohort (n=127). Both in-training evaluation reports (ITERS) and progress reports (PRs) were analyzed for each resident. Summative judgements, form completion rates, word counts and content of comments, and evidence of flagged assessments were examined.

**Summary of Results:** There has been a marked increase in assessment information since implementation of CBAS. ITERS and PRs contain more comments, and refer to other pieces of assessment evidence to support decisions. Comments are disproportionately higher for residents who encounter difficulty than for those residents progressing as expected. On ITERS, international medical graduates tend to have more comments, and also are more likely to be flagged. On PRs, residents are more likely to show evidence of self-reflection than they were pre-CBAS.

**Discussion:** Overall, the change to competency-based assessment results in more evidence about progress towards competence. This has been helpful to both preceptors and residents, but a difference in constructive feedback still exists between residents doing well and those struggling.

**Conclusion:** Competency-based assessment increases assessment information for all residents, but disproportionately for residents in difficulty. Faculty development needs to address the need for good constructive feedback for all residents.

**Take Home Messages:** Competency-based assessment results in more evidence to support summative decisions of competence.

#4K4 (134903)

**Who can teach generic competencies at  
undergraduate and postgraduate levels in the  
medical school?**

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Gordana Pavlekovic, University of Zagreb School of  
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Mirjana Kujundzic Tiljak, University of Zagreb School of  
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Ruza Grizelj, University of Zagreb School of Medicine,  
Zagreb, Croatia

Marijana Bras, University of Zagreb School of Medicine,  
Zagreb, Croatia

**Background:** In the last ten years innovations were introduced in the undergraduate core curriculum in medical schools in Croatia, and the new competency-based specialty training programme was developed for all specialties. At the University of Zagreb School of Medicine teaching generic competencies was introduced in the new undergraduate and postgraduate programmes, with special attention on the teachers' profile and competencies.

**Summary of Work:** The undergraduate longitudinal 6 years course Fundamentals of Medical Skills incorporates teaching communication skills (gradually developing students' competency from basic to specific communication associated with clinical courses) and teamwork. 160 young teachers (30 per a generation of 300 students), mostly young specialists, senior residents or research fellows are involved in teaching and mentoring groups of students. A part of the postgraduate specialty training programmes is a CanMEDS based obligatory course on generic competencies (physician communicator, collaborator, scholar, health advocate, manager, professional). 50 experienced educators and specialists are teachers, gathered in groups dedicated to a particular competency.

**Summary of Results:** Undergraduate teachers' positive attitude towards teaching skills, excellent relations with students and motivation to be good mentors and role models are noticed. The postgraduate generic curriculum significantly increased awareness and responsibility of teachers and trainees in generic competencies. Communication between teachers, observations, discussions and constructive feedback are increased. Better communication and a learning environment is observed in academic hospitals.

**Discussion:** Being aware of the important decision about who teaches generic competencies, we decided to educate younger academics and professionals for teaching students, and experienced university teachers as well as specialists for teaching postgraduates.

**Conclusion:** Teaching generic competencies at undergraduate and postgraduate levels includes well-selected educated teachers. They influence the continuous enhancement of generic competencies, essential for professional development.

**Take Home Messages:** Educated medical teachers will enhance generic competencies and professional behaviour of medical doctors.

prevailing technical-instrumental view of educational practices.

#4K5 (135824)

**Competency areas in health professional profiles: a Brazilian experience**

*Eliana Claudia Ribeiro\*, IEP/HSL, São Paulo, Brazil*

*Roberto Padilha*

*Valéria Lima*

**Background:** A Brazilian experience in building competency profiles for health professions including medical, nursing, pharmacy, nutrition and physiotherapy has been developed that emphasizes the analysis of the work process and of the skills required for a competent practice. This work has been developed by the Education and Research Institute at Hospital Sírio Libanês - IEP/HSL, a philanthropic institution of national and international excellence in Health, in Brazil.

**Summary of Work:** The methodology used was based on the competence concept that articulates: (i) the social dimension of recognition and legitimacy granted by different actors involved in professional practice, (ii) the actions and features inherent to each profession, (iii) the combinations of skills required for excellent performance, and (iv) the different contexts of professional practice. The practice of professionals considered to be competent by different actors has been studied and the profiles derived from this process have been validated.

**Summary of Results:** The competence profiles built for the five professions revealed specific core areas to each career, which distinguishes the professions studied, and two common areas related to work management and to the construction and dissemination of knowledge in each professional area. Key actions and performance standards were identified that characterize practice qualified by cognitive, affective, and psychomotor capabilities put to use according to context. Discussion Building competency profiles in healthcare using a holistic approach has allowed us to consider the collective dimension of health practices that is shared by professionals in their daily practice, but is not systematically addressed in the hegemonic uni-professional educational processes.

**Discussion:** Building competency profiles in healthcare using a holistic approach has allowed us to consider the collective dimension of health practices that is shared by professionals in their daily practice, but is not systematically addressed in the hegemonic uni-professional educational processes.

**Conclusion:** The results point to the need to review curricula according to a multi-professional perspective and educational actions according to an approach that integrates the basic capacities for competent practice.

**Take Home Messages:** The inclusion of the work management and the health education areas in the profiles of health professionals can broaden the



## 4L Short Communication: Teaching and Learning Methods

Location: MR 119 – P1

#4L1 (134761)

Video-assisted learning

**Katarzyna Naylor\***, Medical University of Lublin, Lublin, Poland

Grzegorz Witkowski

Kamil Torres

**Background:** Nowadays, the medical education strives to introduce more practical aspects, video-assisted training. The advances provide educators with tools enhancing and stimulating the teaching-learning process. Instructional videos are an example.

**Summary of Work:** The study aims at assessing the value and the usefulness concerning implementation of instructional videos during the Basic Clinical Skills course for medical students of the second year at the Medical University of Lublin.

**Summary of Results:** The survey results obtained from students (n=79) outlined the general satisfaction with the simulation-based Basic Clinical Skills course employing the instructional videos. Students expressed noticeable content with the provision of instructional videos during the course. The satisfaction improved compared to the recourse opinion.

**Discussion:** This evaluation reveals the positive perception of the instructional videos among medical students within the study and confirms their usefulness in the implementation of the curricular changes, enabling unification of the procedures in terms of basic clinical skills in further practice.

**Conclusion:** The usefulness of instructional videos was assessed before and after the course. There were noticeable differences. Furthermore, the results of the objective structured clinical examination obtained by the students attending a course with instructional videos and without were compared to evaluate their influence on the outcomes of the BSC course.

**Take Home Messages:** There is a need to introduce various sources of knowledge, employing modern ways of communication to propagate the expected results of learning process.

#4L3 (133934)

Increasing students' interest by using video introductions

**Katharina Plückers\***, RWTH Aachen University, Aachen, Germany

Thomas Stummer (RWTH Aachen University, Aachen, Germany)

Heidrun Heinke (RWTH Aachen University, Aachen, Germany)

**Background:** The broad availability of laptops, smartphones and tablets opens new opportunities for an effective integration of additional media into academic teaching. In our study, short introductory videos were used in physics lab work courses for medical students to motivate the students for physical experiments by illustrating their medical relevance.

**Summary of Work:** Introductory videos for two experiments were created in cooperation with the media centre of the University Hospital Aachen (AVMZ). The videos with a duration of approximately four minutes focussed on the medical relevance of the physics content of the laboratory experiments. They were applied in summer and winter term in lab work courses for students of dentistry and medicine, respectively. For a first study, 52 dentistry students were allocated to two groups which either received textual introductions or introductory videos for the experiments. The students' interest in the experiments was surveyed in a pre-post-design using questionnaires.

**Summary of Results:** Both videos were well received by the majority of the students (90% and 72%).

Displaying either video resulted in a significant increase in interest of the dentistry students into the corresponding experiments. However, a significant gain of interest compared to the textual instruction was only observed for the experiment for which the medical relevance was more difficult to recognise.

**Discussion:** Although the videos foster a significant increase in students' interest in the respective topic, the videos cannot fully replace textual introductions as per students' feedback.

**Conclusion:** Consequently, both kinds of introductory material will be offered in parallel in the future. The pilot study was followed by an expanded study including 270 students of medicine to assess the influence of the videos in more detail.

**Take Home Messages:** Our study demonstrated that for physical topics in medical education, providing elaborate videos may help boost interest and thus enhance learning efficiency, and help understand difficult academic content.

#4L4 (130748)

**Video feedback and reflection in movement learning**

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Christina Gummesson (Center for Teaching and Learning, Lund University, Lund, Sweden)*

**Background:** Learning how to use one's body in demanding work tasks within medical education may be important for several reasons. Development of movement awareness can be valuable in for example skills training or development of gentle movements. A video-supported interactive learning model for movement awareness (VILMA) has been developed and studied.

**Summary of Work:** VILMA comprises video feedback, video modelling, diary writing and home-practice recordings accomplished in individual repeated sessions with a facilitator. The model's aim was to support reflection and movement learning based on the learner's experiences. Data from individual interviews, video- and audio recordings and diary notes were analysed with hermeneutical approach.

**Summary of Results:** Results indicate that VILMA support development of movement awareness, self-reflection and self-analysis. The students become engaged, challenged and motivated for movement changes. The learning appeared to be long lasting and transferred into other situations. The facilitator's reflective and flexible approach was experienced as important in creating a permitting learning atmosphere.

**Discussion:** To use video as a means to support interactive learning, to provide feedback and as base for reflection might be valuable in different practical learning situations. The facilitator's role and approach is important, as the student can experience the situation as sensitive, uncomfortable but useful at the same time.

**Conclusion:** VILMA may be useful in learning situations aiming to increase movement awareness and changed ways of using one's body. The powerful and challenging experiences when encountering one's own movement emphasizes personal involvement. The model seems to support internal motivation and the development of a deep approach to movement learning.

**Take Home Messages:** The core elements of VILMA, may be a valuable contribution in different practical learning situations; video feedback used immediately as a tool in action, being invited to reflect and describe with own words, ability to repeat and compare one's own and example recordings, a facilitator's flexible and responsive approach.

#4L5 (136087)

**Preconstructed concept maps in medical education: do teachers consider them useful?**

*Sylvia Vink\*, Leiden University, Leiden, Netherlands  
Jan van Tartwijk (Utrecht University, Utrecht, the Netherlands)  
Gijs van Duijn (Leiden University, Leiden, the Netherlands)  
Nico Verloop (Leiden University, Leiden, the Netherlands)  
Erik Driessen (Maastricht University, Maastricht, the Netherlands)  
Jan Bolk (Leiden University Medical Center, Leiden, the Netherlands)*

**Background:** The value of preconstructed concept maps for medical education has been underlined, particularly for the integration of basic and clinical sciences. If teachers actually experience a need to improve integration in their own teaching, concept maps that purposely articulate both clinical and basic science knowledge might be considered as a useful instrument, because teachers' perceptions on the usefulness of preconstructed concept maps are likely to play a pivotal role. This study aimed to investigate the perceived usefulness of concept maps constructed collaboratively by clinicians and basic scientists and the factors that influenced this perception for teachers who did not participate in their construction.

**Summary of Work:** We surveyed teachers, affiliated at all medical centres in the Netherlands, and asked to judge the usefulness of preconstructed concept maps. Each concept map illuminated a clinical problem. The concept maps articulated integration of clinical and basic sciences to different extents. The questionnaire contained questions (with 5 point Likert scale) about both the usefulness for instructional design and student learning and factors that might influence teachers' willingness to adopt this innovation: the degree to which they subscribed the content of the concept map, their prior experience and the felt need to improve integration in their teaching.

**Summary of Results:** 68 teachers filled in 139 questionnaires, each questionnaire examining the usefulness of a particular concept map. The perceived usefulness varied from  $M=2.8$ ,  $SD\ 1.2$  to  $M=3.1$ ,  $SD\ 1.1$ . Teachers considered the concept maps significantly more useful for clinical than for preclinical student learning ( $t(123) = 4.74\ p=.00$ ) or instructional design ( $t(124) = 6.09\ p=.00$ ). Pearson correlations between usefulness for the different purposes and content of the concept maps varied from  $r=.64$  to  $r=.80$  and were significant, those with the other factors were not significant. T-tests showed no differences between concept maps that articulated significant more integration than others.

**Discussion:** Teachers' view on the usefulness of integrative concept maps was strongly influenced by their opinions about the adequacy of the content but not by their need to improve integration in their teaching, nor by their prior experience. Teachers' prior experience with concept maps might differ from the

elaborate multidisciplinary concept maps of this study. Concept maps that articulated more relations between clinical and basic sciences were not considered as more useful.

**Conclusion:** The rather detailed articulation of integration of clinical and basic sciences did not positively influence teachers' view on the usefulness of preconstructed concept maps. Although integration is considered as a current challenge in medical education, consensus about visualization of integration combining different disciplinary points of view in such a detailed way was not easily achieved. Further research should focus on usefulness for learning of these concept maps for students.

**Take Home Messages:** Although integration of clinical and basic sciences in medical education is highly valued on curriculum level, teachers do not appreciate the articulation of different domains in concept maps on the level of clinical problems.

## #4L6 (133920)

**Mentoring: How can a mentor encourage his mentee to find new perspectives and create reflections?**

**Bodil Gavnholt\*, Danish Medical Association, Copenhagen Ø, Denmark**

**Background:** The Danish Medical Association (DMA) provides an increasingly popular mentoring service. Our aim of mentoring is to give both mentor and mentee a rewarding experience. As mentor you have to master different conversation techniques; for instance switch between giving specific advice and asking questions, that helps mentee to find his own way.

**Summary of Work:** Evaluations show that mentors find it difficult to ask 'neutral' questions instead of giving answers. DMA invites all mentors to participate in workshops to train 'the art of asking questions' and share experience. The latest workshops focused on different types of questions and how to create reflections for the mentee.

**Summary of Results:** Doctors are trained within the tradition of natural science. Therefore, the linear logic and linear question types are easy to use – and apply to all situations – including mentoring sessions. This, however, makes it difficult to find new perspectives and new ways of action. When mentor combines the linear logic with the more circular logic and question types, the mentee is encouraged to reflect in a more holistic way.

**Discussion:** The ability to use circular questions requires training and a high degree of awareness. When becoming familiar with the circular logic, it can be used in all types of conversations in daily (work-) life: When supervising a colleague, speaking with the patients etc. The question is, whether this is realistic for doctors to do?

**Conclusion:** If mentors only use linear logic, when examining complex challenges, such as: communication, conflicts, burnout, we risk maintaining our mentee in a simplified view of the

situation. Usually the linear logic prevails, because of the traditional way of thinking.

**Take Home Messages:** Pay attention to questions asked. A question invites mentee in a specific direction. Asking questions bears a great responsibility in itself.

## #4L7 (134119)

**Exploring seminar learning - a summary of PhD thesis**

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*Debbie Jaarsma*

*Ineke Wolfhagen*

*Albert Scherpbier*

*Peter van Beukelen*

**Background:** Based on the socio-constructivist theory of learning, health sciences curricula have introduced (inter)active group-learning methods. A commonly used activating group learning method is the seminar. A seminar is defined as: "a learning session facilitated by a content expert during which a group of some 25 students discusses questions and issues emerging from assigned readings."<sup>1</sup> In our studies we intended to develop a greater understanding of seminar learning by answering the question: "How do students, teachers and context contribute to the effectiveness of seminar learning?" The research questions that were investigated to address this general question were: Which aspects influence seminar learning according to students and teachers? What are the relations between factors that relate to seminar learning and how do they relate to teaching performance and to students' academic achievement scores?

**Summary of Work:** We combined focus group studies with students and teachers and questionnaire studies using statistical methods like principal factor analysis, reliability analysis and multi-level regression analysis.

**Summary of Results:** The focus group studies demonstrated many diverse aspects that affect seminar learning. Teacher performance, seminar assignments, amount of student preparation, quality of preparatory materials, quality of group discussion, course alignment, and assessment were important. The relationships between these variables appeared to be rather complex. Qualitatively, these factors could not sufficiently predict end-of-course exam scores. The factors did have significant effects on teacher performance.<sup>2</sup>

**Discussion:** These studies call for further investigation of the relation between the objectives of seminar learning and assessment of seminar learning.

**Conclusion:** The results of the different studies support the importance of 'constructive alignment' when designing a course or curriculum. References 1. Jaarsma ADC, de Grave WS, Muijtjens AMM, Scherpbier AJJA, van Beukelen P. Perceptions of learning as a function of seminar group factors. *Medical Education* 2008;42(12):1178-1184. 2. Spruijt A, Leppink J, Wolfhagen I, Scherpbier A, van Beukelen P,

& Jaarsma D. Investigating teaching performance in seminars; a questionnaire study with a multi-level approach. BMC Medical Education 2014, 14(1).

**Take Home Messages:** In order to be able to fully benefit from seminar learning, the rationale of seminar learning and coherence and alignment with the rest of the course and curriculum elements should be properly thought through and trained to students and teachers.



## 4M Short Communication: Clinical Skills Training

Location: MR 120 – P1

#4M1 (135339)

**Determining level of experience for sufficient EVAR sizing**

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*Bo Bech (Department of Radiology, Rigshospitalet, Copenhagen, Denmark)*

*Torben V. Schroeder (Copenhagen Academy for Medical Education and Simulation, Copenhagen Denmark)*

*Lars Konge (Copenhagen Academy for Medical Education and Simulation, Copenhagen Denmark)*

**Background:** The planning and sizing of Endovascular Aortic Repair (EVAR) is considered an expert task. The morphology of the aneurysmatic aorta must be carefully assessed in order to select a stentgraft that comply with the anatomy. We aimed to investigate how much experience is needed to plan and size for EVAR.

**Summary of Work:** We developed an assessment instrument for EVAR planning based on a protocol for measuring and stent selection. We gathered validity evidence from all five sources described by Messick. The assessment consisted of CT evaluations of three patients with increasingly complex abdominal aneurysms. A proficiency standard was established using the contrasting group method.

**Summary of Results:** Twenty-to consultants in vascular surgery and radiology were included. Participants were divided into three groups based on EVAR experience (novices, experienced, experts). Test scores were based on summed z-scores derived from the measurements and graft choice of the expert group, defined as having performed more than 200 procedures. Internal consistency of the assessment was high (Cronbach's  $\alpha=0.92$ ) and internal structure was good with high correlation between log-transformed experience and score ( $p=0.004$ ). An ANOVA test showed significant difference in score between the experts versus novices ( $p=0.001$ ) and experienced ( $p=0.04$ ) but not between non-expert groups. A proficiency score was established with the consequence that only two of eight experienced participants passed. Linear regression indicated more than 300 procedures was required to ensure proficiency.

**Discussion:** The level of experience needed to be proficient in EVAR planning has not been described before. The proficiency standard score indicate that a very high level of expertise is required to plan and size EVAR cases.

**Conclusion:** Based on Messick's framework we found that the assessment including the proficiency score holds strong validity evidence. A standard for EVAR planning and sizing was established.

**Take Home Messages:** A validated method for EVAR planning and sizing with a proficiency level standard can be established.

#4M2 (135391) **(Postgraduate Travel Award Winner)**

**Investigating the role of stereoacuity in dental performance using virtual reality simulator**

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*Faisal Mushtaq, University of Leeds, Leeds, UK*

*Matthew Allsop, University of Leeds, Leeds, UK*

*Isra'a Mirghani, University of Leeds, Leeds, UK*

*Mark Mon-Williams, University of Leeds, Leeds, UK*

*Michael Manogue, University of Leeds, Leeds, UK*

**Background:** What value does the three-dimensional information afforded by binocular vision confer to dentists? This topic has produced considerable debate in recent years in the field of dentistry. In order to empirically address this question, we examined the impact of stereoacuity levels on dental task performance using a haptic virtual reality simulator under various conditions that provided, and removed 3D cues.

**Summary of Work:** Sixteen postgraduate dental students at the School of dentistry, University of Leeds, participated in the study. Stereoacuity levels were measured using an automated Random Dot Test. Each participant performed a total of 4 different dental tasks under two conditions (2D and 3D vision) using special glasses, each with 2 levels of difficulty (direct and indirect task) on a haptic virtual reality simulator.

**Summary of Results:** The stereoacuity levels of the participants were positively correlated with several performance parameters. We found a statistically significant interaction between stereoacuity levels and task performance under 2D and 3D viewing conditions ( $p < .001$ ) for the error scores relating to cutting depth.

**Discussion:** In tasks that require depth information, removing cues that allow 3-D information impairs performance. Furthermore, individual differences in stereoacuity predict the amount of depth error in 2D and 3D information, as participants with typical levels of stereo acuity performed better than participants with low levels of stereoacuity. All participants performed comparably across other performance metrics indicative of compensatory strategies and utilization of monocular cues to complete the tasks.

**Conclusion:** The performance of simulated tasks in haptic virtual reality dental simulator was optimized under 3d viewing condition. Stereoacuity levels of the participants were positively correlated to their performance.

**Take Home Messages:** Stereoacuity levels influence the performance of dental training tasks that require complex hand-eye coordination in virtual reality simulated settings.

#4M3 (134638)

**“More than ‘Basic’ Life Support? Addressing the Barriers to Bystander Response in Undergraduate Training”**

*Andrew Darby Smith\*, Imperial College, London, UK*

**Background:** Every minute from the time of collapse that a patient in cardiac arrest with a 'shockable' rhythm isn't defibrillated, mortality increases 7-10% per minute. Providing bystander CPR reduces this increased mortality to 3-4% per minute. It is clear that more bystanders need to be confident recognising and managing out-of-hospital cardiac arrest if we are to improve survival rates. Basic Life Support (BLS) is included in most undergraduate medical schools' curriculum, however, focuses on the technique of providing CPR, rather than addressing psychological barriers to bystander response, risking a disconnect between 'learning' and 'behaviour change'.

**Summary of Work:** 'Basic Life Support & First Response', a mixed lecture/simulation session, was delivered to 250+ Year 1 students at Imperial College School of Medicine, London in March 2015. The session focused on equipping students with the knowledge, but most importantly, genuine confidence, to approach collapsed members of the public and provide BLS if indicated. This was achieved through analysing the psychological barriers to approaching collapsed members of the public, including the 'Bystander Phenomenon', before simulating response in real time, out-of-hospital cardiac arrest scenarios. Detailed feedback was collected and analysed.

**Summary of Results:** 250 students completed pre- and post- session questionnaires and answers were analysed with the Mann-Whitney U test. Students reported they were significantly more likely to approach a collapsed stranger ( $p < 0.01$ ), more confident in the theoretical knowledge of BLS ( $p < 0.01$ ) and felt more confident to independently initiate BLS if faced with a member of the public who wasn't breathing ( $p < 0.01$ ), after having attended the session.

**Discussion:** By not addressing psychological barriers to bystander response there is a substantial risk that BLS training will only provide students with theoretical knowledge and not change their behaviour.

**Conclusion:** BLS training needs to acknowledge psychological barriers to response.

**Take Home Messages:** Without behaviour change, what is the point of 'training' in the first place?

#4M4 (135731)

**Pro-C: Proficiency-Based Progression in Surgical Training using Simulation: Development of Metrics for Fracture Care**

*Pierre Guy\*, University of British Columbia, Vancouver, Canada*

*Matthew Graves*

*Kevin Inkpen*

*Michael Baumgaertner*

*Anthony G Gallagher*

**Background:** Traditional assessment of surgical teaching has been time-based and not reflective of individual learner's proficiency. An increased demand from governing bodies regarding the evaluation of trainees' skill level (proficiency) to curb medical errors has prompted specific attention to the assessment of the ability of a trainee to perform a task/procedure while learning. Recent models of competency-based surgical training use a Likert-type assessment tool and are prone to subjectivity of the assessor. The Proficiency-Based Progression training model proposed by Gallagher (1) suggests a process where following task analysis of a procedure, discrete (binomial) assessment points are defined.

**Summary of Work:** Development of objective metrics of surgical task performance for use in orthopedic resident training in surgical fracture care. The process described by Gallagher et al. involves: 1) procedure identification; 2) tasks analysis; 3) operational metrics definition and verification; 4) metric validation by Delphi panel (face validity); 5) measurement of construct validity, inter-rater reliability and responsiveness of task metrics. To which we added 6) measurement of baseline demographic, clinical experience and visuospatial ability (PicSOor test, card rotation test, mapping test). We compared novice trainees to experienced orthopedic trauma surgeons.

**Summary of Results:** We developed metrics for the performance of 4 skills stations and one clinical simulation lab used for training of orthopedic surgery residents who attend a popular fracture treatment course (AO Trauma Course - Basic Principles of Fracture Management for Residents). Investigator team completed Steps 1), 2) and 3). Delphi panel of experienced orthopedic trauma surgeon-educators approved the measures. We found: -No significant difference in visuospatial testing between novices and experts. -Significant difference in ability to achieve task within measured parameter tolerance (drill aiming and plunging: Expert 73%, Novice 58% ( $p < 0.05$ )); error scoring (ANOVA,  $p = 0.036$ ), time to task completion (ANOVA,  $p = 0.07$ )

**Discussion:** The use of detailed task analysis aimed at definition of metrics has proven successful in previous surgical fields (laparoscopic surgery, arthroscopic surgery). Initial experience with this approach reveals it to be time-intensive at first (improving over time) and of value to achieve the task of discriminating between novices and experts.

**Conclusion:** Early experience with the Proficiency-Based Progression learning model shows the ability to

develop reliable and valid metrics to assess surgical fracture care tasks while training. Next steps involve the comparison of PBP to the standard teaching method for this course. References 1. Gallagher AG, Metric-based simulation training to proficiency in medical education: - what it is and how to do it. *Ulster Med J.* 2012 Sep; 81(3):107-13. PMID: PMC3632817 2. Kulasegaram KM, Grierson LE, Norman GR. The roles of deliberate practice and innate ability in developing expertise: evidence and implications. *Med Educ.* 2013 Oct; 47(10):979-89. doi: 10.1111/medu.12260. Review. PMID: 24016168

**Take Home Messages:** The development of discrete binomial metrics for assessment and training of tasks was successfully extended to surgical fracture care training, showing good face and construct validity and good ability to discriminate between novice and expert performers of the tasks.

#### #4M5 (136199)

**Intimate examinations: UK students don't do them any more**

*Jim Parle\*, University of Birmingham, Birmingham, UK*  
*Alexandra Watts*

**Background:** Intimate examinations (IEs: female breast, male and female rectal, female pelvic, male genitalia) are a key part of clinical assessment but anecdotal evidence and some literature suggests medical students are performing few of such examinations in their training and yet are expected to be competent at qualification.

**Summary of Work:** A questionnaire survey of newly qualified doctors in the UK asked about their experience of performing IEs on patients during their time as medical students: how many IEs they had performed and how competent they felt. 2/3rds of UK medical schools took part. 1042 replies were received

**Summary of Results:** 90% had performed fewer than 10 male rectal exams, over 25% had performed none or one 95% had performed fewer than 10 female rectal exams, over 60% had performed none or one ~75% had performed fewer than 10 female breast exams, ~15% had performed none or one ~80% had performed fewer than 10 male genitalia exams, ~30% had performed none or one.

**Discussion:** Levels of IE performance are clearly very low and most doctors in this sample must be incompetent (although there is no consensus on how many such examinations are needed to become competent, it is clearly not 1 or zero!) It is not clear why rates are so low.

**Conclusion:** Our data from a large sample shows very low levels of performance of IEs among medical students. Further work is needed to elucidate the reasons, including qualitative studies and historical surveys. although newly qualified doctors are still in a learning role, they are also delivering a clinical service and other doctors and patients may expect them to be at least minimally competent.

**Take Home Messages:** UK doctors are at qualification incompetent at IEs and we do not know why!

#### #4M6 (130650)

**Professional activities, supervision and preparedness in clerkships of medical students from two different curricula**

*Josefin Bosch\*, Charité - Universitätsmedizin Berlin, Berlin, Germany*

*Asja Maaz (Charité - Universitätsmedizin Berlin, Germany)*

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*Harm Peters (Charité - Universitätsmedizin Berlin, Germany)*

**Background:** Clerkships offer important workplace learning activities. This study aims to compare a competency-based and a traditional medical curriculum from one institution by focusing on clerkship activities, supervision level and preparedness based on the frameworks of EPAs and socio-cognitive theory. Particularly, perceived competence and stress as outcomes of preparedness are investigated.

**Summary of Work:** In a pooled cross-sectional analysis, medical students from two curricula (N=930) were invited to provide feedback about their clerkship experience via an online questionnaire. Preparedness was operationalized as 1.) confidence for clerkship activities, 2.) support coping, 3.) evaluation of being prepared through university teaching. Hierarchical regression analyses were applied.

**Summary of Results:** Data of n=342 students was obtained. Statistical analyses reveal a similar pattern of activities in both curricula. Differences between curricula are found in supervision level, evaluation of preparation by university teaching, perceived competence and perceived stress. Preparedness is influenced by individual, clerkship and activity specific factors and predicts perceived competence.

**Discussion:** Students from a competency-based curriculum are more often allowed to work under distant supervision, perceive their university teaching as more helpful and feel more competent compared to students of a traditional curriculum. They report a higher stress level, which is related to differing clerkship characteristics.

**Conclusion:** Students from the two curricula execute a comparable range of professional activities during clerkships. A competency-based curriculum seems to enhance preparedness and competence perception. This is related to a higher level of independent work, as reflected in more frequent distant supervision, but also to higher stress levels.

**Take Home Messages:** Clerkships offered similar learning situations for students from different curricula that are framed in a different way regarding supervision. Competency-based education enhances medical students' preparedness, competence perception and level of independent work.

#### 4N Short Communication: Student Characteristics

Location: MR 121 – P1

#4N1 (132955)

##### Clinical medical educators' understanding of resilience in undergraduate medical students

*Dominique Hubble\*, Norwich Medical School, Norwich, UK*

**Background:** Promoting resilience in medical students and doctors is the zeitgeist, but the medical educator's point of view has not been explored in depth. It is important to understand hands-on educators' concepts and approach, as they are in key positions to recognise erosion of resilience in students and deliver support which has an enduring effect.

**Summary of Work:** This small but in-depth qualitative study explores the understanding around resilience in undergraduate medical students held by experienced medical educators who are also general practitioners, at Norwich Medical School, UK. Seven participants underwent hour-long semi-structured interviews. The questions were derived from topics which emerged from literature on resilience, coping and stress. The interview content was analysed for emerging themes.

**Discussion:** Participants were intuitively understanding of the non-resilient student's characteristics and recognising early warning signs. They had strategies for how to initiate supportive measures but expanded less on using knowledge of adaptive coping strategies proactively to transform struggling students.

**Conclusion:** Students may benefit if their educators receive specific training on modifying maladaptive coping strategies into problem-solving strategies and improving other resilience-promoting measures.

**Take Home Messages:** 1) Educators are skilled in recognising struggling students. 2) Educators' management of all students would be enhanced by specific training.

processes of improving health education and health care, selection and education of the students of health studies are particularly essential.

**Summary of Work:** Goal of this study was to determine the contribution of personality antecedents that reflect social skills of the students of health studies, to predict their achievement in health studies. Survey was conducted within project financed by European Social Fund entitled "Development of occupational standards/qualifications with improving health study programs" HR3.1.15-0051.

**Summary of Results:** Research is conducted in two phases: November 2015 (initial phase) and July 2016 (final evaluation). Variables used in the study were as following: Big Five Questionnaire (Caprara, Barbaranelli & Borgogni, 2005); Emotional Competence Questionnaire (Takšić, 2002); academic achievement (mean, weighted mean) and Study Satisfaction Scale (constructed purposefully for this study).

**Discussion:** Positive relationship between desirable personality traits and emotional intelligence with academic achievement and satisfaction with the study), could be expected. However, the nature of relationships between these characteristics could help to determine the most important psychological features, related with academic achievement and the satisfaction with the health study.

**Conclusion:** The insights from this study could provide an information about using these findings as the guidelines for using relevant psychological characteristics in selection and education of professionals, as well as for certain aspect of practical work of health professionals.

**Take Home Messages:** Growing demands for health professionals (caused by new findings in the science of medicine) and economic limitations has to be balanced, applying heuristic criteria. Desirable personality traits could offer some potential criteria in the precesses of selection of health professionals, as well as for modifying current system of health education.

#4N2 (130578)

##### The contribution of personality traits and emotional intelligence to the academic achievement and satisfaction of students of Health Studies

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*Mira Klarin*

*Goran Kardum*

*Vesna Antičević*

*Varja Đogaš*

**Background:** Personalized medicine require satisfying patients' psychological and health needs, growing the demands on health professionals. Consequently, social skills appear as important factor during health professionals' education and practical work. Within



#4N3 (133684)

**How can amotivation be reduced among medical students?**

**Natchaya Kunanithaworn\***, Chiang Mai University, Chiang Mai, Thailand

Natchaphon Songtrijuck (Chiang Mai University, Chiang Mai, Thailand)

Salilthip Paiboonsithiwong (Chiang Mai University, Chiang Mai, Thailand)

Nahathai Wongpakaran (Chiang Mai University, Chiang Mai, Thailand)

Tinakon Wongpakaran (Chiang Mai University, Chiang Mai, Thailand)

**Background:** Motivation is important to medical students' academic achievement. It may be correlated with self-determination to study, perceived social support, anxiety, and depression. This observational study investigated the change of motivation in medical education (ME) in the first year students, and factors associated with the change found in six months.

**Summary of Work:** One hundred-forty medical students of the first-year completed Academic Motivation Scale (AMS-28), Outcome Inventory (OI-21), and Multidimensional Scale for Perceived Social Support (MSPSS) in the second semester and six months later. The difference of AMS-28, OI-21, and MSPSS between two time-points were analyzed. Regression analysis was used to predict the effects of OI-21, and MSPSS on AMS-28. Research ethics was approved.

**Summary of Results:** The participants' mean age was  $18.86 \pm 0.74$  and 60% were female. Males had higher score of amotivation ( $p = 0.001$ ) and lower score of extrinsic and total motivation ( $p = 0.008$  and  $0.001$ , respectively) than females. In the follow-up, 100 students participated. Amotivation was found to be decreased ( $t = 11.07$ ,  $p < 0.001$ ) while intrinsic and extrinsic motivations did not change from baseline. Linear mixed model analysis showed that only OI-depressed predicted the decrease of amotivation over time ( $F(1,170) = 12.54$ ,  $p = 0.001$ ) while MSPSS did not; however MSPSS-family alone had an influence on the change of motivation ( $F(1, 167) = 3.99$ ,  $p = 0.047$ ).

**Discussion:** As loss of interest is one of the core symptoms of depression, reduction of depressive scores resulted in improved amotivation of the participants. Even though family is important support system and had influence to diminish amotivation in ME, it was overruled by the effect of depression according to our model.

**Conclusion:** Amotivation in medical education could be modified by reducing depression and maintaining family support.

**Take Home Messages:** Amotivation is a hurdle to medical education, and may be managed by reducing depressive symptoms and enhancing family support.

#4N4 (134235)

**Associations between higher cognitive skills and student academic performances in Medical Sciences program**

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Heidi Chumley (American University of the Caribbean School of Medicine, St. Maarten, Netherlands Antilles)

**Background:** Identification of specific higher cognitive skills will be useful to develop the focused training sessions for the students' success in medical education. The higher cognitive skills assessment and training based Strategic Management Simulations program (SMS) was recently introduced in the Medical Sciences program at American University of the Caribbean School of Medicine.

**Summary of Work:** Associations between higher cognitive skills and prematriculation academic parameters (College GPA, Science GPA and MCAT) and student performances during the first two semesters were investigated among the students who undertook Medical Education Readiness Program (MERP) prior to matriculation and those who didn't. Of 410 students who matriculated between the September 2014 Semester to the May 2015 Semester, 380 students (93%) participated in the higher cognitive skills training.

**Summary of Results:** The MERP students' Mean Grade Points Average (GPA) (82.2) and Non-MERP students' Mean GPA (83.0) during the first two semesters were not significantly different,  $p = 0.457$ . Correlations between Mean GPAs and Information Management Skills (IMS) and Crisis Response Skills (CRS) were moderately strong ( $r = 0.487$  and  $0.391$ , respectively) among both MERP and Non-MERP students ( $n = 309$ ). The best predictors for academic success during the first two semesters among MERP students were MERP grades and IMS scores ( $r^2 = 0.666$ ), while IMS, CRS, Collage GPA and Science GPA ( $r^2 = 0.342$ ) were the best predictors among Non-MERP students.

**Discussion:** Although our students' academic success is predictable from IMS and CRS scores, intervention by the SMS training may improve other higher cognitive skills, such as integration of knowledge and critical thinking.

**Conclusion:** Information Management Skills and Crisis Response Skills had strong associations with the students' academic performances.

**Take Home Messages:** We plan to follow students' progress during the 4-year medical education program to study effects of the higher cognitive skills training based Strategic Management Simulations program on students' academic performances.

#### #4N5 (135793)

##### Learning approaches among undergraduate students in a medical college in Lahore, Pakistan

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Gohar Wajid  
Nadeem Shafique Butt  
Hina Nasreen Malik  
Abid Bashir  
Rehan Ahmed Khan

**Background:** Learning approaches are considered as one of the most significant factors for success in medical and educational practice. Having identified students' learning approaches, educational institutes can implement instructional formats that are more suitable to these approaches.

**Summary of Work:** Many models that assess and measure learning styles and approaches have been recognized but mostly used in developed world. The objective of this study was to determine and compare learning approaches among medical students of different classes/levels and gender in a medical college in Lahore, Pakistan. This was a cross-sectional quantitative study in which a pretested and validated questionnaire, the revised Biggs two-factor Study Process Questionnaire (SPQ) with 20 questions was used among 480 medical students enrolled in all years (1st to final). Pre-testing was conducted independently on 30 students in another institute in Lahore with similar settings.

**Summary of Results:** Trend of Deep Approach (DA), Deep Motive (DM) and Deep Strategy (DS) showed decline from first to final year with significant difference found for Deep Strategy and Deep Approach (p-value of 0.005 and 0.015 respectively). P-values for DM (0.010), DS (0.003) and DA (0.003) were found significant when explored between pre-clinical students (1st and 2nd year) as compared to clinical year students (3rd, 4th & 5th year). Surface Motive was found significantly different (p-value 0.024) between male and female students.

**Discussion:** This study suggests that learning approaches among students are not similar throughout the medical school. The reduction in score for DA and rise in SA, as training advanced may mirror an adaptation of study habits to the new learning environment, which may have less critical thinking.

**Conclusion:** Relevant stakeholders need to take this changing learning trend into account when devising future teaching, learning and assessment strategies.

**Take Home Messages:** Study findings propose to prioritize this relatively neglected but significant issue particularly considering scarce published studies and literature exploring learning approaches among medical students in the region.

#### #4N6 (134163)

##### Matching Medical Students' Learning Preferences and Curriculum Delivery

**Michael Elnicki\***, University of Pittsburgh, Pittsburgh, USA

John F. Mahoney (University of Pittsburgh, Pittsburgh, USA)

**Background:** Recent reforms in medical education emphasize active and small group learning. However, not all students welcome these educational formats. We were interested in seeing whether students' learning preferences could be determined prior to experiencing a medical curriculum.

**Summary of Work:** Entering medical students completed anonymous surveys prior to beginning our curriculum. We asked about 23 instructional methods (such as lectures, workshops or small group sessions), about 10 aspects of those methods (such as asking instructors questions or learning material from fellow students) and demographic information. Answers were on 5 point Likert scales (1= least, 5= most preferred). Students were asked to rate: how responsible the faculty was for their learning and whether they preferred learning in small groups. Data were analyzed initially with t tests, and models were built with linear regressions.

**Summary of Results:** Our response rate was 63% (92/146 students). The highest evaluated methods were: practical self-experiences 4.2 (SD .8), explaining concepts to others 4.2 (.8), practical demonstrations 4.1(.8), studying summary materials 4.1 (1.0), laboratories 3.8 (.9) and lectures 3.8 (1.1). Among responders, 54% felt the faculty was responsible for their learning, and 52% preferred small group learning. Students who felt the faculty was responsible for their learning: were more comfortable asking instructors about material, were uncomfortable teaching fellow students and valued lectures more highly ( $R^2=.27$ ). Those preferring small groups: were more comfortable receiving help from other students, preferred questions in small groups, preferred workshops and giving presentations ( $R^2=.62$ ). Demographic information was not predictive.

**Discussion:** The highest evaluated methods were active and self-directed, but some students highly value lectures and other passive activities.

**Conclusion:** With 2 simple questions, we were able to define populations of students who preferred very different forms of curriculum delivery.

**Take Home Messages:** As individualization of curricula becomes technologically more feasible, understanding learning preferences may help students make choices about instructional modalities.

#4N7 (134602)

**Study of Happiness in Iranian Medical School by Oxford Happiness Inventory (OHI)**

**Nazila Zarghi\*, Tehran University of Medical Sciences, Tehran, Iran**

*Elham Rayzan*

*Mandana Shirazi*

**Background:** Happiness as main principle of community mental health could guarantee dynamicity and self-efficacy of its members. Mental Health as well as feeling of happiness are indispensable elements of life and influence directly on community development, so, in order to achieve maximum productivity in efficient and educated human resources, it is necessary to pay strongly attention to this issue. Therefore this study has been monitored happiness in a cross-sectional design in order to compare happiness in medical students, who were studying in different years of study

**Summary of Work:** Oxford Happiness Inventory (OHI) was applied for measurement happiness in 96 medical student of Tehran University of Medical Sciences. Data were analyzed by SPSS using ANOVA and correlation coefficient tests. As to the findings, significant difference was found between happiness of students studying in basic sciences and clinical course (year 2 and last year of study).

**Summary of Results:** Ninety six participants attended in study of which 70.3% were female and 28.7% were male. 83.2% of students were single and the rest were married. 47.5% of medical students were studying in their home town while 42.6%, lived apart. In term of interest in medicine 36.6% reported very high interest, 38.6 % high interest , 21.8 % average and 1% reported low interest to medicine. Medical students were asked for their hopefulness to their future carrier. 24.8 % reported very high, 30.7 % high, 33.7 % average, 5.9 % low and 2 % low hopefulness. 55.4 % of students were at good socioeconomic class, 41.6 % had average status and 1% had weak socioeconomic status. 12.9% of medical students had a positive history of disease and others were disease free. 5% were smokers and 16.8 % were working during their study. As to the findings, significant difference was found between happiness of students in different cut of their studies.

**Discussion:** Most studies measured happiness by OHI, however, the main point of present study is monitoring of happiness in medical students, so it could be said that all influencing factors during their academic life especially in medical school and clinical settings, where they are full of stress, tensions as well as new challenging factors, could be considered indirectly

**Conclusion:** Regarding influence of different factors on happiness, level of happiness could be regarded as of main factors associated to students' health, it is recommended to determine level of happiness at entering to new academic year in order to prevent further mental complications in the future for increase self-efficacy of their academic and professional life.

**Take Home Messages:** It is recommended to monitor students for level of happiness in order to prevent further complications as well as planning schedule for health promotion of students.

## 40 Short Communication: Faculty Development 2

Location: MR 122 – P1

#401 (133752)

**Strategies for Teacher Training in the Health Sciences: How Do Professors Change?**

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**Background:** Professionalizing the role of those who teach in the field of health is a great challenge in Argentina today. At the Hospital Italiano in Buenos Aires, the University Institute has taken on this challenge for the past decade in a program called University Teaching in the Health Sciences. The University Teaching program involves seven seminars with a range of final projects and a portfolio in which candidates document and critically reflect on their teaching practices over the course of the two-year program.

**Summary of Work:** In this paper, we examine the strategies for training these professors. Sources include class observations and the written assignments of the participants (final projects and portfolio). This description is part of educational design research based on a qualitative research methodology. It proposes to understand how when and why training strategies are successful at professionalizing teachers using an interpretive and descriptive paradigm.

**Summary of Results:** As the result of our research, we have identified three types of strategies for professionalizing these teachers. The first are those that question basic conceptions of teaching, students, learning, etc. The second are those aimed at trying out new alternatives in classrooms. Finally, the third strategy type involves those that target both the actual practice of teaching and its possibilities.

**Discussion:** It proposes to understand how when and why training strategies are successful at professionalizing teachers using an interpretive and descriptive paradigm.

**Conclusion:** These three types of strategies supplement one another, allowing us to rethink practices that are simply replicated without question, modify conceptions of teaching and improve the practice of teaching.

**Take Home Messages:** This represents a contribution to designing teacher training strategies in the health sciences that can be empirically and theoretically validated.

#402 (132743)

**Surgical teachers' perspectives on teaching: a study applying Teaching Perspectives Inventory (TPI) in Uruguay**

**Estrella Echavarría\***, *Universidad de la Republica, Montevideo, Uruguay*

*Marcelo García Diéguez ( Instituto Universitario Hospital Italiano, Buenos Aires, Argentina)*

**Background:** The perspectives on teaching are an interrelated combination of beliefs and intentions that gives direction and justification to the teachers' actions.

**Summary of Work:** To describe the teaching perspectives of surgical clinic teachers and their relation with teaching history training.

**Summary of Results:** 56/58 responded (96%). The TPI scores were mean  $161 \pm 17$  points (minimum 133, maximum 210 ). The greater the academic degree and teacher training, the higher the TPI total score.

Perspectives : Transmission  $31 \pm 4$  (24-42), Apprenticeship  $36 \pm 3,5$  (28-44), Developmental  $32 \pm 3,5$  (23-40), Nurturing  $32 \pm 4$  (22-42), Nurturing  $30 \pm 6$  (18-42).

**Discussion:** In 41 teachers (73%), the Apprenticeship perspective was the dominant perspective, followed by the Nurturing and Social Reform perspectives. The Developmental perspective was more frequent among teachers with teacher training. The differences between teachers were linked to the academic degree, academic performance, and these differences were very significant in teachers with teacher training

**Conclusion:** Among the identified perspectives prevails the teaching focused on the teacher. The teacher training was closely linked to the student-centered teaching.

**Take Home Messages:** Teaching perspectives. Surgical clinics teachers.



#403 (132092)

**Is a Picture Worth a Thousand Words? Applying Observational Learning for Learning Clinical Teaching**

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Rintaro Imafuku (*Gifu University, Gifu, Japan*)  
Joyce Pickering (*McGill University, Montreal, Canada*)  
Yvonne Steinert (*McGill University, Montreal, Canada*)  
Yasuyuki Suzuki (*Gifu University, Gifu, Japan*)

**Background:** Whilst observational learning suggested by Bandura is a powerful learning method, such a method has rarely been applied to the field of faculty development in clinical education. The purpose of this study is to examine how faculties can learn clinical teaching by observing clinical teachers in the clinical settings.

**Summary of Work:** A one-week faculty development program in which Japanese faculty visit Canadian teaching hospitals and observe the real clinical teaching in the given clinical context. Clinical context was matched with the faculty's specialty. 19 faculties participated in this study. Faculty's logbook, debriefing and reflective reports were gathered and analyzed. Bandura's social learning theory of observational learning is employed as a theoretical framework.

**Summary of Results:** Participants embraced the experiences of the observational learning in the different context. Debriefing with logbooks accelerated their learning on clinical teaching. What they learned were categorized into seven core domains such as the quality of patient care and system, teaching skills, professional attitude as clinical educators, communication process, students' attributes, and the context of the clinical teaching.

**Discussion:** Observational learning, peer discussion, and a guided reflection with logbook may be an ideal combination that enabled faculties to learn clinical teaching comprehensively and deeply. Notably, the differences in terms of national culture, health care and educational system seemed to influence positively on their observational learning such as attention and retention.

**Conclusion:** This is the first studies that demonstrated the impact of observational learning in faculty development program on clinical teaching in medicine. A further study should address if such learning outcomes can be sustained and how they transform their behavior, educational belief and self-efficacy after the program.

**Take Home Messages:** Observational learning in the clinical setting is more than a site visiting. "Learning by Observing" should be more implemented into faculty development for clinical faculties.

#404 (135057)

**Applying a Microteaching Approach for the Professional Development of Educators**

**Jayne Lysk\***, *University of Melbourne, Melbourne, Australia*

**Background:** There is an ever increasing interest need for techniques that will provide clinicians with the knowledge and skills to make their teaching more efficient, enjoyable and effective. Microteaching is a well proven technique that is practiced worldwide for learning teaching skills. The technique has many elements including; collaboration, shared knowledge, knowledge production, observing others, feedback, and reflection. Yet, how microteaching can also facilitate a greater understanding of learning and learning theories is relatively unexplored.

**Summary of Work:** After reviewing the literature in a wide selection of educational databases, journals and books outlining microteaching techniques, a microteaching approach was created and implemented as part of professional development for clinical educators. Participants' who took part in the activity reflected on new insights and awareness and questions and puzzlements arising from the microteaching activity.

**Summary of Results:** The participants' reflections on the microteaching activity were mostly positive, describing both the learning underlying the microteaching experience and the learning that represented in the activity. However, a full evaluation of how skills and techniques have been applied in the clinical workplace is yet to be conducted.

**Discussion:** Exploring the microteaching approach has resulted in the development of conceptual framework for implementing high quality microteaching experiences, which has the potential to strengthen our understanding of the learning that occurs when applying and experiencing the microteaching technique.

**Conclusion:** Educators and learners can apply the microteaching approach to enhance teaching skills and methods or to expand effective learning opportunities.

**Take Home Messages:** Learning about teaching and learning about learning can be enhanced through collaboration, and authentic experiential activities.

#405 (134497)

**Identity as trajectory: How faculty members modulate their newly formed educator identity after graduating from a longitudinal faculty development program**

*Joshua Jauregui\*, University of Washington, Seattle, USA*

*Summers Kalishman (University of New Mexico, Albuquerque, USA)*

*Patricia O'Sullivan (University of California San Francisco, USA)*

*Holly Nishimura (University of California San Francisco, USA)*

*Lynne Robins (University of Washington, Seattle, USA)*

**Background:** Longitudinal faculty development programs (FDP) provide faculty with membership in a supportive community of practice. Research shows that FDPs support the development of participants' identity as educators through shared learning activities that enhance their competence, confidence, and credibility. What is less well documented is how graduates modulate, or negotiate among multiple sources of accountability, their newly formed educator identity (EI) following graduation.

**Summary of Work:** This was a multi-institutional (n=4), cross-sectional, qualitative study of 2 different FDP cohorts: one-year and five years post graduation. Every graduate was invited to participate in cohort-specific focus groups. Verbatim transcripts of the focus groups underwent qualitative data reduction and thematic analysis. Analysis was informed by Wenger-Trayner's conceptual framework of knowledgeability in a landscape of practice and the concepts of engagement, imagination and alignment.

**Summary of Results:** Thirty-seven faculty members participated in 8 focus groups. Key themes that emerged included formation of a new EI through engagement in the FDP community of practice and reified through their shared experience. Following graduation, they felt unmoored from their FDP community due to tensions between their EI and other competing identities and demands. Faculty members described having to rely on their individual agency to modulate their EI(s) within the workplace through: ongoing engagement with an educational community of practice, imagination time to allow for educational thoughtfulness and inventiveness and alignment with the local context of their institutional and departmental goals.

**Discussion:** These findings affirm that faculty members form new EI in FDP learning communities. Wenger-Trayner's theory helps extend our knowledge about how graduates modulate their new identities.

**Conclusion:** Faculty member's ability to successfully remoor their newly formed EI(s) was a product of both their individual agency and affirmation from their external environments.

**Take Home Messages:** Faculty Developers may use these findings to help prepare their faculty to negotiate their educator identities within the

workplace landscape of practice and it's competing demands and identities.

#406 (133759)

**Mapping the Shared Repertoire of a Community of Practice: Citation Analysis of Faculty Development in the Health Professions**

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*Lily Pien*

*Maureen Clark*

**Background:** Communities of practice (CoP) are social learning structures characterized by a shared repertoire of language and frameworks that is used to manage knowledge and experience in specific domains. We examined the shared repertoire of faculty development using citation analysis of a recently published book to profile works cited by experts in this domain.

**Summary of Work:** Faculty Development in the Health Professions, the first comprehensive review of the field, consists of 20 chapters written by 35 authors. Using citation analysis, we compared the reference lists of each chapter with every other chapter. For references cited in 3 or more chapters, we analyzed publication type, year of publication, source journal, and available citation counts in Web of Science.

**Summary of Results:** References cited in 3 or more chapters included 42 journal articles, 10 books/chapters, 3 websites, and 1 conference proceeding. 70% of articles were published in health professions education journals; 88% were published between 2003-2012. Three article types predominated: systematic reviews, reports of program design and evaluation, and integrative reviews that develop new models and frameworks. Citation frequency within the book did not reflect Web of Science citation counts. The books/chapters focused on social learning theory, reflective practice, program evaluation, and scholarship. 80% of the books/chapters were published prior to 2000.

**Discussion:** Our citation analysis begins to characterize the shared repertoire informing the work of leading experts in faculty development. Frequently cited articles demonstrate the value of learning from the in-depth examination of exemplar programs. Literature reviews define current questions and challenges, and underlie the development of new models to guide practice.

**Conclusion:** This book maps the shared repertoire of a faculty development CoP. Citation analysis traces conceptual frameworks and approaches to reflective practice important to this community.

**Take Home Messages:** Beyond reading the book, our citation analysis directs faculty developers to resources that will enrich their knowledge and practice.

#407 (136381)

**How we implemented a workshop on effective and interactive lecturing for faculty development in medical education using peer observation of teaching**

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*Mohammad Shariati*

*Leila Sedighpour*

*Maryam Alizadeh*

**Background:** Whereas much has been written about the strategies, barriers and facilitator factors of effective and interactive lecturing in medical education little has been written about the effective and interactive lecturing skills educational programs for medical teachers based on peer observation of teaching

**Summary of Work:** Here we would like to present a workshop on effective and interactive lecturing using peer observation and feedback. We combined interesting and applicable subjects such as effective use of body language, gesture, pacing, interactive lecturing techniques (e.g. small group, questioning, and flash cards), vocal cords health, and problem learners with an opportunity to practice and peer and professional feedback on performance during a 3 day workshop for faculty members of Tehran University of medical sciences in 2014. The process of self-assessment, peer and expert review of video recorded lectures during workshop presentations is described.

**Summary of Results:** Overall, the workshop received a rating of 5-4 (excellent - good), written comments highlighted the benefit of the small-group activities, in particular the opportunity to rework their lectures and receive feedback from colleagues. Participants indicated that following this workshop they intended to try more interactive techniques, spend more time in preparing their lectures, reflect on their presentation experiences, record their lectures and see it again in order to enhance their skills, ask from peers and colleagues for feedback, and change the content of their lectures to enable them to be more interactive and effective. They also noted they were very excited about the problem learner presentation and requested consecutive meeting on this topic.

**Discussion:** This creates a positive reaction toward faculty development programs and we hope they use their learning in their practice. Critical to the success of any educational intervention is the assessment of competence. Although we have not explored the impact of our workshop on participants' presentation skills yet, but to address this, we are exploring the results and longtime effects of the workshop on participants

**Conclusion:** We think providing rich learning opportunities to practice and giving constructive feedback on performance creates a positive reaction toward faculty development programs and enhances the probability of using learning in practice.

**Take Home Messages:** 1. Group feedback discussions can be used to stimulate reflection of teaching practice. 2. The effective and interactive lecturing

workshop should permit self-reflection and an opportunity to see the performance like a mirror.

## 4P Short Communication: The Examiner/ Standard Setting

Location: MR 123 – P1

#4P1 (132312)

OSCE Examiner Judgements: what informs their decisions?

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Christine Fessey, St George's University of London, London, UK

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Rhoda Mackenzie, University of Aberdeen, Aberdeen, Scotland

Zuzanna Marciniak, University of Cambridge, Cambridge, UK

**Background:** Decision-making processes of clinician assessors are an increasing area of research in medical education. Often referred to as “rater cognition”, studies have focused on work-place based assessors in the context of postgraduate training. This study investigates the thinking processes of examiners during undergraduate Objective Structured Clinical Examinations (OSCEs).

**Summary of Work:** Thirty clinicians examiners were recruited from medical schools in three different English-speaking countries. Participants had varying degrees of experience in examining at OSCEs. Each clinician individually watched two 10-minute recordings of students performing at OSCE stations (at graduation level). Participants were asked to express their thoughts about the performance while watching the video. On second viewing the participant could stop the video at any time to elaborate on their thinking. The participants then went through the same process with the second recording. Sessions were recorded, transcribed and analysed thematically.

**Summary of Results:** The dominant theme was around readiness for practice, with examiners balancing better and less well-performed aspects of the clinical encounter to reach a definitive judgement. Subsumed codes included inter-personal skills, professionalism, clinical skills, knowledge and fluency. There were no great differences between comments made by examiners from the different schools. Less experienced OSCE raters tended to judge more stringently than more experienced examiners.

**Discussion:** Clinician examiners make judgements about candidate performance according to their own schemas of ‘competence’ based on their personal clinical practice and experience. Marking schemes were not considered especially relevant to the clinicians’ judgements. These schemas were similar in all three schools.

**Conclusion:** Clinician examiners have certain expectations of what constitutes a ‘good enough performance’ at graduation level OSCEs. These expectations are based more on their personal experience and standards than marking schemes.

**Take Home Messages:** Clinician examiners across disparate medical schools engage in similar decision-making processes about readiness for graduation in student OSCE performance contexts.

#4P2 (134854)

Determining the Influence of Student Ethnicity on OSCE Examiners’ Judgments and Memory

**Peter Yeates\***, Keele University, Stoke on Trent, UK

Katherine Woolf (University College London, London, UK)

Emyr Benbow (University of Manchester, Manchester, UK)

Kevin Eva (University of British Columbia, Vancouver, Canada)

**Background:** Students from minority ethnic (ME) backgrounds achieve lower average scores than white students, particularly on communication assessments. Whether this arises due to examiner bias or some other curricular influence is controversial. Some medical educators describe stereotyped views of south Asian students’ performance: good formal knowledge, but poor communication skills. This study investigated the influence of students’ ethnicity (white vs south Asian) on OSCE examiners’ scores, cognitive activation of stereotypes and performance-memory.

**Summary of Work:** Randomised, blinded, 2 group experiment. 3 scripted performances were filmed by both white and Asian actors: P1 showed Strong Knowledge/Weak Communication; P2 Weak Knowledge/Strong Communication; P3 mixed ability on both dimensions. Student ethnicity in each performance varied by group: Group 1=Stereotype consistent: P1=Asian, P2=White, P3=Asian; Group 2=Stereotype inconsistent: P1=White, P2=Asian, P3=White. 158 UK OSCE examiners: watched each performance; provided scores; performed a lexical decision task to measure stereotype activation; and completed a recognition-based memory test.

**Summary of Results:** Students’ ethnicity had no influence on examiners’ scores: Knowledge scores (out of 7.0) for Asian and White candidates were 3.9 (95%CI=3.8-4.0) and 3.9 (3.8-4.0), respectively ( $p=0.77$ ); Communication scores were 3.9 (3.8-4.1) and 3.9 (3.7-4.0), respectively ( $p=0.31$ ); Overall ratings were 3.1 (2.9-3.3) and 3.1 (3.0-3.3), respectively ( $p=0.88$ ). The lexical decision task suggested that participants activated mental stereotypes: both groups responded to Asian-stereotype words more quickly (mean=716ms; 95%CI=702-731ms) than neutral words (769ms; 753-786ms) or non-words (822ms; 804-840ms), all  $p<0.001$ , but did not differ by groups. Examiners’ recollection of performances did not vary by student ethnicity.

**Discussion:** Neither examiners’ scores nor recollections showed any influence of students’ ethnicity despite both groups apparently activating cognitive stereotypes of “Asian-ness”.

**Conclusion:** These findings are consistent with observational research suggesting that examiner bias



doesn't explain average underperformance of Asian students.

**Take Home Messages:** To understand the average underperformance of minority ethnic students, medical educators should consider aspects of the curriculum other than examiner bias.

## #4P3 (134946)

### **Social and Cultural Factors Influencing Consistency of Examiner Judgements in Competency-based Assessments in Medical Education**

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*Karen Moni, School of Education, The University of Queensland*

*Jill Thistlethwaite, School of Medicine (Adjunct), The University of Queensland*

*Lata Vadlamudi, School of Medicine, The University of Queensland*

**Background:** Examiner judgement plays a major role in the competency-based assessment of students' clinical skills. This research focuses on investigating the range of contextual, social and cultural factors involved in the examiner judgement process. The context is the objective structured clinical examination (OSCE) in a graduate entry four-year Bachelor of Medicine/Bachelor of Surgery program.

**Summary of Work:** A mixed-methods case study approach was adopted. Statistical analysis, using Generalizability Theory, of examiner markings of 376 students and 141 examiners in the 12-station final year OSCE was conducted to explore the contribution of contextual factors (i.e., students, examiners and stations) and their impacts on examiner judgements. Qualitative data were collected from 43 semi-structured interviews with examiners. Guided by Cultural Historical Activity Theory, analytical and inductive coding was conducted to explore the social and cultural factors that influence examiner judgement.

**Summary of Results:** Outcomes of the statistical analysis revealed that examiners was the major contextual factor in the judgement process. Preliminary analysis of the qualitative data indicates that social and cultural factors, and their interactions, including the institution's requirements, and examiners' values, attitudes and experience all play an influential role in the examiner judgement process.

**Discussion:** The outcomes provide a comprehensive understanding of the contextual, social and cultural factors that impact on examiner judgement. The subsequent step is to engage with examiners to develop strategies which will help them to identify these influential factors and to minimise their influence in the judgement process.

**Conclusion:** This study has facilitated the development of evidence-based recommendations of effective strategies and examiner training to assist examiners in recognising the social and cultural factors involved in the judgement process.

**Take Home Messages:** A range of contextual, social and cultural factors, and their interactions are involved in examiner judgements. Understanding of these influential factors will help examiners to identify them and to minimise their influence in the judgement process.

## #4P4 (135272)

### **UCAN: 11 years of experience in cooperative medical assessment**

**Konstantin Brass\***, *Umbrella Consortium for Assessment Networks (UCAN), Heidelberg, Germany*

*Jana Juenger, Umbrella Consortium for Assessment Networks, Heidelberg University, Germany*

**Background:** In order to face the current challenges in medical assessment, institutions have to cooperate more intensively. To this end, UCAN was formed 11 years ago as a platform for inter-institutional, academic and non-profit cooperation. Today, 61 schools, boards and councils from seven 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.

**Summary of Work:** 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) 13 institutions.

**Summary of Results:** So far, 6,600 colleagues added more than 300,000 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 17,500 exams.

**Discussion:** Especially with the upcoming conceptual, logistic and developmental challenges associated with the shift from knowledge to competency-based assessment, tie-ups are highly recommendable.

**Conclusion:** 11 years of cooperation in a collaborative network has proven to be an efficient way to face new challenges in medical assessment.

**Take Home Messages:** Assessment institutions should work together in order to tackle common challenges. 11 years of successful cooperation at UCAN proves this approach to be both innovative and feasible.

#4P5 (134035)

**Failing the sequential test: the comparative impact on subsequent clinical and knowledge assessment outcomes**

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Godfrey Pell  
Jennifer Hallam  
Richard Fuller

**Background:** Established evidence highlights traditional 'test-remediate-retest' models of assessment are not generally successful in enhancing weaker candidate performance over time. This has led to the development of sequential test models consisting of a shorter 'screening' test, with an additional test sat only by the weaker candidates. At the University of Leeds School of Medicine, failing candidates undertake a repeat year of study supported by bespoke remediation and personalized workplace assessment.

**Summary of Work:** In developing our sequential model, we postulated that it would benefit weaker candidates. In testing this hypothesis, this work uses OSCE and single best answer assessment data to compare the relative performance of the failing group at the end of the repeat year, and on subsequent progression.

**Summary of Results:** This candidate group demonstrates substantial improvement in both OSCE and knowledge assessments (approximately 20 percentile points when ranked against their peers). The degree of improvement is more variable in the OSCE than in the SBA test. This relative improvement remains in subsequent assessments, but at a lower magnitude.

**Discussion:** The challenges of delivering high quality, high stakes assessment can often drive models of large scale testing where 'more' assessment is always thought to be 'better'. This empirical work, coupled with recent psychometric developments (Wainer & Feinberg, 2015), confirms that 'less' (through a sequential testing approach) can be 'more' when suitably designed and implemented.

**Conclusion:** An increasing body of evidence highlights that developing 'personalised assessment' models through coupling sequential testing formats with bespoke remediation are superior to many traditional test-remediate-retest models. These lead to sustained relative improvement in the weaker candidates' performance, whereas in the traditional model the performance of this group tends to deteriorate over time.

**Take Home Messages:** Sequential testing brings a range of benefits, including better pass/fail decision-making, cost savings and importantly sustained, longitudinal improvements in previously failing candidates.

#4P6 (134522)

**Marking reliability: the results of an OSCE marking standardisation exercise with a large cohort of newly trained assessors**

*Suzanne Chamberlain\*, National School of Healthcare Science, Birmingham, UK*  
Alexandra Kirby  
Stuart Sutherland  
Tim Packwood  
Sandie Gay

**Background:** The National School of Healthcare Science provides an end-of-training OSCE for clinical scientists across the UK. The School utilises a pool of approximately 200 assessors to assess 27 unique OSCEs. An online marking standardisation exercise was designed for new assessor training and for giving assessors insight to their own marking tendencies as compared against all other assessors.

**Summary of Work:** Assessors watched and assessed a video of one candidate at one OSCE station. Assessors were blinded to all domain weightings and the station pass mark, and submitted their scores anonymously using an online system. Scores, global judgements, and pass/fail outcomes were analysed. The same assessors were asked to take part in the 2016 repeat of this exercise, which used a different station.

**Summary of Results:** The 2015 exercise produced a range of total scores from 0.0% to 92.7% (mean = 30.9%; SD = 22.0%). Based on total scores alone, 23 assessors passed the candidate, while 164 failed the candidate. It is anticipated that as the assessors gain experience, the second iteration of the marking standardisation exercise in 2016 will show significantly less variability.

**Discussion:** The exercise was useful for highlighting assessors' marking tendencies. However, some of the variability in marking was attributable to a lack of clarity in the domain-based mark scheme for the station.

**Conclusion:** The 2015 results highlighted significant discrepancies in the interpretation and application of the mark scheme, and in assessors' expectations of what would be an appropriate response to the station task in the workplace. The exercise served as a useful reminder of the importance of marking reliability and consistent application of mark schemes.

**Take Home Messages:** Marking standardisation is an essential exercise prior to the delivery of large-scale, high stakes assessments to allow assessors to self-calibrate against their peers, and practice marking skills.

#4P7 (133779)

**Cost- effectiveness of different standard setting methods in OSCEs with limited resources**

**Eduardo Durante\***, *Instituto Universitario del Hospital Italiano de Buenos Aires, Ciudad de Buenos Aires, Argentina*

Maria Dolores Arceo

Maria de las Nieves Ganiele

Sergio Gianassi

**Background:** Although many studies have reported strategies to reduce costs in limited resources objective structured clinical examinations (OSCE), few of them evaluated the cost- effectiveness of applying different standard setting methods. The objective of this study was to compare the cost- effectiveness of different standard setting methods in limited resources OSCEs: borderline group (BLG), borderline regression (BLR) and contrasting group (CG). A non- high stakes OSCE was planned and implemented to assess the final curricular competences in medical students. It included 4 ten-station circuits, all stations had standardized patients and examiners.

**Summary of Work:** We estimated the costs of the planning and implementation of the OSCE including simulated patients, OSCE lead organizers, examiners, data processing, education and administration, venue and other costs. Additionally, we defined the pass/ fail score using BLG, BLR and CG methods and calculated the failure rate and associated costs. BLG, BLR and CG were calculated using an Excel worksheet by a non- statistician faculty, according to the present recommendations. CG included 10 faculties as judges.

**Summary of Results:** Forty-one medical students were assessed in a University Hospital in Buenos Aires, Argentina. Cost of implementation of the OSCE was argentinian pesos (AR\$) 64450 (about US\$ 5000). Direct cost was AR\$ 1571 per student, AR\$ 1611 per station and AR\$ 16112 per circuit . The direct costs associated with different standard setting methods were: BLG AR\$ 1000, BLR AR\$ 2000 and CG AR\$ 5460. The failure rate was 7.3% (3/ 41), 7.3% (3/ 41) and 19.5% (8/ 41), respectively. We did not calculate the costs associated to remedials and re- examination.

**Discussion:** Contrasting group method is more cost- demanding since a number of judges are included in the process. Additionally, since the passing score is higher, the remedials and re- examination increase the costs.

**Conclusion:** In limited resources OSCEs, the BLG and BLR methods of standard setting are most cost- effective than the CG method. With short training, a non- statistician could calculate the passing score using BLG or BLR.

**Take Home Messages:** In limited resources OSCEs, borderline group and borderline regression methods of standard setting are the most cost- effective.

## 4Q Short Communication: Continuing Professional Development 1

Location: MR 124 – P1

#4Q1 (133474)

**Does Repeated Testing Promote Learning in Practicing Physicians? Investigating Retrieval Effects in the Context of Continuing Health Science Education**

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Chenchen Hou, McMaster University  
Mohamed Panju, McMaster University  
Khalid Azzam, McMaster University

**Background:** Interest in continuing medical education (CME) to promote lifelong learning has seen the emergence of evidence-based research in this domain. While theories of knowledge acquisition, such as test-enhanced learning (TEL) are believed to be applicable to CME, it is unclear if this is supported by evidence.. The present study examined whether TEL effects can be observed in practicing physicians.

**Summary of Work:** 49 physicians were recruited during a local CME activity. Following four 20-minute lectures on relevant topics within cardiology, physicians were randomized to either a) the test condition (n=26), where learners completed a test of 20 multiple choice questions (MCQs) or b) the study condition (n=23), where learners studied the same information. Testing and studying occurred during the CME activity and then once more 4 weeks later.

Finally, 8 weeks after the initial intervention, physicians completed a final test with 20 new MCQs. **Summary of Results:** Performance on the final MCQ test was equivalent for both test (75%) and study-only (77%) conditions (p=0.35)

**Discussion:** The null findings in the present study are inconsistent with previous research showing performance benefits of testing relative to studying. TEL is thought to promote learning by enhancing memory retrieval (e.g., the ability to access or use information from memory). Most TEL experiments focus on individuals learning new clinical skills. If TEL promotes learning by increasing retrieval pathways, then the effects may not be transferable to practicing physicians with developed mechanisms for retrieving relevant information

**Conclusion:** Given that most TEL research focuses on novice learners, who lack strong associative memory networks, it is possible that TEL is specific to novices and not generalizable to experts.

**Take Home Messages:** Before implementing TEL as a form of CME, it is essential to identify if and when testing benefits learning in practicing clinicians.

#4Q2 (133770)

**Enticing clinicians to change practice: An ethnographic exploration of continuing professional development courses**

**Patricia Thille\***, The Wilson Centre, Toronto, Canada

**Background:** Continuing professional development (CPD) is a key part of the medical education continuum. CPD encourages clinicians to consider changing their practice. Examining strategies used in CPD activities to inspire change allows educators to consider the implications and impact of different approaches.

**Summary of Work:** After attending two CPD courses (the Canadian Obesity Network's 5As of Obesity Management™ (2013) and the HCA Approach™ (2014)) as a participant observer, I analysed course texts and field notes to explicate the narrative, discursive, and textual methods used to entice clinicians to change their current practices.

**Summary of Results:** In both courses, facilitators described usual practice as potentially causing harm to patients. Facilitators removed blame for past practices, citing prior lack of training and limited research. Each course involved 1) rhetorical alignments with other diseases and treatment practices, 2) framing clinician's actions as influential in positive and negative ways, 3) describing the new, recommended practices as both evidence-based and patient-centered, and 4) inviting clinicians to imagine themselves as patients. The in-course and take-home texts reinforced and simplified the recommended clinical actions into memorable mnemonics and linear decision-making approaches.

**Discussion:** The narratives developed in the two CPD courses attempted to shift care into collaborative models. The recommended approaches aligned a noble subject position for clinicians with collaborative care, made the recommended changes seem relatively easy, and highlighted harms and risks of non-collaborative care practices.

**Conclusion:** Aligning collaborative care models with nobility may be effective, but also risky. Clinicians return to environments where discouraged models of practice might be considered good quality care, and the courses may under-prepare clinicians to recognize or implement the environmental changes necessary to re-align care practices with the promoted model.

**Take Home Messages:** Narrative appeals and oversimplifications of change processes may make for clearer educational messages, but risk generating unintended consequences that undermine the effectiveness of CPD initiatives.



#4Q3 (134628)

**Continuing Midwifery Education Beyond Graduation: Student Midwives' Awareness of Continuous Professional Development**

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*Martin Valcke*

**Background:** Midwifery education plays an important role in educating graduates about engaging in continuous professional development (CPD) but there is a lack of empirical research analysing student midwives' awareness of CPD beyond graduation. We aimed to explore student midwives' awareness of the need to become lifelong learners and to map their knowledge of CPD activities available after graduation.

**Summary of Work:** Methods Forty-seven reflective documents, written in the last week of student midwives' training programme, were analysed in a thematic way. The ATLAS.ti software (version 6.1.6) was used to manage and store data.

**Summary of Results:** Content analysis confirmed student midwives' awareness of the importance of CPD before graduation. They mentioned different reasons for future involvement in CPD and described both, formal and informal CPD-activities. Respondents were especially aware of the importance of knowledge, to a lesser degree of skills-training and still less of the potential value of the Internet for individual and collective learning. Respondents perceived a need for a mandatory preceptorship. Supporting learning guides were highly valued and the importance of reflection on CPD was well-established. This could have resulted from an integrated reflective learning strategy during education.

**Discussion:** The results show a strong focus on individual learning instead of collective learning. More attention is needed to establish collegial and collaborative learning opportunities in practice settings.

**Conclusion:** Undergraduate midwives are aware of the importance of CPD and the interplay of formal and informal learning activities. Virtual and collaborative learning requires special attention to overcome CPD challenges.

**Take Home Messages:** Lifelong learning is an ongoing process to ensure continuous professional development. More research on this professional developmental continuum beyond graduation is needed. Reference Embo, M., Valcke, M., 2014. Continuing midwifery education beyond graduation: student midwives' awareness of continuous professional development.

<http://dx.doi.org/10.1016/j.nepr.2015.08.013>

#4Q4 (135729)

**Is There a Role for Pediatric Residents in Teaching Community Health Care Providers? Exploring a Novel Strategy for Continuing Professional Development**

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*Aliki Thomas*  
*Carol Kamin*  
*Leslie J. Sandlow*

**Background:** Residents commonly engage in a teaching role for peers and junior trainees. The associated learning benefits for the teachers and the audience are well documented. However, the concept of 'reverse educational distance' (RED), in which residents teach an audience that is academically senior, has never been studied.

**Summary of Work:** We explored Pediatric residents' and community health care providers' (CHCPs) perceptions of a Continuing Professional Development (CPD) intervention using a RED approach, whereby residents would engage as teachers for CHCPs. We explored the perceived benefits, challenges, and ways to optimize the implementation of such intervention in a Pediatric residency program. Using a descriptive qualitative design, we conducted 8 focus groups, 4 with Pediatric residents and 4 with CHCPs, which included 4 to 5 participants per focus group. Data were analysed using an inductive thematic analysis.

**Summary of Results:** Benefits anticipated by the residents included three themes: 1) optimizing residents' incentive to learn; 2) focusing on the practical 'real-world application' of pediatric knowledge; and 3) better understanding community practice. Benefits anticipated by CHCPs included two themes: 1) being updated on pediatric evidence-based practices; and 2) improving collaboration between CHCPs and future pediatricians. The major anticipated challenge of RED was the lack of clinical experience of the resident-teacher. A key suggestion for implementation included adequately supporting residents throughout the CPD intervention.

**Discussion:** Engaging residents as teachers for CHCPs could lead to learning benefits similar to those reported when residents teach peers and junior trainees. Some of the learning benefits for the residents may however be enhanced while others may be unique to the context of RED.

**Conclusion:** Our findings can guide the development of novel CPD approaches that align with the educational mandate of medical programs, namely preparing future Pediatricians as health educators for the community and fostering inter-professional collaboration.

**Take Home Messages:** RED is a promising educational strategy for CPD.

#### #4Q5 (135757)

**Continuing professional development across respiratory specialties: HERMES (Harmonised Education in Respiratory Medicine for European Specialists) initiative of the European Respiratory Society (ERS)**

*Alexandra Niculescu\*, European Respiratory Society, Lausanne, Switzerland*

*Julie-Lyn Noel, European Respiratory Society, Lausanne, Switzerland*

**Background:** HERMES is working towards the development of harmonised and structured programmes for education across respiratory specialties to ensure that the best care is delivered for those suffering respiratory diseases. HERMES projects in respiratory critical care, respiratory sleep medicine, thoracic oncology and respiratory infections are developing curriculum recommendations for continuing professional development. Already trained specialists will have the opportunity to develop advanced expertise. Eventually, they will also have the opportunity to be certified. The Respiratory Critical Care HERMES and Respiratory Sleep HERMES developed curriculum recommendations in 2014 and 2015 respectively. The Thoracic Oncology HERMES curriculum recommendations will be published this year. Respiratory Infections HERMES have their ongoing work. These curricula provide a concise, straight-forward and user-friendly training framework formulated for target users: already trained medical specialists and allied health professionals seeking to advance their expertise.

**Summary of Work:** Curriculum modules describe learning outcomes, minimum exposure, assessment tools and teaching and learning opportunities. Content was defined by acknowledged experts and validated by various national representatives with careful consideration of generalisability and transparency of the process throughout.

**Summary of Results:** Curriculum modules describe learning outcomes, minimum exposure, assessment tools and teaching and learning opportunities. Content was defined by acknowledged experts and validated by various national representatives with careful consideration of generalisability and transparency of the process throughout.

**Discussion:** There was the challenge of promoting state-of-the-art education while taking into account the different contexts and the challenges of continuing professional development. The individual doctor or allied health professional will learn differently. With the curricula, they were aiming to have learners maintain and improve standards of care through the development of knowledge, skills, attitudes and behaviour.

**Conclusion:** Rigorous validation was done in formulating the curricular content. The aim is to find a balance between making the recommendations both realistic and useful as well as aspirational. The curricula represent the highest standards of training in an

advanced expertise or in continuing professional development.

**Take Home Messages:** It is hoped that the curricula will be used as basis for educational programmes developed by professional societies, and institutional collaborations.

#### #4Q6 (133464)

**Place of medical qualification and risk of experiencing a General Medical Council's performance assessment: A cohort study**

*Alison Sturrock\*, University College London, London, UK*

*Leila Mehdizadeh (University College London, London, UK)*

*Jane Dacre (Royal College of Physicians, London, UK)*

**Background:** The General Medical Council (GMC) conducts performance assessments on doctors in the UK that have concerns around their performance at work. We studied how the demographics of doctors who had undergone performance assessment compared with the changes that have happened to the UK's medical register, with particular focus on whether the country or world-region a doctor graduates from impacts on the likelihood of experiencing a performance assessment.

**Summary of Work:** This was a retrospective cohort analysis of data routinely collected by the GMC. We compared a cohort of doctors who experienced performance assessment between the years 1996-2013 with the medical register between 1996-2014.

**Summary of Results:** Rate of performance assessment varied significantly by place of medical qualification;  $\chi^2(17) = 188$ ,  $p < 0.0001$ , pseudo- $R^2 = 15\%$ . Doctors who trained outside of the UK were more likely to have a performance assessment, with the exception of South African-trained doctors. Doctors who trained in Bangladesh were 13 times more likely to experience performance assessment than UK graduates. European trained doctors were more than 4 times likelier to experience performance assessment than UK graduates.

**Discussion:** This is the first study that has started to unpack the risk of experiencing a performance assessment by individual places of medical qualification. Several factors may increase this risk, including differences in medical training, regulation and bias towards foreign doctors. Interpretation of results is complicated by patterns of complaints and their severity. Further, not all overseas trained doctors were more likely to experience a performance assessment and more research is needed to understand why.

**Conclusion:** The rate of performance assessment varies significantly by place of medical qualification. Doctors who trained outside of the UK, including Europe, were more likely to experience performance assessment.

**Take Home Messages:** Place of medical qualification does affect the likelihood that a doctor experiences a GMC's performance assessment.

#4Q7 (134015)

**How physicians learn: View through an ePortfolio lens**

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*Katherine Marsden, Royal College of Physicians and Surgeons of Canada, Ottawa, Canada*

**Background:** Continuing professional development (CPD) is a professional obligation for physicians in Canada. Participation in the Royal College's Maintenance of Certification (MOC) Program is a requirement for Fellowship and most Canadian medical regulatory authorities (MRAs) also require physicians to participate in a recognized CPD/MOC program as a condition of licensure. All MOC Program participants must record CPD activities in an ePortfolio to demonstrate CPD compliance.

**Summary of Work:** CPD activities are recorded annually by MOC Program participants within their individual MAINPORT ePortfolios. Over a four-year period (2011–2015), the overall CPD activity data recorded provides a window into how physicians and surgeons learn. Specialty-specific CPD activity data is also available across the Royal College's 68 specialties and sub-specialties.

**Summary of Results:** Learning activities included within the MOC CPD framework are organized into three sections: Group Learning, Self-Learning, and Assessment. From 2011 to 2015, the following trends were noted, based on activities recorded in MAINPORT ePortfolio: • An increase in recorded Assessment activities, particularly Practice Assessments and Self-Assessment Programs • A decrease in recorded credits in Group Learning • An increase in recorded credits for Personal Learning Projects and Journal Reading

**Discussion:** The results identify learning trends at an aggregate level for specialists within Canada and credits recorded through engagement in different learning methods vary between specialties.

**Conclusion:** CPD activity recording trends for specialists in Canada indicate that Self-Learning and, notably, Assessment activities are now more frequently being included within lifelong learning strategies. Group Learning is still a common learning activity, as demonstrated by 91% of MOC Program participants recording at least 1 credit in conferences in 2014.

**Take Home Messages:** CPD activity recording data within ePortfolios can provide a lens to look at trends in physician learning, identify unperceived learning needs, and be used to inform the development of future CPD activities.

## 4R Short Communication: Teacher Evaluation

Location: MR 125 – P1

#4R1 (136174)

Validation of an instrument to assess quality of clinical teaching by students

Jan Breckwoldt\*, University of Zurich, Zurich, Switzerland

Anja Prescher (Charité - Medical University Berlin, Berlin, Germany)

**Background:** Various instruments to assess teaching quality in medical education have been published [1]. Most of them lack a full empirical basis, and most statistical validation attempts utilise reflective regression models. We argue, that a comprehensive model should be based on sound empirical evidence. We also argue that in terms of validation a formative model should be used, since the latent variable “teaching quality” is rather a consequence of observable teaching strategies, than their source.

**Summary of Work:** We developed an instrument, which was based on ten criteria for teaching quality derived from general educational science [2,3] (BTQ-10: “prepared setting”, “true learning time”, “clear structure”, “transparent expectations”, “clarity of content”, “variation of methods”, “meaningful communication”, “individual promotion”, “effective practicing”, “climate facilitating learning”). For 28 clinical teaching encounters (bedside teaching and seminars 3rd and 4th year of studies, 6 to 18 students per group) medical students assessed the quality of teaching for all 10 criteria, and also the overall quality of the session. We calculated a formative reflective ordinal regression model for the influence of the 10 criteria on overall quality.

**Summary of Results:** 256 of 275 questionnaires could be included into analysis. All 10 criteria showed a highly significant influence on overall teaching quality ( $p < .001$  for all criteria). Six criteria showed a high correlation (Kendall’s tau  $> .50$ ), and four criteria a medium correlation (Kendall’s tau for “true learning time” .429; “climate facilitating learning” .484; “variation of methods” .486; “prepared setting” .380).

**Discussion:** Overall, all 10 criteria of the presented instrument showed a highly significant influence with very good to moderate correlation characteristics. Four criteria might be further discussed in respect to operationalisation of items, or less important influence on the overall construct.

**Take Home Messages:** We present a fully empirically based instrument to assess clinical teaching quality from students’ perspective.

#4R2 (135682)

What makes a good medical teacher? Findings from a trial comparing student ratings and learning outcome

Katharina Dreiling\*, University Medical Centre Göttingen, Cardiology & Pneumology, Göttingen, Germany

Sarah Schiekirka (University Medical Centre Göttingen, Study Deanery, Göttingen, Germany)

Katharina Meyer (University Medical Centre Göttingen, Cardiology & Pneumology, Göttingen, Germany)

Sven Anders (Pneumology, Göttingen, Germany)

Sven Anders (University Medical Centre Hamburg - Eppendorf, Department of Legal Medicine, Hamburg, Germany)

Nicole v. Steinbüchel (University Medical Centre Göttingen, Medical Sociology and Psychology, Göttingen, Germany)

Tobias Raupach (University Medical Centre Göttingen, Cardiology & Pneumology, Göttingen, Germany)

**Background:** Teacher evaluation contributes to quality assurance and generates opportunities for teachers to improve their teaching skills. Two major categories of instruments used to evaluate teachers have been reported: student ratings (SR) of teaching skills and student learning outcome (LO).

**Summary of Work:** Fourth-year medical students participated in eight 90-minute small-group, case-based learning sessions during a six-week module on cardiovascular and respiratory disease. During the final session, they completed two questionnaires: Student ratings (SR) were collected using five-point scales with 5 indicating the most positive response. The second questionnaire (LO) was designed to collect comparative student self-assessments on six-point scales regarding 16 learning objectives covered during case-based learning sessions. Students from two consecutive cohorts (summer 2015 and winter 2015/16) were enrolled in the trial, and the same eight teachers were evaluated by both cohorts. Rankings derived from both the SR and the LO tool were compared using Spearman’s rho.

**Summary of Results:** Of 132 eligible students, 104 provided SR and LO data (response rate 78.8%). Teacher rankings derived from SR data were similar across cohorts ( $\rho = 0.667$ ;  $p = 0.071$ ); a weaker correlation was found for LO data ( $\rho = 0.595$ ;  $p = 0.120$ ). However, there were no strong correlations between SR and LO results within cohorts (summer 2015:  $\rho = 0.381$ ;  $p = 0.352$ ; winter 2015/16:  $\rho = 0.167$ ;  $p = 0.693$ ).

**Discussion:** Results for individual teachers were similar in both cohorts, indicating acceptable reliability of both tools. However, within each cohort, LO data yielded different teacher rankings than SR data.

**Conclusion:** Given the low level of discrimination allowed by the skewed SR results and the quality of feedback derived from the LO tool, student learning outcome is a useful addition to existing evaluation tools.

**Take Home Messages:** Considering that tools addressing procedural aspects yield different results than tools focussing on learning outcome, both



sources of information should be used to arrive at a fair appraisal of teaching quality.

#### #4R3 (134913)

##### Giving feedback to clinical teachers with the Maastricht Clinical Teaching Questionnaire

*Giorgia Ganduglia\*, Faculty of Medicine, CLAEH, Punta del Este, Uruguay*

*Sergio Gianassi*

*Eduardo Durante*

**Background:** Providing feedback to clinical teachers is challenging, since the input for feedback must be reliable, theory-based, and feedback should be structured. Fortunately, some models for the assessment of clinical teachers are available. The purpose of this study was to evaluate the impact of a model of structured Feedback (SFB) to clinical teachers (CT), after being assessed by students with an already validated version in Spanish of the Maastricht Clinical Teaching questionnaire (MCTQ). This Spanish version is valid and reliable, based on the educational theory of Cognitive Apprenticeship.

**Summary of Work:** Feedback to clinical teachers must be reliable, theory-based and the session of feedback should be structured. The purpose of this study was to evaluate the impact of structured Feedback (SFB) to clinical teachers (CT), after being assessed by students with an already validated version in Spanish of the Maastricht Clinical Teaching questionnaire (MCTQ). This Spanish version is valid and reliable, based on the educational theory of Cognitive Apprenticeship.

**Summary of Results:** Twenty-two CT participated and were randomized. Eleven CT received SFB. No significant differences were found between control and intervention groups. The analysis of the semi-structured interview showed high satisfaction with the SFB session (90%), that the model of cognitive apprenticeship facilitated the reflection on the CT practices, that to be engaged in defining objectives for improving teaching is useful (85%) and that more SFB would improve the teaching skills (90%). Session lasted about 45 minutes.

**Discussion:** Although no differences were found, the use of the MCQT is feasible and provided relevant information about the CT performance. The structure of this FB (basis of cognitive apprenticeship, self-assessment, communication of results and expressing objectives for improving CT practice) was evaluated as appropriate by the CT. More sessions are necessary to complete the model of SFB.

**Conclusion:** Providing feedback with the MCQT is feasible, and could produce an impact on CT performance.

**Take Home Messages:** It is possible to provide feedback to clinical teachers using the cognitive apprenticeship framework. The MCQT provides the information to give feedback.

#### #4R4 (134588)

##### How Can We Assess Teaching Quality?

*Sue Smith\*, Imperial College London, London, UK*

*Omar Mulki*

**Background:** Universities have a strong incentive to make the learning experience as appealing as possible and to drive up teaching standards, since in an increasingly globalised competitive market place, a reputation for excellence in teaching attracts high quality applicants. The challenge to assess the quality of teaching since highly motivated and able medical students will learn, even if teaching is poor. In this study, we report the conclusions from an extensive review of the ways teaching quality is monitored and assessed in a variety of contexts.

**Summary of Work:** In this study, we have examined the concept of teaching quality and its assessment from many perspectives. As well as undertaking an extensive review of the published literature, we have considered the student perspective and have explored the way teaching quality is assessed in medical schools in the UK, the USA and Singapore and also in secondary education.

**Summary of Results:** Teachers may fear that unfair assessments will damage their careers and single assessments are unreliable, so multiple evaluations by trained assessors are essential. The physical teaching environment and institutional culture are core to excellence in teaching delivery.

**Discussion:** A combination of multiple peer observations, focused student reviews and evaluation of teaching-related activities (for example, admissions interviewing, pastoral care and educational leadership activity) can be used to assess teacher quality.

**Conclusion:** We conclude that individual teachers should maintain a teaching portfolio and recommend suitable content. Universities should invest in physical resources, in faculty development and in training specific staff and expert students to make fair, supportive, reliable and valid judgments about teaching activity.

**Take Home Messages:** No single metric is sufficient to make judgments about individual staff members or departments. Portfolios can provide a balanced and representative overview of teaching quality.

#4R5 (134843)

**Objective structured teaching examination (OSTE) as a reliable and valid performance assessment tool for measuring teaching competencies in MHPE Program**

*Rahila Yasmeen\*, Riphah International University, Islamabad, Pakistan*

**Background:** The objective of the study is to determine the reliability and validity of objectively structured teaching examination (OSTE) in assessing the teaching competencies of Masters in Health Professions Education Program at Riphah International University.

**Summary of Work:** In 2015, a comprehensive summative examination was held comprised of a Theory Paper and an OSTE for assessing the teaching competencies. There were 21 students (n=21) and there were 11 OSTE Stations in the examination. Non probability convenience sampling technique was used. The reliability and validity of the OSTE was calculated. It was a descriptive psychometric study. SPSS was used to calculate the reliability of the OSTE.

**Summary of Results:** We have conducted an item analysis and evaluated the internal consistency reliability of our OSTE rating scales with Cronbach's coefficient alpha. This rating scale reliability, indicating the degree to which a teacher's score on each rating scale item reflects a common underlying teaching construct, exceeded .87 (range = .85-.87) for all ten OSTE stations.

**Discussion:** The overall mean scores of (n = 21) was  $7.29 \pm 0.65$ . Our OSTE had moderate level of reliability (Cronbach's  $\alpha = 0.875$ ). The standard error of measurement (SEM) was 0.35 (n = 21). In factor analysis for (n = 21), the factors with Eigenvalues > 1 were retained. Maximum variance was caused by factor 4, 8 & 10

**Conclusion:** OSTE is a reliable and valid assessment tool for assessing the teacher's competencies in Masters in Health Professions Education program.

**Take Home Messages:** OSTE can be used as a tool to assess the teaching competencies of medical teachers.

#4R6 (126805)

**Systematic Evaluation of teaching qualities of clinical teachers: Psychometric properties of the modified SETQ Tool and cross culture challenges**

*Kathryn Strachan\*, RCSI Bahrain, Adliya, UK*

*Ahmed Al Ansari*

*Sumaya Hashim*

*Sameer Otoom*

**Background:** The importance of effective clinical teaching becomes crucial for future patient care. Tools used to evaluate the teaching qualities of the medical faculty should be reliable and valid. This study investigates (i) the teaching qualities of clinical tutor, and (ii) assess the reliability and the validity of the (SETQ) instrument.

**Summary of Work:** This cross sectional multicenter study was conducted among four teaching hospitals in Bahrain. 298 Medical students were invited to evaluate 102 medical faculties. using the SETQ instrument. Instrument reliability was assessed by calculating the Cronbach's alpha coefficient. Exploratory factor analysis was conducted to support the validity of the instrument.

**Summary of Results:** A total of 125 medical students completed 1161 evaluations of 105 medical faculties. The factor analysis showed that the data on the questionnaire decomposed into 6 factors that represented 76.7% of the total variance. Cronbach's alpha was 0.94 and higher for the six scales on the student's survey.

**Discussion:** The moderate response rates, and low number of evaluations needed for reliable assessment indicates the feasibility of the modified SETQ instrument for the evaluation of clinical teachers in different specialties. This finding corresponds with the number of evaluations needed in the original SETQ instrument for anesthesiology and obstetrics and gynecology

**Conclusion:** Our modified SETQ questionnaire was found to be both reliable and valid, and was implemented successfully across various specialties in different hospitals around the Kingdom of Bahrain. As such, we conclude it to be a useful tool to evaluate the current batch of clinical teachers engaging in student teaching

**Take Home Messages:** 1-The important to assess the quality of teaching for the clinical teacher 2-Modify the instrument for the System for Evaluation of Teaching Qualities to be used with students settings 3-The assessment of the reliability and the validity of the modified System for Evaluation of Teaching Qualities instrument.

#4R7 (134340)

**Internal Structure of Japanese Clinical Teachers' Evaluation Sheet**

**Makoto Kikukawa\***, Kyushu University, Fukuoka, Japan

Renee E. Stalmeijer

Tomoya Okubo

Kikuko Taketomi

Sei Emura

Albert J.J.A. Scherpbier

**Background:** Many instruments for the evaluation of clinical teaching have been developed but almost all in Western countries. None of these instruments have been validated for the Asian culture. We developed an instrument in Japanese context (Kikukawa et al., 2014). This study aims to assess the internal structure of the instrument through determination of construct validity and generalizability as validity evidence. A multicenter, cross-sectional evaluation study was performed so that the instrument can be applied in various educational settings of Japan.

**Summary of Work:** We collected a total of 1368 forms on 304 clinical teachers completed by residents in 16 teaching hospitals. The construct validity was examined by carrying out a factor analysis and using structural equation modeling (SEM). We also assessed the reliability using generalizability analysis and decision study. We determined dependability coefficients (D-coefficient) of the ratings by estimating the number of residents' ratings required for a reliable rating per individual clinical teacher.

**Summary of Results:** Exploratory factor analysis resulted in three-factor model including 18 items and we named them Role model, Active involvement, and Accessibility. Confirmatory factor analysis was performed, using SEM. The CFI was 0.931 and the RMSEA was 0.087, which means an acceptable goodness of fit for this model. To obtain a reliable D-coefficient of at least 0.70 of higher, 5 to 8 resident responses are necessary.

**Discussion:** We examined the construct validity and generalizability of the previous developed instrument. We assume that the three themes were highlighted influenced by Japanese clinical educational context.

**Conclusion:** We investigated the internal structure of previous developed instrument for evaluating clinical teaching as validity evidence.

**Take Home Messages:** Construct validity of instruments for the evaluation of clinical teaching may not be universal, but may be influenced by clinical educational contexts of countries.

## **#4S BarCamp: Informal Learning and Technology (continues in 5S)**

**Location:** MR 127 – P1

**Sebastian Dennerlein\*** (Austria)

**John Bibby\*** (UK)

**Raymond Elferink\*** (Netherlands)

**Micky Kerr\*** (UK)

**Natalie Lafferty\*** (UK)

**David Topps\*** (Canada)

**Tamsin Treasure-Jones\*** (UK)

**Summary:** BarCamps (<http://barcamp.org>) have an exciting, informal format, with the overall theme and BarCamp rules set in advance, but the agenda and activities democratically decided on the day. Participants propose activities, discussion topics & questions. Our theme for this session will be informal learning and technology. Together we will explore and share innovative approaches to using technology to support such learning. Join us in sharing your knowledge/experiences at the BarCamp – we could even continue over dinner if desired!



#### **#4T Conference Workshop: How to give negative feedback in medical education – Conceptual issues & best practices (135469)**

**Location:** MR 128 – P1

**Goetz Fabry\***, Albert-Ludwigs-University, Department of Medical Psychology & Sociology, Freiburg, Germany  
**Anja Haertl\***, Ludwig-Maximilians-University, Institute for Medical Education, Munich, Germany  
**Claudia Kiessling\***, Brandenburg Medical School, Neuruppin, Germany  
**Monica van de Ridder\***, Michigan State University, East Lansing, USA

**Background:** There is growing awareness in medical education that feedback is a central element of effective learning and competency development. However, despite a wealth of experience and practice with feedback, the conceptual basis and empirical evidence on how to give feedback is still sketchy. Giving negative feedback, i.e. specific feedback that points to shortcomings in learners' knowledge or performance is especially challenging as it might question a person's self-concept or self-confidence. This in turn might weaken the constructive and conducive potential that feedback might have for personal and professional development. Against this background, we will discuss different models and frameworks for feedback and focus on how to give negative feedback in particular.

**Structure of Workshop:** Initially we will present and discuss different feedback models used in Medical Education and their underlying rationale. Participants will then have the opportunity to exchange their best feedback practices and reflect on why they are doing, what they are doing. We will then practice giving negative feedback in triads (1 feedback giver, 1 feedback recipient, 1 observer) and let people reflect on their experience. Finally, participants will work out take home messages and we will wrap up the workshop.

**Intended Outcome:** Participants will 1) share and reflect their feedback experience, 2) give feedback, observe and reflect on feedback in a controlled setting, 3) discuss models and conceptual frameworks related to feedback in medical education.

**Who Should Attend:** Everybody who is interested in deepening his or her feedback competencies.

**Workshop Level:** All levels

#### **#4U Conference Workshop: The Standardized/Simulated Patient Ready Checklist (136009)**

**Location:** Mr 129 – P1

**Alba Woolard-Lutze\***, Eastern Virginia Medical School, Norfolk, VA, USA  
**Lorraine Lyman\***, Eastern Virginia Medical School, Norfolk, VA, USA  
**Temple West\***, Eastern Virginia Medical School, Norfolk, VA, USA  
**Amelia Wallace\***, Eastern Virginia Medical School, Norfolk, VA, USA  
**Gayle Gliva-McConvey\***, Eastern Virginia Medical School, Norfolk, VA, USA

**Background:** As medical educators, we sometimes have lists of things that we want learners to consider while performing a history and physical. At times, it can be helpful to have the Standardized/Simulated Patients (SPs) complete these checklists. Because many SPs do not have a medical background, it can be difficult to expect them assess the clinical skills of learners. By creating a checklist that is tailored to the perspective of the patient, SPs can document and report demonstrated clinical skills.

**Structure of Workshop:** Participants will be introduced to the concepts that help create a checklist for use with SPs, and discuss the benefits of using SPs for checklist documentation. An example of a how to adapt a faculty-created checklist for use by SPs will be provided to the entire group for discussion. Participants will then be divided into small groups with each group given a faculty-designed checklist to adapt for SPs. The entire group will reconvene to discuss what the small groups created. The session will end with questions and answers.

**Intended Outcome:** Participants will: -Distinguish the difference between faculty centered checklist items and SP observable, behavior-based checklist items - Translate desired learner thought processes into observable learner behaviors -Build a checklist that can be easily scored by a Standardized Patient

**Who Should Attend:** Faculty who work with SPs

**Workshop Level:** All levels

## #4W Conference Workshop: The Docent System of Medical Education: Apprenticeship learning enhanced by peer mentoring and longitudinal clinical experiences (134194)

Location: MR 131 – P1

**Paul Cuddy\***, University of Missouri-Kansas City School of Medicine, Kansas City, USA

**Louise Arnold\***, University of Missouri-Kansas City School of Medicine, Kansas City, USA

**Steven Kanter\***, University of Missouri-Kansas City School of Medicine, Kansas City, USA

**Background:** Apprenticeship learning offers potential solutions to contemporary concerns in medical student education including opportunities for students to exercise graduated responsibility for patient care, growing emphasis on professional identity formation dependent upon authentic learning experiences and increasing inclusion in a community of practice, and the call for development of medical leaders among students. Forty-five years of experience at the University of Missouri-Kansas City (UMKC) School of Medicine's six-year BA-MD program can elucidate the design and intentional implementation of apprenticeship learning in teams composed of a physician-mentor (the Docent) and six longitudinal senior/junior student-pairs charged with peer mentoring and supervised patient care tasks longitudinally over four of the six years. In addition, the longitudinal experience provides key opportunities for interprofessional education and practice beginning early in the curriculum.

**Structure of Workshop:** An interactive overview of apprenticeship learning, including theoretical foundations, approaches to incorporation in the medical student curriculum, educational and social structure, successes, challenges, and outcomes, will open the workshop. Then, short video clips, concretizing the theory, will illustrate apprenticeship learning in action. Next, participants will reflect on the content of each clip, discuss relevant theory, and comment on educational and social structure. After participant discussion of each clip, additional video will present faculty and students reflecting on their activities. Workshop participants will compare their reflections to those of the individuals actually involved in the learning experience. Finally, participants will identify and share three steps enabling them to incorporate apprenticeship learning into their own medical student curriculum.

**Intended Outcome:** Workshop participants will be able to discuss the theory and practice of apprenticeship learning. In addition, they will gain practical knowledge that is applicable to their own medical student curricula.

**Who Should Attend:** Faculty and students who seek knowledge and practical tips about apprenticeship learning, its theoretical foundations, and its

implementation in a six-year medical student curriculum.

**Workshop Level:** All levels

## #4X Conference Workshop: Meaningful evaluation of technology-enhanced learning resources (133985)

Location: MR 132 – P1

**James Pickering\***, University of Leeds, Leeds, UK

**Viktoria Joynes\***, University of Liverpool, Liverpool, UK

**Background:** This workshop is based upon the premise that in order for institutions to invest with confidence in new Technology Enhanced Learning (TEL) resources, it is necessary to establish a robust and rigorous means of evaluating individual resources and their impact upon learning within the context of the programme in which they are used. While evaluation frameworks that specifically focus on TEL are beginning to emerge, these remain focused at a programmatic level. Based upon the experience of the facilitators in developing and evaluating a range of mobile and desktop based TEL resources, this workshop will outline a new four-stage evaluation process for such resources, taking into account learner satisfaction, learner gain and the impact of a resource on both the individual and the institution in which it has been adapted. The workshop will give clear guidance about each stage of the proposed evaluation process and explain how each stage contributes to a meaningful evaluation of use to both course leaders and their institutions. Participants are invited to bring examples of resources they would like to evaluate to the session.

**Structure of Workshop:** 1. Introduction to evaluating TEL and its challenges, exploring existing frameworks 2. Outline of new evaluation model with practical examples and recommendations for data collection 3. Activity – planning evaluation of participants' own TEL resources using proposed model 4. Group discussion

**Intended Outcome:** By the end of this workshop, participants will: • Understanding the challenges faced in evaluating TEL resources • Have an overview of a new, usable evaluation model • Have a plan for implementing TEL evaluation within their own sphere of influence

**Who Should Attend:** Programme/course leaders, learning technologists and all those with an interest in developing and evaluating TEL resources

**Workshop Level:** Introductory

**#4Y Conference Workshop: How I can help you to take care of me: Patient involvement in teaching and the medical curriculum (133735)**

Location: MR 133 – P1

**Matthias Wienold\***, International Alliance of Patients' Organizations, Frankfurt, Germany  
**Stijntje Dijk\***, International Federation of Medical Students' Associations, Rotterdam, Netherlands

**Background:** Excellence in medical education aims to create excellence in patient care. Early on contact between medical students and patients is increasingly recognized as beneficial for learning. Many medical schools work together with simulation patients during practical lessons or patients within patient demonstrations. This workshop, run by medical students (IFMSA) and patient organizations (IAPO) worldwide aims to explore best practices and ideas for future development of the collaboration between students, faculties and patients for the best possible outcomes

**Structure of Workshop:** This workshop is collaboration between medical students and patients. It will commence with an introduction to different known types of patient involvement within the curriculum itself as well as within curriculum planning. Participants will then interactively consider a number of core questions within small and large group discussions: What contexts and what collaborations are best suited for patient involvement within teaching and curriculum planning and in what stages? What can be potential barriers and pitfalls to planning patient involvement? How can patient involvement be initiated?

**Intended Outcome:** Participants will learn about and share diverse examples of best practice in patient involvement within teaching and curriculum planning. Participants will gain an understanding of benefits and pitfalls of patient involvement and come up with solutions to overcome these towards a meaningful collaboration. Gain practical techniques in setting up collaborations with patient organizations to increase their presence within the curriculum. Produce an outcome document of recommendations from the workshop.

**Who Should Attend:** faculty members; students and young professionals; educational researchers; patients; teachers

**Workshop Level:** All levels

**#4Z Conference Workshop: Medical education in Difficult Circumstances: exposing difficulties, exploring solutions (128257)**

Location: MR 134 – P1

**Trevor Gibbs\***, AMEE, Dundee, UK  
**Michelle McLean\***, Bond University Medical School, Queensland, Australia  
**Judy McKimm\***, Swansea University Medical School, Swansea, UK  
**Phil Cotton\***, University of Rwanda, Rwanda

**Background:** The world of medical education is not a level playing field; for each Institution or School that shows outstanding quality in its educational programmes, there are many who struggle to maintain even standard levels of healthcare education. Although lack of resources and financial constraints are some of the most common difficulties experienced, the changing world has created many other forms of difficulty; terrorism, war, political upheaval and meteorological disasters to name but a few.

**Structure of Workshop:** An interactive workshop, commencing with examples of difficult circumstances from the workshop leads Audience participation through examples of difficulties and possible solutions, culminating in a discussion around individual and common solutions

**Intended Outcome:** - Defining and refining the definitions of "difficult circumstances" - seeking clarity  
- Exploration of the possible solutions, individual and common - Creating a group of individuals who are prepared to take the work forward towards publication and dissemination

**Who Should Attend:** Healthcare senior and junior faculty who perceive they are working in difficult circumstances. Healthcare students who believe they are exposed to difficult circumstances Conference participants who believe that they are ready to share their solutions to working in difficult situations

**Workshop Level:** All levels

**#4AA Conference Workshop:  
Excellence in Social Accountability: how  
can we help support Medical Schools to  
improve the health of the communities  
they serve? (134207)**

**Location:** M 215 + 216 – M2

**Robert Woollard\***, University of British Columbia,  
Vancouver, Canada

**Arthur Kaufman\***, University of New Mexico School of  
Medicine, Albuquerque, USA

**Debra Klamen\***, Southern Illinois University School of  
Medicine, Springfield, USA

**David Marsh\***, Northern Ontario School of Medicine,  
Sudbury, Canada

**Background:** This interactive workshop will share experiences in Social Accountability from Schools successful in previous bids for ASPIRE awards. It will consist of an expert panel of colleagues involved in developing the Social Accountability Criteria for ASPIRE and other international bodies and a series of case studies across a range of SA criteria by previous ASPIRE award winners. Areas of focus: • Social Accountability as a mission of the Medical school- strategic and organizational embeddedness • Education of doctors and other professionals- making a difference to our communities • Social accountability in research programmes – alignment and conduct of research • Medical Schools in community development and health service partnerships. The ASPIRE Social Accountability Faculty wish to share ideas with the many Schools making progress towards doing excellent work in Social Accountability but who have not yet been recognized by the ASPIRE panel.

**Structure of Workshop:** Outline of basic SA principles (clarifying definitions) and describe elements of an ideal SA school. Panel with representatives of award winning schools to provide short examples of successes and reasons for those successes. Small group work exploring: "What are the best examples of SA in my school and how can we grow them to make the school more fully SA?" Groups prepare a summary of issues and "roots of success". Panel will reflect on small group output in moderated dialogue with workshop participants.

**Intended Outcome:** At the end of the workshop participants will have: • Gained insight into good practice in social accountability and explored ways of building towards such practices in their own school. • Shared their experiences and ideas with colleagues and 'experts' in the field • Been inspired and informed to return to their own Schools and make a difference

**Who Should Attend:** Workshop is intended for those wishing to develop this aspect of the mission of their own medical schools or institution, and others interested in the subject seeking ideas and inspiration

for their own education, engagement or research work.

**Workshop Level:** Intermediate

**#4BB Conference Workshop:  
Evaluative Thinking to Enhance  
Innovation in Medical Education (133106)**

**Location:** M 211 +212 – M2

**Saad Chahine\***, University of Western Ontario, London,  
Canada

**Background:** In medical education, there is an increasing demand for educators to be innovative. Educational innovations can take many forms including developing new teaching interventions, using simulation for novel training purposes, and moving towards new ways to assess the competency of trainees such as Competency-Based Medical Education. While there is a strong theoretical foundation for the importance of innovation, in truth, often the outcomes of innovations are unknown and evaluation remains elusive in most cases. As a result, many educators innovate without having a clear picture of how to evaluate for formative or summative purposes. Evaluative thinking for educational innovation integrates concepts from program evaluation to allow for the evaluation of progressive improvement and continuous feedback to enhance educational innovation. This workshop will draw on key features of developmental, utilization-focused, and theory based evaluation to provide participants with an opportunity to map out the key components of how the program is intended to work and what comes are targeted with the innovation.

**Structure of Workshop:** This workshop will involve a brief didactic presentations interspersed with facilitated interactive group discussions. In small teams, participants will be guided through the development of a logic model and an outline for an evaluation matrix. The workshop will end with a discussion on innovation and evaluation. Throughout the workshop, participants will have the opportunity to brainstorm how they might apply the approaches being presented in their own work.

**Intended Outcome:** 1. Participants will be introduced to the foundations of program evaluation. 2. Participants will gain experience in developing logic models. 3. Participants will gain experience in designing an evaluation matrix.

**Who Should Attend:** This workshop is intended for health professions educators and researchers who are interested in developing and evaluating innovative concepts, ideas, or programs.

**Workshop Level:** All levels



## **4CC Posters: Transition**

Location:

**#4CC01 (133283)**

**Primary Care Physician Insights Into a Clerkship and internship curriculum for preparedness in practice**

**Afsaneh Yakhforooshha\*, Tehran University Of Medical Science, Tehran, Iran**  
Sonia Oveisi

**Background:** During the last decade, in response to social accountability of doctors in healthcare, influenced undergraduate curriculum. CBE is an educational philosophy that aims to prepare students for responding community needs. However, Lack of community care skills is often a source of insecurity for physician and represents potential danger for the patient. The aim of this study was to clarify primary care physician insights into a clerkship and internship curriculum for preparedness in practice.

**Summary of Work:** In this qualitative study with conventional content analysis approach, the data were gathered from 15 primary care physician that work in health center in Qazvin University Of Medical Science through individual semi-structured interviews and focus group discussions (FGD) continued until data saturation. The interviews were transcribed and analyzed immediately after the interviews. We employed One Note for data analysis using the inductive method of qualitative data analysis. The Unit of analysis was selected and labeled using open coding system, then the similar open codes was categorized in sub themes and at last the were organized to the main themes.

**Summary of Results:** The results of data analysis emerged in 5 main themes including educational issue, system base factor, planning, cultural issue and motivational factors.

**Discussion:** The majority of primary care physician noted that we don't have opportunity to practice due to short time especially in rural settings. Less than half of the participants mentioned that delivery of healthcare was considered low-value in clinical practice. They found that teachers must be motivated student to engage in health care activity.

**Conclusion:** according to evidence primary care physician (PCP) should enable to do 12 major tasks, 189 subtasks, and 191 total tasks. Stakeholders felt that most new graduates were not ready for community practice. Therefore there is an urgent need for the university to efforts to link its curriculum to the needs of the stakeholders and the country at large.

**#4CC02 (131865)**

**Support group for new nursing graduates to promote the adaptation to work**

**Wen-Hui Huang\*, Kaohsiung Medical University Hospital, Kaohsiung, Taiwan**  
Yi-Chun Lin ( Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan)

**Background:** New graduate nurses find it difficult to adapt because of the reality shock. The turnover resulted in a clinical nursing manpower shortage or gap, and also was a waste of training costs.

**Summary of Work:** We organized a support group for new graduate nurses within three months of employment in 2012-2013. The support group was led by senior clinical nursing teachers and invited a senior colleague to participate. The goal of the group was to support each other, to let off some steam, to feel hopeful and to learn effective work skills and others skills in response to stress.

**Summary of Results:** A total 151 people attended the support group. After six months, there were 145 people working, and we used questionnaire investigation about the support group. After attending groups, new graduate nurses believed that the support group was important and helpful (93%), the participation of senior colleagues was positive (85.9%), to understood new staff adaptation was a process (72.7%), to learn skills to overcome difficulties (47.6%), were being taken seriously (44.5%) and there was hope for the future (39%).

**Discussion:** The first three months were the most stressful period of the nursing career. Studies have noted that enhance workplace adaptation, support in the work environment were the key factor of new-graduate nurse adaptation. We used the support group to provide emotional support, learn from each other, enhance new-graduate nurse cohesion and promote the work of adaptation. Our work results were similar to other studies.

**Conclusion:** Allowing new-graduate nurses to participate in the support group could help the universalization of personal problems, to give emotional support and empathy from peers and enhance adaptation.

**Take Home Messages:** In addition to helping to upgrade new-graduate nurse skills or ability to work, we could use the support group to provide emotional support and successful adaptation experience of senior colleagues to help the new graduates to adapt to the workplace.

#4CC03 (133750)

### Enhancing Readiness for Clerkship: Easing the Transition to Clinical Culture

**Darrell Kyte\***, *Dalhousie University, Halifax, Canada*  
*Dr. Simon Field (Dalhousie University, Halifax, Canada)*

**Background:** Medical students struggle with the transition from pre-clinical to clinical learning. Students' struggles are varied and the challenges are often complex. When entering clerkship, students report difficulty adjusting to clinical culture as well as challenges applying knowledge to skill.

**Summary of Work:** During a recent review of the Clerkship Curriculum at Dalhousie University, researchers identified a need to improve student preparedness for clerkship and subsequent transitioning into stages of medical training requiring increasing amounts of knowledge and responsibility. Dalhousie decided to expand its successful Introduction to Clerkship (ITC) program to emphasize the transition points – from pre-clerkship into clerkship and from clerkship into residency. Dalhousie unrolled a new program of learning experiences, named PIERs (Positioning, Integration, Evaluation, Research and Review) in September 2013. These experiences are specifically aimed at improving student preparedness and increasing confidence. To determine the success of PIERs in easing the transition, a mixed methods evaluative approach was adopted.

**Summary of Results:** The evaluation revealed that students experienced difficulties adjusting to clinical culture and were not sure if any preparation could adequately prepare them. They acknowledged the hidden curriculum of cultural norms transmitted but not openly acknowledged. They did feel the clinical aspects of PIER were useful and suggested inclusion of additional sessions.

**Discussion:** Depth interviews allowed students to describe challenges experienced transitioning to clinical culture in their own words. Although the interviews provided students with an opportunity to reflect on how such a transition could be eased there was no consensus on the best way to do this.

**Conclusion:** Students felt PIERs helped better prepare them for clinical learning but continued to believe that better preparation for clinical culture would be useful.

**Take Home Messages:** While the difficulty transitioning to clinical culture is acknowledged, preparation to ease that transition is difficult.

#4CC04 (135626)

### Summary of Knowledge in Medicine course: The necessary integration before the professional practice of medicine

**Jose Peralta\***, *University of Chile, Santiago, Chile*  
*Josefina Bascuñán, University of Chile, School of Medicine, Santiago, Chile*  
*Ignacio Solar, University of Chile, School of Medicine, Santiago, Chile*

**Background:** Throughout last year of medical school, medical interns participate in the course "Summary in Knowledge of Medicine (SKM)". This course pursues consolidation of multiple knowledge and skills that students have previously acquired. Based on a knowledge profile created by the Association of Chilean Faculties of Medicine, all clinical conditions are reviewed. This profile is also valid for "Single National Knowledge Exam in Medicine" (EUNACOM) which is an obligatory for medical practice in Chile.

**Summary of Work:** The course is organized under four main ways: 1) Interactive sessions which include the use of clickers with instantaneous answers, 2) Practical sessions for strengthening essential skills, 3) Formative and reflective instances for comprehensive training in professional practice, 4) SKM's course digital handbook.

**Summary of Results:** At the end of each course, students evaluated implemented activities. According to Likert Scale (1: Strongly disagree / 10: Strongly agree), 87% of students evaluated with score equal or greater than 8 the usefulness of the course to consolidate knowledge and taking EUNACOM with positive results.

**Discussion:** SKM has an excellent evaluation by students and academics. Furthermore, our last graduated generations have consistently had a higher performance on EUNACOM with an upward trend respect to national average. The "golden" product of SKM results from the collaboration of more than 500 people who have voluntarily worked in this process evidencing a faculty community committed with their students.

**Conclusion:** After four years of implementation SKM course has become an essential integrative instance for the students, who makes consolidation of multiple knowledge and skills that they have previously acquired.

**Take Home Messages:** SKM course represents an integrative instance prior to graduation highly valued by the university community.

#4CC05 (132475)

**“Ready for F1” Teaching programme devised and delivered by FY1 doctors to final year medical students in 2015**

**Rachel Stansfield\*, Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, UK**

Emily Blower, Sheffield Teaching Hospitals NHSFT, Sheffield, UK

Amy Clarke, Sheffield Teaching Hospitals NHSFT, Sheffield, UK

Emily Zilkha, Sheffield Teaching Hospitals NHSFT, Sheffield, UK

Harry Soar, Sheffield Teaching Hospitals NHSFT, Sheffield, UK

**Background:** It has been well documented that foundation doctors initially feel under prepared for their clinical duties. As a group of foundation doctors, we sought to identify and offer teaching to final year medical students in areas we had found challenging to increase preparedness for those taking our place.

**Summary of Work:** Teaching programme delivered over six weeks to final year medical students during assistantship, led by foundation doctors in a mixed lecture and small-group teaching format. Pre and post session evaluations assessed student confidence via quantitative and qualitative feedback. Topics covered include prescription of fluids, identification and management of sepsis and ECG interpretation.

**Summary of Results:** (quantitative) Feedback collected from attendees (mean attendance 34, range 26-51 attendees) via modified Likert scales. 37.5% (14%-51%) of students rated their confidence in topics to be covered as ‘good’ or ‘excellent’. Post sessions 89.8% (85%-100%) of students rated their confidence as ‘good’ or ‘excellent’ in relation to the subjects covered. (qualitative) [Participants enjoyed] “A mix of theory and clinical scenarios... Cases helped to put us in a situation and think about what we would do... Personal experiences shared... Very realistic... Great to be able to practise”

**Discussion:** Our work highlighted final year medical students complete their medical studies with low levels of confidence in areas frequently encountered as an FY1.

**Conclusion:** Our teaching sessions consistently increased student confidence and offered the opportunity to practice key ward skills in a supportive environment.

**Take Home Messages:** Near-peer teaching can play an important role in preparing final year students for FY1. Confidence can be dramatically increased following teaching sessions on relevant topics.

#4CC06 (134907)

**Improving the transition from medical student to junior doctor: a one month course in the final year of medical school**

**Eve Boakes\*, London North West Healthcare Trust, London, UK**

Nikita Shah (London North West Healthcare Trust, London, UK)

**Background:** Concern exists that the transition from student to doctor is abrupt and stressful, with new graduates lacking both clinical skills and confidence. This study explores the affect a preparation programme can have on the confidence and skills of final year medical students, prior to commencing their first clinical post.

**Summary of Work:** Foundation year one (FY1) doctors were surveyed on challenges they faced when commencing clinical work. Findings were used to design a practical, four week, eight lecture course, aimed at preparing final year medical students for work. Questionnaires and focus groups were used to establish concerns pre-course, and how confidence improved.

**Summary of Results:** Opinions from 105 FY1 doctors were analysed. Of predominant concern was the diagnosis and management of unwell patients (66.7%). Medical students expressed similar fears (80.85%). On average each session improved confidence levels by 25.3% (95% CI: 23.27-27.12%). Sessions on prescribing and managing dying patients showed greatest confidence improvement (31.1% and 29.4% respectively).

**Discussion:** There are some shortcomings in medical student education. Providing a preparation course in the final year of study increased confidence and directly mitigated some fears. However, it may also be beneficial to incorporate the course into the FY1 shadowing period making information fresh in students' minds when commencing clinical work.

**Conclusion:** This programme supports the transition from medical student to practising doctor, and was found to be useful and effective at building student confidence through practical advice from current FY1 doctors to the next generation of junior doctors.

**Take Home Messages:** New FY1s and final year medical students lack confidence in diagnosing and managing unwell patients. Confidence was significantly improved by a FY1 led course focusing on the practical aspects of handling unwell patients. This enables the next intake of FY1 doctors to feel better prepared for practicing real clinical medicine.

#4CC07 (136184)

### Can a Mobile App Improve the Transition from Medical Student to Doctor?

*Sarah Staight\*, University Hospitals of Leicester, Leicester, UK*

**Background:** Transitioning from medical student to doctor is a daunting experience often exacerbated by the lack of accurate information concerning their upcoming placement. Delivering an effective departmental induction is extremely challenging but especially for newly qualified doctors (F1) who must absorb reams of new material within a limited period. In retrospect many junior doctors report a steep learning curve both clinically and non-clinically with the latter the source of most frustration. Efficiency is suboptimal as they 'don't know the system'. Capitalising on modern technology DrToolBox is a password protected mobile app that enables junior doctors to disseminate peer written induction information known as 'survival guides'.

**Summary of Work:** Current F1 doctors in a large multisite trust are writing induction 'survival guides' based on their experience in the role. These focus on the practical but non-clinical aspects of the rotation i.e. where is handover at night. Additionally the current F1 cohort has completed retrospective questionnaires assessing their confidence and efficiency following current induction process. Mobile App will be launched in early July 2016 and promoted to incoming F1s in August 2016. Questionnaires will be issued to new cohort to assess the impact of the programme.

**Summary of Results:** Results are pending and will be available at the time of the conference.

**Discussion:** Combining both peer education with mobile technology provides new F1s with a source of relevant information accessible both prior and during their placements. Hopefully results will highlight both positives and potential negatives of supplementing traditional face-to-face induction training with optional digital resources.

**Conclusion:** Mobile apps provide an invaluable adjunct to the induction of new junior doctors. This study hopes to reflect on the impact that such a resource can have on both junior doctors' efficiency, confidence and ultimately patient safety.

**Take Home Messages:** Mobile Apps can be useful in supplementing the delivery of an effective departmental induction.

#4CC08 (136110)

### Targeted needs assessment: Approaching transition to practice curriculum through the appropriate lens

*Joan Binnendyk\*, Western University, London, Canada  
Larissa Husarewych  
Kanna Narayanan  
Chris Watling*

**Background:** The need for practice management (PM) training for residents has long been established in the medical education literature. While needs assessments recognizably undergird relevant curriculum, published PM curricular initiatives are predominantly based on existing literature. Those curricula grounded in needs assessment are typically informed by clinician educators or residents rather than those directly impacted: new-to-practice physicians.

**Summary of Work:** All physicians who graduated from a Schulich Medicine residency program within the past five years were invited to complete a needs assessment survey (73/648[11.4%]). A literature review and three focus groups were used to refine the survey topics. For each topic, respondents rated (on a scale of 1-7) their level of knowledge (current and immediately following residency), importance of the topic, and identified who should teach it.

**Summary of Results:** Participants' knowledge ratings of 11 topics immediately following residency were overall low (M=3.87). Contract negotiation, M=2.79, 95% CI[2.48, 3.11], and setting-up practice, M=3.10, 95% CI[2.74, 3.45] were rated as significantly lower, and privacy and confidentiality was significantly higher, M=5.60, 95% CI[5.33, 5.87]. Ratings of topic importance were overall high across all topics (M=5.89). Respondents identified the PGME office as the most useful avenue to learn PM topics excluding setting-up practice, billing, and networking.

**Discussion:** Initial results of this targeted needs assessment highlight the most important PM topics the PGME office should teach to accurately address curricular needs. The data will be further stratified to analyze demographic differences to more comprehensively inform the identification of suitable learning objectives in the creation of curriculum.

**Conclusion:** Residents' limited practice management training requires curriculum that specifically addresses the most important topics as identified by new-to-practice physicians.

**Take Home Messages:** Pertinent needs assessments are required to accurately develop the PM curriculum to most suitably prepare resident graduates for their transition to practice.



#4CC09 (134221)

**Taking the doctors role: how does UK undergraduate medical education prepare students for the transition to foundation trainee?**

**Stuart McBain\***, Keele University School of Medicine, Keele, UK

S Gay

S Yardley

R Kinston

RK McKinley

J Lefroy

**Background:** Many medical graduates report feeling ill prepared for the transition to foundation training. This study aimed to develop a greater understanding of the process of transition from student to doctor. Specifically, we aimed to explore the roles that final students assumed as they approached foundation training.

**Summary of Work:** Participants were recruited from the final year of the Keele MBChB and from FY1/CT2 training programmes in the West Midlands. We used written logs, audio diaries, interviews and focus group to explore three stages of transition: Anticipation – Taking responsibility – Reflecting after the transition. Participants were encouraged to consider the roles they assumed and learning opportunities provided.

**Summary of Results:** Participants included 32 Keele students and 70 FY1/CT2 doctors from a variety of UK schools. Students and graduates agreed that providing authentic experience of FY1 roles, through extended 'apprenticeships', is highly beneficial. Taking responsibility for acutely unwell patients remains the most daunting aspect of the trainee role. Whilst effective at enhancing clinical reasoning and proving experience of assuming responsibility, extended placements in primary care immediately prior to commencing foundation training left some participants feeling detached from the FY1 role.

**Discussion:** Students and recent graduates recognise that the transition from student to doctor is challenging and multifaceted, requiring both the relevant clinical competencies and an understanding of the role of the foundation trainee. Providing final year students with the opportunity to perform common FY1 tasks enables students to begin the transition towards clinical practice and supports integration to foundation training.

**Conclusion:** The opportunity to take on FY1 roles is viewed by students and recent graduates as highly beneficial. Developing programmes that offer such opportunities may enable medical schools to better support students during the transition to foundation training.

**Take Home Messages:** Experience of FY1 roles facilitates transition to foundation training.

#4CC10 (136002)

**Ensuring practical relevance of clinical training in Romania: preparing undergraduate students to develop into clinically competent physicians**

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Teodora Atena Pop (University of Medicine and Pharmacy "Iuliu Hatieganu", Cluj-Napoca, Romania)

Soimita Suciu (University of Medicine and Pharmacy "Iuliu Hatieganu", Cluj-Napoca, Romania)

Valentin Muntean (University of Medicine and Pharmacy "Iuliu Hatieganu", Cluj-Napoca, Romania)

Lucian Mocan (University of Medicine and Pharmacy "Iuliu Hatieganu", Cluj-Napoca, Romania)

Anca Dana Buzoianu (University of Medicine and Pharmacy "Iuliu Hatieganu", Cluj-Napoca, Romania)

**Background:** A smooth transition from undergraduate to graduate physician depends on skills and competency development during undergraduate programs. This study examined if previous exposure to real-life and simulated immediate care specialty-specific scenarios makes a difference when medical students enter the postgraduated training within hospitals.

**Summary of Work:** 35 Romanian gastroenterology residents were asked to complete a survey regarding factors influencing satisfaction of residents after 1 year of training program. 15 of them were required to pursue previously, as medical students from preclinical and clinical years, theoretical gastroenterology training, training in patient management for gastroenterology various medical and surgical specific scenarios, hands-on endoscopy and ultrasound simulator sessions, followed by an examination to validate all technical aptitudes.

**Summary of Results:** The main complain was that most learning prospects depend on the available patients at a certain moment due to the fact that the clinical training programs are not structured. The majority of the residents were involved in the management of cases, yet 23% of 1st year residents were not engaging in patient management. Thus not all residents are participating at the expected level. The residents previously exposed as students to the gastroenterology training felt less a theory-practice gap. 95% of the residents expressed the need for additive skill practice during undergraduated clinical years.

**Discussion:** Skill practice during clinical training years is not just conditioned by the frequency and diversity of cases. The resident's level of involvement also plays an integral part of whether skills are rehearsed. Supplying students with skills to use, making use of deliberate practice and giving feedback is particularly important in the clinical internship.

**Conclusion:** Teaching in a multidisciplinary approach seem to be important factors for ensuring practical relevance.

**Take Home Messages:** Universities should also track students after graduation in order to adjust to the needs of the working market.

#4CC11 (133036)

**Preparation for clinical clerkships: an evaluation of a continuity clinical experience for M.D./Ph.D. students**

*Lisa Rucker\*, Albert Einstein College of Medicine/Jacobi Med Center, Bronx, USA*

*Penny Steiner-Grossman (Albert Einstein College of Medicine, Bronx, NY, USA)*

**Background:** After two years of school M.D./Ph.D. students average 4.5 years doing research, losing patient-care skills and knowledge. We started a continuity clinic for these students. We compared knowledge and self-perceptions among three groups: M.D./Ph.D. students who attended a continuity clinic; M.D./Ph.D. students who did not attend; and M.D. students.

**Summary of Work:** Group test and validated questionnaire means were compared by ANOVA. Scheffe tests compared pairs of groups. Comments were grouped according to key words and themes.

**Summary of Results:** Eighty-two students participated. The average age was 26. The M.D. group had more females. ANOVA showed significant differences in all questionnaire categories between the M.D./Ph.D. clinic group and others ( $p < .05$ ). Analysis of paired groups showed the M.D./Ph.D. clinic group was more confident about skills and patient-care abilities ( $p < .05$ ). Differences in test means were not significant after controlling for gender. M.D. respondents were anxious about competency. M.D./Ph.D. groups worried about forgetting science.

**Discussion:** M.D./Ph.D. students are in a difficult situation. After completing their doctorates they return to patient care lagging behind colleagues with whom they are compared, affecting their clinical grades and performance. Since confident students tend to do better in clinical rotations, our continuity clinical experience provided an advantage for M.D./Ph.D. students.

**Conclusion:** Although the M.D./Ph.D. clinic students had test scores similar to the other two groups, they perceived they maintained or improved their skills and confidence in caring for patients.

**Take Home Messages:** A program supporting M.D./Ph.D. students to provide patient care can help the students succeed when they return to the wards. This type of program might help other students who need to leave school temporarily.

#4CC12 (133631)

**Are internal medicine residents ready to transition to the role of senior resident on call?**

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*Ho QY (Tan Tock Seng Hospital, NHG-AHPL Internal Medicine Residency Program, Singapore)*

*Teh YL (Tan Tock Seng Hospital, NHG-AHPL Internal Medicine Residency Program, Singapore)*

*Jasmine Lee (Tan Tock Seng Hospital, NHG-AHPL Internal Medicine Residency Program, Singapore)*

*Selvia Kosim (Tan Tock Seng Hospital, NHG-AHPL Internal Medicine Residency Program, Singapore)*

*FL Chia (Tan Tock Seng Hospital, NHG-AHPL Internal Medicine Residency Program, Singapore)*

**Background:** Internal Medicine (IM) training in Singapore has changed with the adoption of the Accreditation Council of Graduate Medical Education framework for residency in 2010. There was concern that the shortened training and working hours, increased supervision and increased number of trainees may dilute the clinical experience necessary to prepare the residents for the role of a senior resident (SR) on call.

**Summary of Work:** We aimed to assess how ready IM residents perceived they were to transition to the role of SR on call using an online survey targeted at final year IM residents and first year SRs. It asked residents to rate their confidence with procedures, clinical decision making and communications using a 9 point Likert scale (0 "completely disagree" to 9 "completely agree").

**Summary of Results:** 37 of 63 (58.7%) residents responded. 25 were first year SRs and 12 were final year residents. The mean number of years since graduation was 5. The residents were confident in supervising procedures and reviewing cases seen by junior staff (7.19 +/- 1.13 and 7.54 +/- 0.86 respectively). They felt prepared for general ward calls (7.14 +/- 1.03) but felt ill-prepared for calls in the ICU (5.41 +/- 1.80). They worried over not being able to perform procedures (6.28 +/- 1.85) or making the correct decisions on call (6.92 +/- 1.57).

**Discussion:** This observational study revealed that IM residents felt worried over certain aspects of being the SR on call. This may be related to a dilution of clinical experience as hypothesized.

**Conclusion:** Internal Medicine residents felt a significant level of concern transitioning to SR on call in the ICU and worried about making correct clinical decisions and performing certain procedures.

**Take Home Messages:** We should review our curriculum to better prepare IM residents for the role of SR on call.

#4CC13 (131788)

**On-line pre-course learning to improve the readiness and learning outcome for hospital clinical skill courses in undergraduate Occupational Therapy students**

**Wen-Lung Liang\***, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan

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Yu-sheng Yang PhD (Kaohsiung Medical University, Taiwan)  
Shan-Ju Yeh OTR (Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan)

**Background:** Clinical skill courses and practice are important in senior undergraduate students of occupational therapy. Learning issues and tasks are usually overwhelming if students are not given sufficient information and instruction on clinical learning. We created a on-line pre-course study program to improve student's readiness for their hospital clinical learning.

**Summary of Work:** We established an on-line e-learning platform which allows students and teachers to register, create and access learning materials including learning guides, graphic examples of tools, patterns and clinical demonstrations. Students are allowed to state their needs and acquire new learning materials. Online self-assessments and teacher-student feedback are also provided.

**Summary of Results:** We used the platform in splinting and hand rehabilitation courses for year-4 students of occupational therapy. Responses from questionnaires for students indicated such pre-course learning will better prepare them for the clinical learning. Post-course assessment including MCQ and DOPS showed improved scores comparing to previous courses without pre-course learning.

**Discussion:** Pre-course self-study is usually helpful in overall learning but would very often be in-efficient and disorganized. Our online pre-course learning platform provided instructive information and self-assessment that will benefit students in their clinical courses of practice. Such mechanisms are important to make clinical learning more efficient.

**Conclusion:** Hospital courses such as clinical skill practice would sometimes be overwhelming for undergraduate students. Online pre-course learning which is instructive and accessible will be helpful for student's readiness in clinical learning. Such learning resource should respond to student's learning needs and allow students to state their needs.

**Take Home Messages:** An organized and instructive online pre-course learning will improve student's

readiness and learning outcome in hospital clinical course.

#4CC14 (133174)

**Perceptions of Professionals in Health and Education about School readiness**

**Erica Munnik\***, University of the Western Cape, Cape Town, South Africa

Mario Smith, University of the Western Cape, Cape Town, South Africa

**Background:** Early childhood development and early intervention has been prioritized globally. In developing countries, the challenges experienced by young children are exponentially exacerbated by poverty, resource restriction, compromised health care and poor early academic stimulation. South African children are legally required to enter the school system at age seven. This assumes that normal developmental processes suffice for the acquisition of prerequisite skills despite the variation in exposure, context and readiness amongst children. Professionals must have a nuanced and contextualized insight into and approach to assessing and managing school-readiness.

**Summary of Work:** This poster reports on a qualitative study about the perceptions of health and education professionals about school-readiness. Ethics clearance was obtained from UWC and all ethics principles adhered to. Twenty professionals participated in two focus groups. Thematic analysis was used to analyse transcriptions.

**Summary of Results:** Findings reiterate traditional knowledge about school-readiness and child development. Professionals underscored the known barriers and facilitators to school-readiness reflective of the South African context. School-readiness was synonymous with assessment. Emotional- social competence is a pre-requisite for school readiness reflecting the quality of the caregiver-child relationship.

**Discussion:** Despite a systemic and holistic view of child development, school readiness was equated to assessment. In South Africa testing is not culture-fair, disproportionately focused on cognitive functions and not readily accessible. Emotional-social competencies were identified as influential but often excluded from assessments. Emotional and social challenges often emerges once children have enrolled and are exacerbated by the cognitive demands placed on them.

**Conclusion:** Traditional training must be augmented to include socio-cultural and emotional understandings of school-readiness to facilitate a more nuanced and holistic assessment practise amongst health professionals.

**Take Home Messages:** Education and ongoing professional development of health professionals must be broadened to include a developmental and contextual awareness in addition to the traditional assessment and remediation focus.

## 4DD Posters: Electives / Education Environment

Location:

#4DD01 (133278)

**Implementing elective courses in the basic medical curriculum at the University of Oslo**

*Jan Frich\*, University of Oslo, Oslo, Norway*

*Kristin Wium*

*Linda K. Røine*

*Jarle Breivik*

*Knut E. A. Lundin*

*Elin O. Rosvold*

**Background:** Elective courses, also referred to as «special study modules», have become commonplace in basic medical education in many countries. In Norway, there is no such tradition, and elective courses are currently being introduced as part of a curricular reform of the 6-year medical program at the Faculty of Medicine, University of Oslo.

**Summary of Work:** Seven weeks of the curriculum will be dedicated to elective courses, whereas 13 weeks will be allocated for students' research projects and the related theses. A faculty committee has been appointed to develop the organisational framework and a portfolio of elective courses. Elective periods are implemented from the 3rd year of the curriculum, and the first courses will be arranged in January 2017.

**Summary of Results:** The committee has decided to offer a combination of courses on research methods (2 ECTS), various topics (3 ECTS), and elective clerkships (5 ECTS). A list of courses and course objectives will be developed during 2016.

**Discussion:** In order to provide incentives for teaching and development, elective courses will be implemented through a separate funding scheme. The faculty of Medicine aims to develop multidisciplinary courses and internships, and will use the elective periods to facilitate national and international exchange of students.

**Conclusion:** The Faculty of Medicine, University of Oslo, will implement elective courses in the basic medical curriculum from January 2017.

**Take Home Messages:** Elective courses create room for individual specialisation in basic medical education, provide methodological and thematic basis for the students' research theses, and may promote internationalisation.

#4DD02 (131532)

**Special study modules (SSM) of CPIRD medical students in Vachiraphuket medication center**

*Chutimon Boonrod\*, Vachira Phuket Medical Education Center, Phuket, Thailand*

*Noppol Thadakul. MD (Vachiraphuket hospital, Phuket, Thailand)*

**Background:** Special study modules(SSM) is provision curriculum of Medicine for medical student to gain experience in addition to the regular curriculum. CPIRD is program to created doctor for work in community of Thailand. So this study for special study modules(SSM) agreeable with the CPIRD program or not.

**Summary of Work:** Data collection about special study modules(SSM) of 5th year medical students of Vachiraphuket medical education center. Three years backward of SSM about hospital, educational institutions, department and motivation factors in choosing for their special study modules(SSM) of individual were analyzed with descriptive statistics.

**Summary of Results:** 72 medical students are elective in northern university 43%, in Bangkok 39%, in Southern 12% and abroad university 6%. Mostly elective in the department of Internal Medicine 47%, followed by pediatrics department 24%, but no elective in the community or family medicine at all.

**Discussion:** Special study modules(SSM) may not match the CPIRD program because of medical students want to supplement the experience of major department with advances modern medical center learned or large hospitals. Department of Family Medicine is not major attractive and urban community factor is inconsistent with community that medical CPIRD to work out.

**Conclusion:** Mostly medical students favor to elective in Bangkok or big city and favor to elective major department, such as internal medicine or pediatrics, By not found to elective in family medicine or community medicine. That is inconsistent with objectives of the CPIRD program.

**Take Home Messages:** Medical education center should provide special study module (SSM) for visit family medicine in large hospitals or the community hospital that medical students will have more real community skills applied to actually works when graduated.



#4DD03 (132869)

**Electives in Medical Education: how to manage the implementation in a new medical curriculum**

**Rita Ramalho\***, Faculty Medicine University Porto (FMUP), Porto, Portugal

Inês Falcão-Pires (FMUP, Porto, Portugal)

Pedro Marques (FMUP, Porto, Portugal)

Maria Amélia Ferreira (FMUP, Porto, Portugal)

**Background:** Coping with new challenges imposed to future doctors, the Faculty of Medicine - University of Porto (FMUP), has introduced an innovative curricular approach. 10% of ECTS are allocated to electives from the 2nd till the 5th year, regarding clinical, biomedical, human and epidemiological sciences, providing students the opportunity to broaden competences in unlike subjects and personalize their curriculum according to their interests.

**Summary of Work:** 2014/2015 was the first academic year where students from 2nd year were provided with an assortment of 27 electives. They applied for placement, without a concern about their preferences. In 2015/2016, the increase number of electives to 39, with a total of 1739 openings to 1231, and the need to create a ranking process, hastened the establishment of ranking rules and the development of an informatics platform responsible for allocating and prioritizing the students.

**Summary of Results:** Survey administered to students evidenced that electives were well received, having the majority (90%) resorted to the platform OPTIMIMED to establish their preferences, in a process described as well regulated, intuitive and organized. As a flaw, the lack of information from each elective was pointed.

**Discussion:** Electives play an important role in medical students' education by increasing acquaintances in domains not covered by the nuclear curriculum, teaching valuable skills, increasing wellness, contributing to career choices. The process of simultaneously allocate students from different years, with diverse preferences and interests, would be unbearable without the platform conceived exclusively for this purpose.

**Conclusion:** Electives can contribute to professional and personal development of medical students. Early contact with clinical and non-clinical subjects provides the opportunity to widen their aptitudes.

**Take Home Messages:** Electives are perceived by the students as being relevant for their personal development and capability of widening visions. FMUP has to use previous experiences and, as priority, develop a searchable portfolio including useful information for each elective.

#4DD04 (131500)

**A study on health and safety issues among medical students during electives in Thailand**

**Arucha Treesirichod\***, Faculty of Medicine, Srinakharinwirot University, NakornNayok, Thailand  
Nantana Choomchuay (SWU, Nakornnayok, Thailand)

**Background:** Electives provide opportunities for medical students to observe practices and gain individualized educational experiences. However, electives may place medical students at risk of health issue and adverse events.

**Summary of Work:** Introspective questionnaires covering health risks and non-health issues were distributed to medical students of Srinakharinwirot University who have had electives in Thailand.

**Summary of Results:** A total of 252 medical students participated in the study. Overall, 17.9% of students experienced some problems during electives of which health issues was 1.6%. The health risks assessed were needlestick injuries and CSF exposure. Non-health issues were the majority. Accommodation issues and safety, as well as traveling difficulties and communication between institutes were common problems faced with a rate of 39.3%, 21.2% and 15.1% respectively.

**Discussion:** An elective away from medical school can be linked with a greater risk of health problem and safety. Medical school should have policies to managing of these problems.

**Conclusion:** The results indicate that they need to prepare carefully for their electives and it is crucial for students consider how they may overcome their problems.

**Take Home Messages:** The strategies to avoid and management of the risk during elective should form part of an integrated workplace safety plan.

#4DD05 (136106)

**Student Selected Components – Balancing act between student choices and alignment to GMC outcomes**

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Amanda McKie  
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Catherine Donegan*

**Background:** Student Selected Components (SSCs) are modules selected by students within the undergraduate medical curriculum in the UK. This complies with the GMC recommendation that 10% of curricular time be available for student choice. It is for each UK medical school to design its own SSC programme to suits its own circumstance. Consequently, the heterogeneous nature within and across the different programmes means that it can involve a large number of different assessment methods, teaching modalities and variety of different topics. At the University of Glasgow this takes the form of 5 week dedicated blocks selected by students from a wide range of options and is undertaken in years 2, 3 and 4 of the curriculum. One of the challenges for each SSC programmes is to map its outcomes to the GMC domains and assessment blueprint in order to demonstrate its relevance. and this is explored in this study.

**Summary of Work:** This study describes the outcome and practical approaches adopted by the University of Glasgow to align the wide range of student choice modules to the GMC outcomes.

**Summary of Results:** Each year, in total 800 students rotate through >250 different modules at the University of Glasgow. Results from mapping the range of student module ILOs and assessments to GMC outcomes show some variation across the board. While, a more practical strategy in identifying generic commonalities can be undertaken by categorising into overarching themes or broadly grouping similar SSC modules together.

**Discussion:** A number of approaches can be used to implement and map SSC programmes in the UK.

**Conclusion:** Careful consideration should be given to local needs and sensible strategies identifying to show compliance of the SSC programme to the GMC requirements.

**Take Home Messages:** SSCs while allowing student choice in studying a wide range of topics offers its own challenges when attempting to align to the GMC outcomes.

#4DD06 (131576)

**Adoption and Correlates of Postgraduate Hospital Educational Environment Measure (PHEEM) in the Evaluation of Learning Environments**

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**Background:** The Postgraduate Hospital Educational Environment Measure (PHEEM) has been evaluated to be a highly reliable, valid and practical instrument. It has been translated into many languages and used internationally. A recent systematic review identified PHEEM as the most suitable instrument for measuring the educational environment in post graduate medicine.

**Summary of Work:** A systematic literature review was conducted on all articles which reported PHEEM data between 2005 to 2015. This review included 31 papers, with data from 14 countries around the world. Significant differences in PHEEM scores were found between different levels of training, different centers of training and different training programs.

**Summary of Results:** Common weaknesses in educational environments included lack of counseling for junior doctors who fail to complete their training satisfactorily, and lack of regular feedback. Common strengths were low levels of racism and sex discrimination. In addition, correlations with PHEEM such as the In-Training Exam (ITE) and burnout were found.

**Discussion:** We have described and evaluated the application of PHEEM in various medical educational environments around the world, in order to facilitate future application and research. We found that PHEEM has been widely used for a variety of purposes, and it has proven to be a useful tool in identifying the strengths and weaknesses of varying educational environments.

**Conclusion:** Future research can investigate other correlates of PHEEM, interventional studies and measuring longitudinal changes in different educational contexts.

**Take Home Messages:** • PHEEM is widely adopted in different clinical settings internationally • Correlations between PHEEM scores and ITE performance (positive correlation) and level of burnout (negative correlation) encourage other correlates such as level of coping, resilience to be studied • Monitoring PHEEM changes following interventions to improve educational environments and learning can be considered

#4DD07 (134788)

**DREEM score in Prapokklao Medical Education Center and comparison to all Medical Education Centers in Thailand**

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**Background:** Educational environment is one of the most important determining factors of an effectiveness and quality of the curriculum. Student's perception of the educational environment has great effects on their response to learning process, behavior, academic progress and sense of well-being. The Dundee Ready Education Environment Measure (DREEM) is an instrument designed for measurement of educational climate specifically for undergraduate medical education.

**Summary of Work:** The DREEM questionnaire was administered to 4th -6th years medical students of Prapokklao Medical Education Center (PPK). We identified students' GPAX, sex, mean total DREEM score and compare to all Medical Education Centers in Thailand.

**Summary of Results:** There were 114 students included in this study; 39 in 4th year, 37 in 5th year and 38 in 6th year. The mean score in female (54) was  $134.55 \pm 14.70$  and in male (60) was  $130.78 \pm 15.33$  ( $p = 0.09$ ). The mean GPAX was  $3.14 \pm 0.39$  and total DREEM score was  $132.6 \pm 15.1$ , compare to all (34) Medical Education Centers  $3.15 \pm 0.38$ ;  $p = 0.42$  and  $131.1 \pm 17.3$ ;  $p = 0.82$  respectively. There were 9 items that the mean score  $\geq 3$ , 36 items  $\geq 2$  and 5 items  $< 2$ .

**Discussion:** Compare to all Medical Centers, mean GPAX and mean total DREEM score of PPK students was no significantly different. Although the individual items mean score were mostly  $\geq 2$ , but the items with mean score  $< 2$  were identified in PPK, for example; Cheating is a problem in this school, The teaching over-emphasizes factual learning, Long-term learning is emphasized over short-term learning etc.

**Conclusion:** There was no different students' perception of the educational environment between PPK and all Medical Education Centers in Thailand. But some perceptions (Students' perception of Atmosphere, Students' perception of Learning, Students' Social Self-Perception) were low scored ( $< 2$ ) and leading to area of weaknesses that need to rehabilitation.

**Take Home Messages:** The DREEM score is suitable for measure overall motivation and learning attitude of the individual student and may be the useful tool for course organizers to ensure and maintain the quality of educational environments and recheck the students' attitude.

#4DD08 (133851)

**Perception of Educational Environment among Undergraduate Students in Ministry of Public Health (MOPH) Medical Education Center of Thailand**

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*Rajin Arora*

*Roungtiva Muenpa*

*Sukit Purak*

**Background:** Medical students' perceptions of educational environments provide data of strengths and weaknesses for medical education centers (MECs) to improve their quality. Lack of national data about educational environment among MOPH medical education centers of Thailand was found. This study aims to evaluate the perception of educational environment among undergraduate students in MECs of Thailand using Dundee ready education environment measure (DREEM).

**Summary of Results:** The questionnaires were completed by 2,467 medical students and the response rate was 85.7%. The majority of the students were female (58%). Year levels were 4th year (36%), 5th year (33%) and 6th year (31%). The mean of GPAX was  $3.15 \pm 0.38$ . The total mean score was  $131.1 \pm 17.4$  showed that the medical students' perceptions were positive. The students' perception was also positive for all five DREEM subscales. No association between gender, year levels and GPAX on total DREEM scores was found.

**Discussion:** Among 34 MECs of Thailand had different factors such as size, region etc. We should provide the further study for the association of factors and DREEM scores.

**Conclusion:** Perception of educational environment among undergraduate students in MECs of Thailand were positive and no association between gender, year of levels and GPAX on total DREEM score.

**Take Home Messages:** Education environment should be evaluated for quality assurance of medical education center.

#4DD09 (133589)

**Determine the study climate score among MOPH Medical Education Center using the DREEM: Are the bigger hospitals better?**

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*Rajin Arora*

*Wasana Hongkan*

*Sukit Purak*

**Background:** The collaborative project to increase production of rural doctor (CPIRD) had responsibility to support the clinical teaching medical centers belong to Ministry of Public Health (MOPH) according to their size; the bigger size, higher budget. The study expected to explore the study climate score among three groups of medical center; large, medium and small size using the Dundee Ready Education Environment Measure (DREEM).

**Summary of Work:** A cross-sectional study was performed in 34 MOPH medical centers that considered large, medium and small size in 9, 10 and 15 centers, respectively. All medical students of medical year were asked to complete The DREEM questionnaire during September to October 2015. Student characteristics including gender, year of study and GPA were collected. Data among size of medical center were compared.

**Summary of Results:** A total of 2,467 out of 2,880 medical students responded; 906 from large size, 848 from medium size and 713 from small size. The overall DREEM scores were significantly higher for small size ( $131.9 \pm 17.5$ ) and large size ( $131.6 \pm 16.4$ ) than medium size ( $129.9 \pm 18.1$ ) ( $p=0.040$ ). The proportion of excellent level (score 151-200) was higher in small size (12.1%) than medium size (9.9%) and large size (9.7%) significantly ( $p=0.010$ ).

**Discussion:** The results revealed that study climate score was higher in small size of medical centers event CPIRD spent much more budget in the large size of medical center. This might imply that there are other factors involving rather than budget supporting in order to have good clinical teaching environment.

**Conclusion:** It is clear that smaller clinical teaching centers are preferred by students.

**Take Home Messages:** Medical student who study in small size of clinical teaching center, might have more happiness in learning place than those who study in larger clinical teaching center.

#4DD10 (131529)

**Comparing the Immunology Learning Environment in International Medical Campus of Qeshm, Paramedical and Dental Schools of Hormozgan University of Medical Sciences**

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*Mehregan Heidari Hengami*

*Behjat Naserian*

**Background:** Immunology Department of Hormozgan University of Medical Sciences is responsible for teaching immunology in all affiliated medical colleges in Hormozgan province. It has been proved that educational environment plays an important role in teaching and learning process. The purpose of this study was to explore students' views toward learning environment exists in immunology educational setting in International Medical Campus of Qeshm, paramedical and dental Schools.

**Summary of Work:** In this cross-sectional study, Dundee Ready Educational Environment Measure (DREEM) questionnaire was anonymously administered to all Medical, Dentistry and Medical Laboratory Science students who had enrolled in the practical and theoretical courses of immunology during the years 2012-2013. The collected data were analyzed using parametric tests in SPSS.

**Summary of Results:** There were significant differences between the DREEM mean scores of Medical ( $125.7 \pm 23.2$ ), Medical Laboratory Science ( $136.1 \pm 13.5$ ) and Dentistry ( $132.4 \pm 15.3$ ) students. Regarding DREEM questionnaire subscales, "students' perceptions of teachers" achieved highest and "students' perceptions of atmosphere" achieved lowest Score in all disciplines. In most of the subscales, Medical Laboratory Science students rated higher and students of International Medical Campus of Qeshm rated lower than others.

**Discussion:** Comparison of results with similar studies shows that we have a long way ahead of us and the most scientific way is to start from changing our insight towards importance of educational environment.

**Conclusion:** Students in all disciplines perceived educational environment of immunology setting as "good". To enhance the learning environment to "very good" level, factors influencing educational climate especially in International Branch of Qeshm should be considered and improved.



#4DD11 (134936)

**Do medical students' perception of their educational environment change along their training?**

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*Patricia Z Tempiski*

**Background:** The learning environment stands out as a factor that can exacerbate or mitigate stress among medical students. We aimed to assess students' educational environment perception during their medical course.

**Summary of Work:** We used the DREEM questionnaire in a multicenter, longitudinal study, in which we compared the scores of 186 students from 22 medical schools in two moments of their medical course. The first measure was in the year 2011, when they were in 1st, 2nd and 3rd years of medical school, and the other in year 2015, when they were in 4th, 5th and 6th years of medical school.

**Summary of Results:** The total DREEM scores decreased from  $124.6 \pm 27.1$  to  $112.6 \pm 27.2$  ( $P < 0.001$ ). The scores in all domains were significantly lower in the second measure ( $P < 0.001$ ). In the social self-perceptions domain, the scores decreased from  $16.1 \pm 4.9$  to  $14.2 \pm 4.6$  ( $P < 0.001$ ), changing the interpretation category of these scores from "not too bad" to "not a nice place" in the second measure. We observed that female and male students reported significantly lower scores in the second measure in all domains and in the total DREEM scores ( $P < 0.001$ ).

**Discussion:** Many aspects may explain our results, such as greater workload and more responsibilities in clerkship; verbal, emotional, and physical abuse from faculty and/or colleagues, and students may even have developed a more critical view of their teachers, educational activities, and methods.

**Conclusion:** Students report a more positive perception of their educational environment during their first years of medical school than they do during their final years, especially regarding their social self-perceptions.

**Take Home Messages:** Medical educators retain the responsibility to improve the educational environment of medical schools by planning the curriculum to offer experiences that lead to personal and professional growth while supporting social, physical, and mental health.

#4DD12 (132533)

**Measuring Educational Environment (EE) in International Medical University (IMU) using Modified DREEM (MD)**

*Chia Chee Fen\*, International Medical University, Kuala Lumpur, Malaysia*

*James Michael Menke*

**Background:** EE refers to press in academic and social environment, either formal or informal determining the educational experience of students. IMU measures EE using MD across all programmes since 2006 and data has been interpreted using the recommended interpretation of the total score and the subscale score. This research focuses on further analysis to answer the following questions: • Are there specific "areas of concern" across the university? • Are there differences in the EE perceptions of students of: o different programme of study? o initial, intermediate and final level of study? o different gender?

**Summary of Work:** Data obtained from medicine, chiropractic, biomedical and dentistry programmes were analysed for: • internal consistency • Descriptive statistics on total and subscales (SPL, SPT, SASP, SPA and SSSP ) and individual item • MANOVA on types of programme and level of study. Preliminary assumption testing was conducted and results showed no serious violations. • One way ANOVA analysis with post hoc.

**Summary of Results:** • The Cronbach's Alpha is 0.907, indicating high internal consistency • Total and subscales scores were comparable with previous studies. • Frequency based analysis provided more meaningful conclusions. Strong items identified are items 2, 6, 13 and 18 related to teaching while items of concern 12, 25, and 27 relates to course organisation and self-directed learning. • Statistically significant differences between the programmes and levels of study ( $p = 0.000$ ) were obtained. Areas identified were triangulated with open comments

**Discussion:** MD Items of strength are related to quality of teaching while items of concern are related to logistic and student centred learning which triangulated with their open comments. Gender is not significant to influence their perception. Perception of EE is dependent on levels and programmes of study.

**Conclusion:** Item analysis provided details that highlight specific areas for improvement and further investigation. The significant differences between programme and level of study highlight that EE needs to be programme centric and level centric.

**Take Home Messages:** Measures of EE provides evidence for improvement. Perception of students needs be analysed based on frequency of response of item. More focus on the EE for programmes at the initial level of study.

#4DD13 (136247)

**Evaluation of the educational environment in Surgery internship at medical school of University of Chile**

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*Francisca Swenson (University of Chile, Santiago, Chile)*  
*José Peralta (University of Chile, Santiago, Chile)*

**Background:** Educational commitment is an obligation of educational institutions. Therefore, we must look at achievement determinants in undergraduate education such as the educational environment, defined as "the most important manifestation and conceptualization of the curriculum".

**Summary of Work:** It was described the clinical educational environment perception in surgery internship by applying the PHEEM survey 2012 to 129 students who was attending their surgery internship. The overall average score by campus internship was analyzed by t student test, in order to compare the results obtained.

**Summary of Results:** The overall average score of all campuses was  $94.59 \pm 17.78$ , corresponding to "an educational environment more positive than negative, with possibility of improvement". The overall average score interval was 68.44 to 115.94 ("educational environment with many troubles" and "educational environment more positive than negative, with possibility of improvement", respectively). Significant statistical differences were found between campuses: 1-3 ( $p < 0.0001$ ), 1-4 ( $p = 0.0001$ ), 1-5 ( $p < 0.0001$ ), 2-3 ( $p < 0.0001$ ), 2-4 ( $p < 0.0001$ ) and 2-5 ( $p < 0.0001$ ), 3-5 ( $p = 0.0231$ ), 4-5 ( $p = 0.0140$ ). Campuses 2, 1 and 4 had the highest overall average score, in descending order. Campus 5 obtained the lowest score, the only one "educational environment with many troubles".

**Discussion:** There were found significant statistical differences between the different campuses that can be explained by hidden curriculum, student distribution methods, diverse tutor's pedagogy styles, etc., which can be studied in future researches.

**Conclusion:** The campuses of medical school of University of Chile were classified as "educational environment with many troubles" and "educational environment more positive than negative, with possibility of improvement". Measuring and analyzing the PHEEM survey results permanently will allow assessing the impact of clinical practice and curricular innovation processes.

**Take Home Messages:** Educational commitment is an obligation of educational institutions. Educational environment has an important influence in educational processes. This research contributes in the development of knowledge and suggests the introduction of these processes to other educational institutions.

#4DD14 (132850)

**How can we promote a positive learning environment in medical schools? Strategies from medical teachers**

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*Giulietta Vaccarezza*  
*Nancy Bastias*  
*Carolina Marquez*  
*Cesar Aguilar*

**Background:** Universities around the world have a growing concern about teaching practices and their teachers competencies. But this concern has been more focused on teaching and assessment activities than others competencies, for instance teacher's management of learning environment. There are a significant amount of studies about students' perception about learning environment but there are less research about teaching practices for make it more positive.

**Summary of Work:** This qualitative research, sponsored by FONDECYT 1161541, followed the Grounded theory guidelines. Its objective was to analyze teaching practices for managing learning environment. 16 teachers from different Medical schools from Concepcion (Chile) were interviewed using in-deep interviews. A theoretical sampling was used. Data was analyzed using axial coding.

**Summary of Results:** An axial model about "teaching strategies to manage learning environment" emerged from analysis. It showed that the course, student's attitudes and behaviors and previous outcomes obtained by teachers can affect teaching strategies to promote a positive environment. Those strategies are also affected by teachers' characteristic such as their teaching experience, their previous training in educational topics and their motivation. Those strategies mix planification and improvisation, and they can influence learning environment and students' behaviors. Beyond this, it also can impact learning outcomes.

**Discussion:** Outcomes showed that there is not a clear image about what teachers need to do to promote a positive learning environment. Despite they seem to be motivated to include this kind of strategies, they used to emerge from their intuition with a lower influence of their educational knowledge.

**Conclusion:** Teaching strategies to promote a positive environment are an assumed need by Medical teachers. Due to teachers do not have formal training about this topic, they have to create them. And some strategies could be successful. However, teachers see them as an unclear art.

**Take Home Messages:** Learning environment is a educational challenge as important as teaching and assessment.

#4DD15 (134989)

**Educational environment, alcohol problems and academic performance: a survey in one Brazilian Medical School**

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**Background:** Academic performance can be influenced by a number of factors such as the educational environment. However, it can also suffer influence of personal aspects such as alcohol problems.

**Summary of Work:** A cross-sectional study was carried out among undergraduate Medical students, aiming to assess academic performance and associated factors. The questionnaire was used investigating academic performance and the Dundee Ready Education Environment Measure (DREEM). DREEM has 50 items based on the Likert scale and was used to assess the course environment. The academic performance was defined by be failed or not in the last semester, at least in one course. The outcome was academic performance and the main predictor was educational environment. The analysis was adjusted by gender, age and alcohol problems.

**Summary of Results:** Results: A total of 391 students completed the questionnaire, giving a response rate of 87.0%. Regarding academic performance, 34.8% has failed in the last semester in at least one course. Only student's perception of atmosphere keep associated with academic performance with OR=0.95 (p=0.002) as a protective factor against being failed. On the other hand, alcohol problems have associated with being failed in all analyses.

**Discussion:** Discussion: Alcohol problems has been increasing worldwide mainly among young people. Its association with worse performance is worrying and University needs to deal with. Regarding the educational environment is important to investigate which aspects need to improve to get a better academic performance.

**Conclusion:** Alcohol problems were a consistent risk factor for worse academic performance and, student's perception of atmosphere an important protective factor.

**Take Home Messages:** The educational environment may be important in academic performance and it should be assessed in medical schools, aiming its improvement.

#4DD16 (136235)

**Evaluation of the educational environment in Gynecology internship at medical school of University of Chile**

**Francisca Swenson\***, University of Chile, Santiago, Chile

Matías Jerez (University of Chile, Santiago, Chile)

José Peralta (University of Chile, Santiago, Chile)

**Background:** Educational commitment is an obligation of educational institutions. Therefore, we must look at achievement determinants in undergraduate education such as the educational environment, defined as "the most important manifestation and conceptualization of the curriculum".

**Summary of Work:** It was described the clinical educational environment perception in gynecology internship by applying the PHEEM survey 2012 to 115 students who was attending their gynecology internship. The overall average score by campus was analyzed by t student test, in order to compare the results obtained.

**Summary of Results:** The overall average score of all campuses was  $115.32 \pm 8.90$ , corresponding to "an educational environment more positive than negative, with possibility of improvement". The overall average score interval was 105.25 to 122.81 ("educational environment more positive than negative, with possibility of improvement" and "excellent educational environment", respectively). Significant statistical differences were found between campus: 1-2 (p= 0.0276), 1-3 (p= 0.0034), 1-5 (p= 0.0321), 2-4 (p=0.0209), 3-4 (p= 0.0006) and 4-5 (p= 0.0225). Campuses 3, 2 and 5 had the highest overall average score, in descending order.

**Discussion:** There were found significant statistical differences between the different campuses that can be explained by hidden curriculum, student distribution methods, diverse tutor's pedagogy styles, etc. which can be studied in future research.

**Conclusion:** The campuses of medical school of University of Chile were classified as "an educational environment more positive than negative, with possibility of improvement" and "excellent educational environment". Measuring and analyzing the PHEEM survey results permanently will allow assessing the impact of clinical practice and curricular innovation processes.

**Take Home Messages:** Educational commitment is an obligation of educational institutions. Educational environment has an important influence in educational processes. This research contributes in the development of knowledge and suggests the introduction of these processes to other educational institutions.

#4DD17 (133387)

**Using appreciative inquiry to explore the factors which contribute to a positive educational environment in a tertiary paediatric setting**

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Andrew Long (Great Ormond Street Hospital, London, UK)

**Background:** In the UK both general and sub-speciality paediatric trainees undertake attachments in highly-specialised tertiary hospitals. The cases, investigations and procedures here may be unfamiliar to the general trainee. This may lead to trainee dissatisfaction, mismatched trainee-trainer expectations and a perceived lack of educational opportunities. With the “Shape of training” review (reshaping postgraduate training in the UK to focus on more general themes) this issue may become more prominent. We wanted to explore the factors that contribute to a positive educational environment and training experience and how this could be improved in our tertiary setting

**Summary of Work:** GMC and London school of paediatrics survey data was examined to find areas of practice where our organisation received less-than-optimal scores. These areas were then explored using observational work and semi-structured interviews with trainees. Appreciative inquiry methodology (Cooperrider 1990) was used to identify areas of perceived best practice and consider how these could be promoted and disseminated to build on the potential of the organisation (4D Model: Discover, Dream, Design, Deploy)

**Summary of Results:** Twelve best-practice themes were identified (1) Manage expectations by acknowledging the challenges (2) Educational contracting to identify learning needs and opportunities (3) Creative educational supervision (4) Centralised teaching events (5) Signpost learning opportunities including non-clinical (6) Curriculum-mapped pan-hospital teaching programmes (7) Local faculty groups with trainee representation (8) Interprofessional learning (9) Pastoral support systems (10) Cross-over weeks to increase clinical exposure (11) Adequate clinical supervision (12) Rota design to include teaching and clinic time

**Discussion:** Through appreciative inquiry, trainees identified methods of best practice which have the potential to enhance their educational environment and training experience. These included trainee, trainer and organisational factors

**Take Home Messages:** Trainee buy-in and feedback are essential to diagnose and improve educational environments. Appreciative inquiry is a useful method to identify and disseminate best educational practice in complex institutions.

#4DD18 (135013)

**The Professionalism Divide: Residents' Perceptions of Professionalism in the Learning Environment**

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**Background:** Residency training occurs alongside patient care in environments that are complex. The LCME and ACGME mandate learning environments that promote professionalism. In concert with this movement, the ACGME implemented the Clinical Learning Environment Review (C.L.E.R.) program. The C.L.E.R. program requires institutions and residency programs create professionalism curricula, periodically assess the culture of professionalism, and continuously improve to meet new review standards.

**Summary of Work:** The survey was to assess the culture of professionalism from the perspective of residents. It was hypothesized that residents would rate their commitment to professionalism greater than their residency program and the institution. The project was an anonymous on-line survey to be completed by all residents. Three mailings were sent out. The project received IRB approval.

**Summary of Results:** More than 47% of residents (365/771) completed the survey. Residents reported they were significantly more committed to demonstrating the 13 professional behaviors than the institution. ( $p < .001$ ) Residents also perceived their residency program significantly more committed to professionalism than the institution. ( $p < .001$ ) Residents reported the most common reason they did not attend workshops on professionalism topics is that they were not offered (54%). Respondents noted about 25% of their faculty modeled professionalism all of the time. More than 50% of respondents admitted their perception of the importance of professionalism was influenced when their attendings did not model professionalism. The lack of time and support services, and the number of patient admissions were cited as barriers to professionalism.

**Discussion:** Despite major institutional initiatives focusing on appreciative inquiry, compassionate care, and patient safety, residents at one teaching hospital report they work in a learning environment they perceive is not as committed to professionalism as they are. Furthermore, the lack of commitment to several professionalism behaviors reveal the need for resident curricula, faculty development and institution-wide initiatives.

**Conclusion:** Moving from advanced beginner to competent professional requires residents have the right learning environment for this development to occur. While the LCME and ACGME mandate learning environments that promote professionalism, this goal is not being achieved. These data reveal the learning environment should remain a focus of ACGME activities, and these activities should be expanded if



we are to train the next generation of professionals in professionalism.

**Take Home Messages:** Residents at one teaching hospital report they work in learning environments that are not as committed to professionalism as they are, and this difference from their perspective is significant. These data highlight the need to focus on professionalism competency as a fundamental component of residency education, and the preparation of professionals in professionalism.

performance, expressed as curriculum progress. The average score is related to the perception of learning.

**Take Home Messages:** The DREEM inventory is an instrument that creates a snapshot of student educational environment whose sensitivity has been tested and can be applied in combination with quantitative analysis to identify factors that may influence academic performance and develop strategies to support students to improve it.

#4DD19 (135291)

**Relationship between the perception of the educational environment and academic performance in medical students at a public university in Tabasco, México**

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**Background:** The educational environment of the medical education is an important issue because is an indicator of the quality and has been associated with the development, satisfaction and the academic performance. The objective of this investigation is to establish the relationship between the academic performance and the educational environment where be students of medicine.

**Summary of Work:** For the perception of the educational environment was applied the DREEM questionnaire, which it has 5 subscales and a maximum score of 200 The academic performance was established as a variable consisting of the average of the ratings and curricular progress. The sample was 155 students of medicine in a public university in Tabasco, Mexico.

**Summary of Results:** DREEM average score was 154 (SD 19.46 ) associated with curricular advance (( $p=0.007$ ). Subscales of the instrument presented association with the curricular progress were social-self perception ( $p=0.018$ ) and the atmosphere ( $p=0.034$ ). The number of completed credits with the social-self perception ( $p=0.008$ ). No difference in the average scores of students who have a good curricular progress and is associated with the perception of learning subscale ( $p=0.013$ ).

**Discussion:** Lokuhetty (2010) reported a DREEM average score of 107.43, Riquelme (2009) of 128.8, and Palés (2015) of 116.2 that are lower than calculated in this study of 154 points. Al-Ansari (2015) used the DREEM and concluded that the students' academic performance was affected by various aspects of perceiving the educational environment, as in this study.

**Conclusion:** The perception of academic environment in medical students is related to educational

## 4EE Posters: Clinical Reasoning / Reflection

Location:

#4EE01 (135601)

**Clinical reasoning by design: An appraisal of 4C/ID pre-hospital emergency care education**

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**Background:** The unpredictable nature of pre-hospital care requires Emergency Care Practitioners (ECP) to make emergency clinical decisions with limited patient history, clinical support and diagnostic tools. The potential for clinical errors is high. The extent to which clinical reasoning is acquired in the ECP education is unknown. The assumption is that ECP's would benefit from clinical reasoning particularly in the management of atypical patients. This is important for novice ECP's who make autonomous clinical decisions in patients with life-threatening emergencies.

**Summary of Work:** A critical appraisal of evidenced-based instructional design models was undertaken to assess which model would have transferability the emergency care context. The 4C/ID model has not been previously been applied to emergency care (EC) education. This study seeks to validate this ideological approach for clinical reasoning in EC education.

**Summary of Results:** The preliminary findings are that the pre-hospital emergency education milieu is desirous of theoretical/ideological posturing and that clinical reasoning is indeed the pedagogic outcome. The 4C/ID model constructs and propositions are constructively aligned to imperative of clinical reasoning.

**Discussion:** An analysis if the 4C/ID for content validity toward clinical reasoning in EC is the object of the study. The routine and non-routine tasks aspects in the component Learning Tasks is aligned to emergency care. Supportative Information is pre-requisite of complex problem solving. The use of Procedural information and Task Practice is present in emergency care.

**Conclusion:** An analysis of the 4C/ID for content validity toward clinical reasoning in EC is the object of the study. The routine and non-routine tasks aspects in the component Learning Tasks is aligned to EC practice. Supportative Information is pre-requisite of complex problem solving. The use of Procedural information and Task Practice is present in EC.

**Take Home Messages:** To have clinical reasoning as a requisite outcome of EC education, 4C/ID holds promise for problem identification and educational redress toward this endeavor.

#4EE02 (128646)

**Using "Think Aloud" to Compare the Clinical Reasoning of Veterinarians and Veterinary Students**

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**Background:** Clinical reasoning is a fundamental skill for all health professionals and is an expected competency of veterinary graduates. However, teaching clinical reasoning to students is difficult, particularly when the learner is unaware of much of the reasoning processes involved.

**Summary of Work:** A two part project involved focus groups with final year veterinary students exploring their experiences of learning clinical reasoning and a "think aloud" study investigating how clinical reasoning was practised. The clinical reasoning of veterinarians was compared with fourth year veterinary students during a standardised case. Participants performed an examination of a cow whilst "thinking aloud" at all times. The case was video-recorded and reviewed with the participant during a retrospective interview. Template analysis of transcripts from the cases and interviews was triangulated with mapping timestamped actions and communications of each participant.

**Summary of Results:** Thematic analysis of two focus groups (n = 4, n=11) identified the importance of clinicians signposting to students the strategies used in different case contexts and examples of pattern recognition; the influence of the learning context; and having opportunities to practise clinical reasoning in a safe environment. Findings from the cases (4 veterinarians, 5 students) identified students' disorganised approach, struggle with ambiguity, and negative consequences of cognitive overload. In contrast, veterinarians used knowledge and experience to organise their information gathering and made decisions based on a rationale.

**Discussion:** The two studies have highlighted the importance of providing students with appropriate opportunities for case responsibility and signposting clinicians' reasoning processes.

**Conclusion:** The use of focus groups and "think aloud" provided valuable insight into clinical reasoning and demonstrated that students have difficulty adopting a logical reasoning process.

**Take Home Messages:** "Think aloud" is a tool that is useful in research and can help signpost the clinical reasoning processes during appropriate teaching opportunities.

#4EE03 (132570)

**Which factors are most important for continuing the Tokyo GIM Conference (TGIM), a non-profit clinical reasoning study group held at multiple venues?**

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Taro Shimizu (Dokkyo Medical University, Tochigi, Japan)

**Background:** • Opportunities for undergraduate and post-graduate education in clinical reasoning are scarce in Japan. • In order to improve this situation, we have been holding a clinical reasoning study group (the Tokyo GIM Conference) in the Kanto Region since 2011.

**Summary of Work:** TGIM is held every second Friday from 19:30–22:00 with the aim of providing learning opportunities in clinical reasoning. The participants are about 50 senior medical students and young physicians up to ten years after graduation. TGIM is a non-profit organization and receives no financial support from pharmaceutical firms or other sources. All publicity for the TGIM is conducted via Facebook and no operational expenses are generated. The venues for the conference are provided free of charge by the home institution of the organizer or case presenter.

**Summary of Results:** The following factors were identified as a result of the interview: Uniqueness-No other similar opportunity exists in the Kanto Region. Quality of Content-The case presentations are of a very high level. Existing model conference-The Kyoto GIM Conference served as a model. Voluntary contributions-The organizer and participants all contribute voluntarily to the selection of cases, selection of venue, FB posting, keeping minutes. Access/Venue-Mainly held in international milieu of Shinjuku in central Tokyo. Advertising/PR-Face Book is the major instrument for advertising the conference. The organizer as an independent party-The lack of financial or other sponsorship maintains the independence of the organizer.

**Discussion:** • Time and labor contributed by the organizer and participants, providing of free venues by host institutions, FB updating, etc.) contribute largely to making the conference possible. • Participation in this and other similar conferences is limited to a small portion of the total population of medical staff in Japan due to the restrictions imposed by employment schedules, etc. Such factors may impose limits on the future growth of these conferences.

**Conclusion:** The informal net-based interview conducted by the organizer revealed that uniqueness, quality of content, the existence of a model conference, the voluntary contributions of the organizer and participants, accessibility, advertising, and leadership of the organizer were the most important factors contributing to the success of the TGIM.

**Take Home Messages:** Non-profit clinical reasoning conferences held at multiple venues are made possible by the contribution of time, labor, and materials by the organizer and participants.

#4EE04 (134433)

**Evaluation of Surgery Intern's Perception of Clinical Reasoning Activities at Universidad Andrés Bello, Viña del Mar, Chile**

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Peter McCall Calvo

Mariana Searle

**Background:** Clinical reasoning is a cognitive step-driven competency, allowing doctors to reach diagnostic and treatment decisions and ultimately solve the patient's health problem, and a core skill to be acquired during undergraduate school. We evaluated sixth year intern's perception of clinical reasoning activities during a surgery practicum, at Universidad Andrés Bello's Medical School.

**Summary of Work:** A clinical reasoning Likert type perception survey, which evaluated: clinical reasoning process, usefulness of methodology, and methodology structure, was administered with informed consent to 29 interns. Median, and standard deviation were used. Results were tabled generating two groups, positive perception (generally agree and strongly agree) and negative (generally disagree and strongly disagree); leaving out the undecided. These values were calculated as a ratio.

**Summary of Results:** With a maximum of 5 points, the average was 4.1 for clinical reasoning process; 4.2 for usefulness and 3.9 for methodology structure. For the ratio positive v/s negative response clinical reasoning process was 7:1; usefulness 6:1 and methodology structure 6:1. Best evaluated activities were clinical reasoning joint reflection, with 100% agreement and applying clinical reasoning skills with adequate results in simulated situations, with a 13:1 ratio. Less positively evaluated were: amount of clinical reasoning activities and application in the daily rounds, with ratios 4:1 and 3:1 respectively.

**Discussion:** Overall intern's perception is positive for all three areas. Items to improve are increasing clinical reasoning activities and its application in daily rounds with patients.

**Conclusion:** Perception of the methodology to train clinical reasoning is highly positive. It will help us to improve quality and quantity of the activity and to train tutors to use it in daily clinical tutoring with interns.

**Take Home Messages:** It would be useful to supplement with a qualitative study.

#4EE05 (134917)

**Development of a Method to Measure Clinical Reasoning in Pediatric Residents: The Pediatric Script Concordance Test**

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Jean Francois Lemay

Tanya Beran

Harish Amin

Amonpreet Sandhu

**Background:** The Script Concordance Test (SCT) is an emerging method of assessment of clinical reasoning skills. SCT is designed to assess a candidate's ability to reason when faced with decisions encountered in the three phases of clinical decision-making: diagnosis, investigation and treatment.

**Summary of Work:** The objectives were: 1) to examine the validity of Pediatric Script Concordance Test (PSCT) scores in discriminating clinical reasoning ability between junior and senior pediatric residents and experienced pediatricians, and 2) to determine if higher reliability could be achieved by applying specific strategies to SCT design. A 90-minute PSCT (24 cases/137 questions) was administered to 91 residents from 4 Canadian training centers. Each resident's PSCT was scored based on the aggregate responses of 21 certified pediatricians (Panel of Experts (POE)). One-way analysis of variance (ANOVA) was used to a) determine if POE obtained higher scores than junior/senior residents and b) if senior residents obtained higher scores than junior residents. Reliability was calculated using Cronbach's  $\alpha$  coefficients.

**Summary of Results:** There was a statistical difference in performance across all levels of experience,  $F = 22.84$  ( $df = 2$ );  $p < 0.001$ . The POE had higher scores than both senior (mean difference = 9.15;  $p < 0.001$ ) and junior residents (mean difference = 14.90;  $p < 0.001$ ). The senior residents outperformed the junior residents (mean difference = 5.76;  $p < 0.002$ ). Internal consistency of the PSCT scores (Cronbach's  $\alpha$ ) was 0.85.

**Discussion:** PSCT scores (independent of study site) were able to discriminate clinical reasoning ability between pediatricians and two distinct training levels in pediatric residency. Solid reliability was also achieved.

**Conclusion:** The PSCT is a valid and reliable method to assess the core competency of clinical reasoning.

**Take Home Messages:** We suggest the PSCT may be effectively integrated into formative residency assessment and with increasing exposure, experience and refinement may soon be ready to pilot within summative assessments in pediatric medical education.

#4EE06 (135302)

**Learning clinical reasoning in the physiotherapy workplace: a qualitative study**

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**Background:** Research on clinical reasoning has focused on frameworks underlying decision-making, accuracy of outcomes, educational strategies and preclinical assessment, yet little is known on learning clinical reasoning in the workplace. The purpose of this study was to explore undergraduate physiotherapy students' learning of clinical reasoning during internships.

**Summary of Work:** A qualitative research design using focus groups and semi-structured interviews was employed to explore the perspectives on learning clinical reasoning of physiotherapy students and clinical teachers at the European School of Physiotherapy in Amsterdam. Four focus groups were held with undergraduates from year 2, 3 and 4. Eight clinical teachers were interviewed individually. Sessions were audiotaped and transcribed verbatim. Thematic analysis was employed to identify significant themes that emerged from the data.

**Summary of Results:** Preclinical training in clinical reasoning insufficiently prepared physiotherapy students to connect the whole process of clinical reasoning in real patients. Clinical teachers expected a holistic, multifactorial problem-solving approach, where students still needed to work on their physiotherapeutic knowledge and structure. Both students and teachers considered feedback and reflection prerequisite for the development of clinical reasoning in physiotherapy practice. Learning was hindered by time constraints, limited patient exposure and factors influencing communication in the workplace.

**Discussion:** Workplace-based learning of clinical reasoning in physiotherapy training follows the principles of experience-based learning, based on supported participation.

**Conclusion:** Physiotherapy students learn clinical reasoning in the workplace by comparing and reflecting on different approaches of clinical reasoning in practice. By synthesising these approaches with physiotherapeutic knowledge, students develop their own individual approach. These results have implications for teaching and the development of physiotherapy education.

**Take Home Messages:** Offering various approaches of clinical reasoning in the workplace, supported by reflection, enhances undergraduate students' learning of clinical reasoning during internships.



#4EE07 (135722)

**Script Concordance Testing and the Evolving Style Case: Is There a New Kid on the Block in Clinical Reasoning Assessment?**

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**Background:** The Script Concordance Testing (SCT) is gaining momentum as a method of assessment of clinical reasoning. We introduced a new type of SCT case design, the evolving style case test (ESCT) whereby the patient's clinical story is "evolving" and with thoughtful integration of new information at each stage, decisions related to clinical decision-making become increasingly clear.

**Summary of Work:** We aimed to: 1) determine whether an ESCT could differentiate reasoning ability among pediatricians, junior residents (JR) and senior residents (SR), 2) evaluate the reliability of an ESCT and 3) to obtain feedback related to its acceptability. A 12 case ESCT (embedded within a 24 case pediatric SCT), was administered to 91 pediatric residents (JR: 50; SR: 41); 21 pediatricians served on the panel of experts (POE). A one-way ANOVA was conducted across the levels of experience. Participant's feedback on the ESCT was obtained using thematic analysis.

**Summary of Results:** Statistical differences existed across levels of training,  $F = 19.31$  ( $df = 2$ );  $p < 0.001$ . The POE scored higher than SR (mean difference = 10.34;  $p < 0.001$ ) and JR (mean difference = 16.00;  $p < 0.001$ ). SR scored higher than JR (mean difference = 5.66;  $p < 0.001$ ). Reliability (Cronbach's  $\alpha$ ) was 0.83. Participants found ESCT engaging, easy to follow and true to the decision-making of clinical practice.

**Discussion:** The ESCT was effective in distinguishing clinical reasoning ability across three levels of experience. ESCT demonstrated very good reliability and acceptability.

**Conclusion:** ESCT is a valid, reliable and well-accepted assessment tool. We suggest increased utilization and refinement of the evolving style case may help to support SCT as an increasingly robust, engaging and relevant method for the assessment of clinical reasoning.

**Take Home Messages:** We propose ESCT may represent the true sequential timing and flow of medical practice, and therefore more closely simulate the reasoning processes of clinicians.

#4EE08 (135664)

**Observing, interacting and learning in medical school; using reflection as a tool for finding the positive**

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**Background:** Medical students are exposed during their training, to a variety of events, behaviors and experiences that can have a profound impact on their professional development and well-being. The aim of the study was to explore medical students' most memorable experiences and the associated learning.

**Summary of Work:** Peer interviewing was used to assess medical students' memorable experiences. Medical students' were invited to narrate one memorable experience and reflect on the learning associated with it. All interviews were recorded, transcribed and analyzed thematically.

**Summary of Results:** 104 medical students participated in the study. 78 of them were females. 67.9% of the students were in the clinical years of Medical School. Students' experiences derived from 3 types of interactions namely: observed interactions between doctors and patients, personal interactions between students and patients, interactions between doctors and students. Lessons deriving from the experiences included: treating patients as humans not as medical cases, the emotional aspects of care, doctors as role models, skills needed when working under pressure, 'tasting' the real profession and becoming a doctor, the importance of communication skills, teaching qualities of doctors, and reflections for future practice. Even though, the majority of experiences were not positive, when students reflected upon them, they focused on positive learning experience.

**Discussion:** Interactions with doctors and patients provided insight about the profession on a daily basis, the most common challenges, and the qualities necessary to succeed. All this implicit learning shapes medical students' professional development.

**Conclusion:** Medical students are exposed to a wide range of experiences during their medical training. When students are asked to reflect on experiences, even negative ones, they can extract positive take home messages.

**Take Home Messages:** In the heart of memorable experiences are students' interactions within the hospital environment. Encouraging students' reflection can help them process negative experiences and support their professional development.

#4EE09 (136213)

**Using reflection to improve decision-making in a complex environment**

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**Background:** The Reflective ePortfolio forms one of the key components of assessment for advanced surgical trainees studying for the ChM in Vascular and Endovascular Surgery by online distance learning. By using a process of reflection upon events taking place in clinical, teaching and learning settings, trainees are able to develop critical self-awareness to a degree that impacts on their abilities as a surgeon, teacher and learner.

**Summary of Work:** Trainees regularly record reflections in their private ePortfolio area within the virtual learning environment throughout the first year of their studies. Reflections are categorised by the following five core areas of clinical and professional competency: 1. Quality improvement and patient care 2. Literature evaluation skills 3. Research and experimental design 4. Teaching skills 5. Self-learning abilities and habits. Reflective ePortfolios are assessed in Year 2 through the submission (one for each category) of a narrative which summarises how the selected 4-6 reflections demonstrate improvement in that area of competency.

**Summary of Results:** Category 5 excerpt: "The non-technical skills for surgeons (NOTSS) is a very remarkable concept.... I have endeavoured to apply the NOTSS to my own practice when I am in theatre. ...I firmly believe that the non-technical skills should not only apply to the surgeons but also to all the theatre staff including the operating department practitioners, the theatre managers and nursing staff. This is to make them aware that such a concept does exist to improve overall safety of the theatre environment." Narrative excerpt: "before joining the course I had very little knowledge about reflection and reflective learning. During the course I have realized the various levels of reflective things. I have also gained experience in using the Gibb's cycle of reflection, which has changed my thinking and how I analyze events. I feel that I need to continue to practice these reflections to master the art of critical thinking and analysis (Reflection 5). To conclude, I think that I constantly thrive to learn from my mistakes and experiences. I feel that I have continued the same during the ChM course, which has helped me, gain knowledge and insight into vascular surgery. In particular, I feel that reading about reflective learning and writing for this assignment has made significant impact on my self-learning abilities and habits."

**Discussion:** Trainees are initially averse to writing reflectively about events but with practice, the reflections begin to demonstrate enhanced critical awareness of their own actions as well as the actions of others. This enables them to identify areas of weakness and suggest evidence-based solutions to problems.

**Conclusion:** Through the process of reflection, the trainee realises how to exploit complex or adverse situations so that each event becomes an opportunity for concrete learning and self-development. In turn, this leads to improvements in decisions being made by these surgeons in their complex working environments.

**Take Home Messages:** Reflective ePortfolios encourage trainees to become active lifelong learners through the art of reflection combined with literature review so that they can deliver the best evidence-based approach in their surgical practice.

#4EE10 (133329)

**The effects of reflection on clinical problems on medical students' awareness of knowledge gaps and situational interest**

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**Background:** Reflection on practice is considered a starting point for learning. By reflecting upon a problem at hand, students have the chance to identify knowledge gaps, which enhances interest in learning contents that may fill them (Schon, 1987). Interest determines students' engagement in learning tasks (Rotgans & Schmidt, 2014). The role of reflection as interest trigger has been shown in other domains (Gloger-Frey et al, 2015), but empirical evidence of it in medical education is absent.

**Summary of Work:** We investigated whether structured reflection while practicing with clinical cases increases medical students' awareness of knowledge gaps and situational interest in learning relevant contents. Forty-five 4th-year students from UNIFENAS-BH Medical School, Brazil, randomly assigned to either experimental or control group, diagnosed 6 clinical cases, either by following a structured-reflection procedure (Mamede et al, 2014) that requires matching the patient's findings to alternative diagnoses (experimental group) or by providing a differential diagnosis (control group). Subsequently, all students rated, on two validated scales, their situational interest (Rotgans & Schmidt, 2014) and awareness of knowledge gaps (Gloger-Frey et al, 2015).

**Summary of Results:** Situational interest was significantly higher in the experimental than in the control group (range 1-5; respectively, mean=4.10, standard deviation=0.50 vs mean=3.66, standard deviation=0.48; p=0.005). The effect size was large (Cohen's d=0.91). Awareness of knowledge gaps was higher in the experimental than in the control group, but the difference was not significant.

**Discussion:** Structured reflection upon to-be-solved clinical problems triggers students' interest in knowing more about them. This may foster students' engagement in learning. The increase in interest occurs even without enhanced awareness of specific knowledge gaps, a finding requiring further investigation.

**Conclusion:** Relative to making differential diagnosis, structured reflection while diagnosing cases increases medical students' interest in learning more about them. Teachers can employ the structured-reflection procedure to foster reflection and situational interest among students.

**Take Home Messages:** Encourage structured reflection on to-be-solved clinical problems to enhance students' interest in learning more about them.

## #4EE11 (135943)

### Learning to get a diagnosis in preclinical years

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**Background:** Clinical Reasoning, getting a diagnosis and being able to establish the fundamentals for treatment, prevention and rehabilitation is the principal competence of medical professionals.

**Summary of Work:** We designed an on-line course for second grade medicine students. It lasts eight weeks. At the beginning of each week students must use the intellectual abilities: identification, description, comparison, definition and classification to study a subject included in one of the basic courses they are attending in the same period. Later in the same week they analyze a clinical case, related to the subject they studied, applying a specific methodological approach in order to get a diagnosis.

**Summary of Results:** At the end of the course students are aware of the meaning, use and utility of each one of the intellectual abilities they applied to study as well as to solve a clinical case, being able to get a diagnosis and the fundamentals for the treatment, prevention and rehabilitation. And they learn to go into the entire process in an automatic way.

**Discussion:** The basics of clinical reasoning should be practiced from the basic sciences through the use of paper and pencil cases setting the pathogenesis and pathophysiology present in the patient's condition.

**Conclusion:** It is possible for a student to develop Clinical Reasoning since the very first years in the medical school through the systematic use of intellectual abilities.

**Take Home Messages:** To design a course for preclinical students in which, by analyzing paper-pen-patient, they develop Clinical Reasoning getting a diagnosis and being able to establish the fundamentals for treatment, prevention and rehabilitation.

## #4EE12 (135922)

### Who knows physiology knows medicine.

### Development of clinical reasoning in a physiology course

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**Background:** Who knows Physiology knows Medicine, with this phrase many teachers begin their Physiology course. Although all preclinical courses have a link with the clinic, in the case of Physiology this is very clear, in fact, Physiology books contents have always included examples of clinical application. With this in mind, we design a course to develop Clinical Reasoning by focusing in the importance of Physiology in clinical practice.

**Summary of Work:** Sixty clinical cases were written to cover the Physiology course content. The cases, along with questions regarding to the subject, was published on-line in the course page in advance to the class. During class, clinical cases were analyzed and the answers to the linked questions were discussed. Mid term and final exams consisted in clinical cases with questions related to the pathophysiology of the case.

**Summary of Results:** Through the daily use of Physiology knowledge to solve a clinical case, students learned to analyze a case by applying Physiology to explain the symptoms and signs presents in the patient, as well as being able to base the treatment. The class was more enjoyable, participatory and students developed the Clinical Reasoning through the learning of Physiology.

**Discussion:** The challenge of solving clinical cases is a great motivation to study, and the linked questions direct his/her attention to the physiological most relevant concepts. By using the same strategy to solve each case they learn to analyze them identifying the physiopathology and getting a diagnosis.

**Conclusion:** Solving a clinical case daily during the class allow students the development of Clinical Reasoning at the same time that they learn how to apply Physiology to solve a clinical case.

**Take Home Messages:** Who knows Physiology knows Medicine, so let's start using clinical cases to learn Physiology.

#4EE13 (135842)

### Consolidating Teaching in Clinical Reasoning through unpacking Clinical Educator thinking practices

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**Background:** Developing clinical reasoning abilities in students remains a key objective of clinical placements. However clinical teaching strategies are varied and are often not made explicit by educators. This may hamper student progress in clinical practice. By getting educators to examine their own thinking processes, it was hoped they would better understand what needed to be developed in their students.

**Summary of Work:** Educators involved in Undergraduate clinical teaching in Health and Rehabilitation Sciences attended a series of three workshops around clinical reasoning. The workshops focused on both theoretical concepts of reasoning as well as getting them identifying their own expert thinking processes. Pre and post workshop evaluations were completed to monitor impact.

**Summary of Results:** Workshops allowed clinical educators to unpack their own thinking models. Most educators did not realise there were frameworks to name the types of reasoning they utilised. Whilst educators could recognise the problems that students as novices had in reasoning through cases, they had less insight into the specific cues needed to guide reasoning.

**Discussion:** By understanding that their own thinking needed to be made visible, clinical educators could engage around their own practices and look at strategies to improve their teaching. The idea was entrenched that they needed to explicitly induct students into more expert thinking practices as a way of socialising them into the norms of the profession.

**Conclusion:** As students transition into clinical practice the workings of experts need to be made visible to them, to allow them to participate as legitimate members of their chosen profession. Common strategies were identified to enhance student teaching and make the development of clinical reasoning in students more overt.

**Take Home Messages:** Clinical educators need to consciously make their own thinking practices visible in order to improve student learning.

#4EE14 (135809)

### Content Specificity of Clinical Reasoning in a Summative Internal Medicine Clerkship Structured Clinical Oral Examination

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**Background:** In an Internal Medicine (IM) clinical clerkship structured clinical oral examination (SCO), three of eight 9-minute stations test clinical reasoning (CR) skills involving patient management or diagnosis. Students interact with examiners in structured case discussions and scripted questions could require System 1 (intuitive pattern recognition) or System 2 (analytical) reasoning. It is assumed that System 1 reasoning occurs with a higher level of expertise and may be less common among novice learners. Little is known about the CR of clinical clerks and whether it is impacted by the specificity of the content being tested.

**Summary of Work:** During two separate IM 8-week clinical clerkship rotations, student performance (n=85) was computed for System 1 and System 2 CR components of the SCO. Other measures of CR (global rating, overall station, and overall examination performances) were also calculated. Pearson correlation coefficients between students' performance in these CR components were determined. To establish possible congruence of CR ability within specific content being tested, correlation between students' System 1 and System 2 performance will also be calculated for that subset of stations within which both types of questions existed.

**Summary of Results:** Mean marks for performance on System 1 tasks was 85.8% +/- 9.9 and for System 2 tasks was 84.5% +/- 10.2. There was poor correlation between these performance measures ( $r=.106$ ). Calculated correlations limited to individual stations that contained both System 1 and System 2 questions will also be presented.

**Discussion:** Clinical clerk performance in questions testing System 1 and System 2 CR in IM was strong. However, the correlation between performance in each type of CR was poor when considered as an overall mean measure.

**Conclusion:** If this correlation improves when examined across isolated content domains, the impact of that content specificity may be important.

**Take Home Messages:** Content specificity may need to be considered when assessing CR skills in clinical clerkship rotations.



#4EE15 (135212)

**Promoting students' clinical reasoning skills by withholding diagnosis information in PBL tutorials**

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**Background:** Medical school graduates should learn to deal with a chief complaint and make the correct diagnosis from possible diseases of the clinical presentation. However, limitation of PBL in training these skills has been noted because, for example, students are given a case of angina expecting that they will learn about the different diseases of chest pain. As an effort to overcome this limitation, we withheld diagnosis information in a PBL case. By doing so, we aimed to avoid concentrating on study of a single disease and emphasize differentials of a clinical presentation.

**Summary of Work:** Thirty-eight second-year medical students studied two different cases of patient problems during a gastroenterology PBL unit. During the tutorial of the first case, students discussed the scenario without diagnosis information [condition A]. For the second case, students were given full information from a chief complaint to final diagnosis and treatment [condition B]. We assessed students' abilities to perform differential diagnosis (DDX) in the two conditions using MEQ.

**Summary of Results:** Students were given two patient scenarios that included history, PE and lab findings and asked to rank and justify differentials. The scenarios presented patients problems similar to the cases used during the PBL tutorials. Students achieved significantly higher scores on DDX when solving the case of condition A ( $M=2.88$ ) compared to the case of condition B ( $M=1.86$ ). They also showed better performance on diagnostic justification with the case of condition A ( $M=2.07$ ) compared to condition B ( $M=1.74$ ).

**Discussion:** Students were better at acquiring knowledge about differentials of a clinical presentation when final diagnosis was withheld in a PBL case.

**Conclusion:** Withholding diagnosis information in PBL tutorials can enable students to focus on studying the process of differential diagnosis rather than a single disease and to facilitate their clinical reasoning skills.

**Take Home Messages:** A PBL case may withhold diagnosis information to foster students' competency in differential diagnosis and their clinical reasoning skills.

#4EE16 (135132)

**Can Clinical Reasoning be tested online? An interactive online tool to assess Clinical Reasoning in Musculoskeletal Physiotherapy**

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**Background:** Clinical reasoning is defined as the thinking, analytical and decision-making process in clinical practice (Edgar, 2014). However, there is no structured assessment of clinical reasoning within the musculoskeletal physiotherapy setting.

**Summary of Work:** Three physiotherapists, each with more than seven years of musculoskeletal physiotherapy experience and postgraduate qualifications, created two musculoskeletal scenarios. These were inbuilt with quizzes that assessed different areas of clinical reasoning and was housed online. A cohort group of 120 physiotherapists were invited to participate within a two-month period. Implied consent was obtained. Before starting, participants completed a survey about their qualifications and experience. The aim was to determine if musculoskeletal postgraduate qualification and work experience could affect performance in the two scenarios. Significant level was set at  $p<0.05$ .

**Summary of Results:** 33 participants aged  $27.7\pm3.5$ , completed both scenarios. The results were normally distributed, and independent t-test and Pearson correlation were used. The participants with musculoskeletal postgraduate qualification ( $n=7$ ), attained higher overall scores (57.8% versus 66.3%) in Scenario 2 ( $t=-2.153$ ,  $p=0.039$ ), especially the components that tested clinical reasoning ( $t=-2.995$ ,  $p=0.005$ ). Increased work experience was related to the overall score of Scenario 1 ( $r=0.367$ ,  $p=0.04$ ), and the reasoning components in Scenario 1 ( $r=0.38$ ,  $p=0.03$ ) and Scenario 2 ( $r=0.35$ ,  $p=0.04$ ). However, there was no correlation between specific musculoskeletal experience with performance in both scenarios.

**Discussion:** Musculoskeletal postgraduate qualification appeared to increase Scenario 2 scores, and not Scenario 1. This could be related to the higher weightage of scores for observation and interpretation in Scenario 2 (0.76 versus 0.58).

**Conclusion:** Future studies should examine the structuring of the scenarios, including the structuring of the questions and weightages. This tool can be further evaluated against other workplace-based assessment tools like the Mini CEx.

**Take Home Messages:** Formal musculoskeletal postgraduate qualification and work experience could improve performance of an online scenario tool. The online tool needs to be further assessed with other workplace-based assessment.

#4EE17 (136265)

**Case-based Discussion for improvement of clinical reasoning in residents of family medicine in Rio de Janeiro**

**Olivan Queiroz\***, *Secretaria de Saúde do Rio de Janeiro, Rio de Janeiro, Brazil*

Ana Carolina Cunha Barbosa

Marcia Cristina Lemos dos Santos

Eliana Martorano Amaral

**Background:** Clinical reasoning in primary health care (PHC) is known as a basic skill to be developed in family medicine residents (Year 1, R1 and 2, R2). Clinical reasoning in PHC presents with some peculiarities that must be identified and trained. Nonspecific symptoms and restriction of diagnostic research resources are examples of factors that influence the clinical reasoning in PHC. This study aims to describe the experience of Case-based Discussion (CbD) with residents at a family clinic in Rio de Janeiro.

**Summary of Work:** The sessions take place daily at the end of the day, lasting 30 minutes. R1 and R2 must present cases selected during the day. They are encouraged to systematically provide a clinical vignette to summarize the case. Some questions are asked and suggestions made by those participating in the activity. Facilitators try to observe the steps of clinical reasoning, sometimes neglected, which interfere in the process. A feedback is offered to resident presenter at the end. All cases, referrals and diagnosis are duly registered.

**Summary of Results:** Residents train creating clinical vignettes, which facilitates the clinical reasoning process. Resource management and communication skills are worked out in discussions, in addition to clinical competence.

**Discussion:** It is noticed that exhaustive exercise to describe cases in a systematic manner is beneficial in the development of entrustable professional activities. Less experienced residents observe the decision-making process of the most experienced. Complex cases presented can be seen by the professional once everyone is familiarized with it. An increase on therapeutic strategies emerged from the shared discussion.

**Conclusion:** CbD in a systematic way help in the development of clinical reasoning, and better quality of care offered by family medicine residents under indirect supervision.

**Take Home Messages:** Case-based Discussion can improve the clinical reasoning of family medicine residents.

#4EE18 (135098)

**Are thinking skills related to the students' academic performance level?**

**Yolanda Marin-Campos\***, *National Autonomous University of Mexico, Mexico*

Bertha Maria Najera- Tijerina

**Background:** Thinking skills (TS) are cognitive components required to develop the higher order intellectual process called clinical reasoning. Researchers' reports indicate that academic programs devoted little attention to TS teaching and assessment in the medical curriculum. Students do not develop spontaneously TS, specific teaching methods are required. Teachers should be trained to help students to develop TS.

**Summary of Work:** Study had two phases: Phase 1: Results of three formative tests applied along the academic year, were analyzed from 1005 second-year medical students. 220 MCQs were classified: 86 were on recall of information; 124 were on comprehension; and 10 on knowledge application to clinical vignettes. Alpha coefficient exams were from .80 to .90. Phase 2: Fifty eight second-year medical students participated in a one-hour simulated clinical case. They were from three different performance levels groups: 13 high, 33 medium and 12 low. A 13-items rubric was used made based on: team work, patient risk factors, diagnosis, clinical reasoning, basic-clinical knowledge integration.

**Summary of Results:** Phase 1. All TS scores increased in tests 1 and 2. ANOVA showed ( $p = .00$ ) differences in exam 3: comprehension decreased, information recall remained stable. Application of knowledge scores decreased in all groups and no differences were found in high and medium performance level groups. Phase 2. ANOVA showed no differences ( $p = .00$ ) between groups in: diagnosis and basic and clinical knowledge integration. High and medium performance level groups performed better in team work. Low level group performed better in risk factors and had the highest score in clinical reasoning

**Discussion:** Literature indicates that knowledge and thinking skills are linked factors. It is recognized that TS are basic components of clinical reasoning, however there is not agreement in which are academic TS related to this.

**Conclusion:** There were better performances in medium low groups in TS in tests scores, results do not reflect the performance level to which students belong. This finding indicates that TS are not related to the performance level of students.

**Take Home Messages:** Future studies on thinking skills among students should be made in order to determine if students use more complex thinking skills when they are facing complex tasks.

## 4FF Posters: Curriculum Evaluation 2

Location:

#4FF01 (134580)

**Singapore Neonatal Resuscitation Programme – Training Journey and Value of Feedbacks**

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Ereno Imelda Lustetica (Singapore General Hospital, Singapore)

Selina Kah Ying Ho (Singapore General Hospital, Singapore)

**Background:** The Singapore Neonatal Resuscitation training programme was implemented in Singapore in September 2008. The programme started as a traditional course consisting of lectures with accompanying slide presentations, followed by basic and integrated skills stations at which learners practice the technical skills of resuscitation using low-tech manikins, and practical test conducted in small groups using smart manikins to stimulate real-life situations. Debrief of performance at practical skill assessment was conducted to encourage self-reflection.

**Summary of Results:** A response rate of 90.8% (207/228) vs 94.8% (309/326) was obtained for Epoch A and B respectively. Training program met the learning objectives of learners in 87.4% vs 91% of the respondents and 87.8% vs 92.3% responded favourably to the clinical applicability of the learning program between Epoch A and B respectively. E-learning was reported to be effective for learning of knowledge in 86.8% of learners as compared to 67% ( $p < 0.05$ ) when didactic lectures was part of the curriculum design. Time available for hands-on learning at practical test and integrated skill learning rated to be short by 13.2% and 16.2% of respondents in Epoch A decreased to 3.9% and 6.3% respectively in Epoch B ( $p < 0.05$ ).

**Discussion:** Evaluation of feedbacks facilitated programme improvement initiatives. The use of e-learning in the revised neonatal resuscitation curriculum and the emphasis on self-reflection through debrief were well received by learners. The revised curriculum resulted in significant improvement in time available for hands-on skill training.

**Conclusion:** The training programme has met the learning objectives of most learners.

**Take Home Messages:** E-learning and simulated training facilitated and enhanced reality of learning. Feedbacks contributed to programme improvement. Self-reflection is well received by learners.

#4FF02 (134251)

**Is the Grass Greener? Feedback and Evaluation from the Other Side**

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Ranjana Acharya, National Healthcare Group, Singapore, Singapore

**Background:** The Internal Medicine (IM) residency program recognized that there was discordance between evaluations done by faculty and newly promoted Senior Residents (SR). While existing faculty had undergone training and calibration, we felt that we should prepare our graduating residents for the life of the evaluator.

**Summary of Work:** A 2 hour interactive workshop was formulated covering the following topics 1. The importance of evaluation 2. How to assess a junior – work placed based assessment and calibration 3. Giving feedback Various modalities were used including videos, anonymized evaluations of a star performer and the struggling learner and role play with “standardized residents”. Final year IM residents and newly promoted SRs were invited to attend. Participants were asked for feedback at the end of the workshop that included qualitative comments.

**Summary of Results:** 23 participants attended the workshop. The facilitators felt that the participants were engaged and vocal. 100% of the participants agreed that the topics selected are helpful to improve their skills in evaluation juniors and giving feedback 96.7% felt that the workshop added to their knowledge and skills. 95.7% of the participants felt that the format of the workshop was suitable for their learning needs and development.

**Discussion:** Participants particularly enjoyed the videos and role playing and found it important to evaluate a learner according to their level. A majority commented that they found the matrix for giving feedback most useful and role playing with the standardized resident fun.

**Conclusion:** An interactive workshop using multiple modalities is a fun and effective way to introduce the residents to new roles they are about to take on.

**Take Home Messages:** We should prepare our residents for the various roles they take on as they progress in their career, including that of the evaluator and senior giving feedback.

#4FF03 (134889)

**The Power of POWER: Standardized performance assessment of residency training across teaching sites and programs at the University of Toronto**

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*Asif Sharif  
Glen Bandiera  
Sal Spadafora  
Glenys Babcock*

**Background:** The system known as POstgraduate Web Evaluation and Registration (POWER) was first implemented in 2004/05. At start up, over 100 different evaluation forms and 85 rating scales were in operation across 75 programs and over 20 hospitals for the resident-completed Rotation Evaluations and Teaching Evaluations

**Summary of Work:** A working group developed a methodology to consolidate evaluations in a clear, consistent user-friendly format. Scoring scales were converted to a 5 point Likert scale and a standardized naming protocol was developed to map rotation services to broad clinical services. Once baseline data was standardized and mapped, subsequent reports were developed each year to identify mean teaching and rotation scores and percentiles for each major clinical service at over 20 full and community hospitals partnered with U of T.

**Summary of Results:** 10 years of quantitative comparable evaluation data has been made available in an electronic spreadsheet format allowing hospitals to use, analyze and report on data in their choice of format. Hospitals and residency programs are using the data to benchmark performance, and identify areas of excellence and areas that need improvement.

**Discussion:** PGME at U of T has become a hub of performance monitoring, essential to assess ratings of teachers and teaching sites to inform accreditation, social accountability and continuous quality improvement. Web-based learner evaluation systems are facilitating increased opportunities to extract, analyze and compare data in a large complex academic health science centre.

**Conclusion:** Ongoing assessment and performance measurement is a cornerstone of U of T PGME's enterprise and ensures that residency programs and teaching sites are collecting accurate data and taking evidenced based actions to improve performance.

**Take Home Messages:** U of T is promoting integration and consolidation of residents' evaluation of both teaching and rotation performance for 13 clinical departments and over 20 teaching sites to improve performance monitoring and quality assurance of clinical training.

#4FF04 (130524)

**How do newly qualified doctors (FY1s) evaluate their educational experience during a surgical rotation at a 'teaching hospital'?**

*Luke Forster\*, The London Deanery, London, UK*

**Background:** Postgraduate medical education programmes are assessed using feedback from surveys, healthcare regulators and career progression statistics (GMC, 2011). Deficiencies in clinical programmes can affect doctor satisfaction and jeopardise patient safety. It is important to identify and address any issues. This is a formative evaluation of the educational experience of surgical FY1s.

**Summary of Work:** This pilot study involved 3 focus groups (total 25 FY1s) to evaluate their educational experience and discuss possible improvements. The qualitative results were reviewed and presented within the context of the existing literature.

**Summary of Results:** On-calls provided experience of clerking patients, receiving feedback from colleagues, performing practical skills under supervision and participating in consultant-led post-take ward rounds. The experience was challenging and stressful but doctors reported improved knowledge, skills and confidence. 'Normal days' had less educational focus with workload restricting informal and formal educational opportunities. There were conflicting experiences regarding work-based assessments and supervision.

**Discussion:** Proposed improvements were organisational (rota planning), educational (emphasis on learning) and inventive, with schemes such as 'topic of the week', mentorships, simulation programmes, peer teaching and internet learning resources.

**Conclusion:** Better quality evaluation of medical education programmes can be invaluable. Qualitative feedback can be used to better inform stakeholders and allow planning of improvements. FY1s enjoyed opportunistic learning during busy on-calls. They described initial fear, insecurity and 'deep-end learning' before improving their knowledge, skills and confidence. Most improvements proposed were relatively inexpensive. Other institutions can evaluate their programmes to improve both the education doctors receive and the patient care they give.

**Take Home Messages:** Newly qualified doctors can receive good quality teaching despite busy workloads if there is appropriate planning, educational emphasis and evaluation of education programmes. A more educated, skilled medical workforce will improve the quality of care that patient receive.



#4FF05 (136096)

**Are there unmet educational needs amongst foundation doctors in Lothian? Three different perspectives**

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Karen Adamson (NHS Lothian, Edinburgh, UK)*

**Background:** In Lothian, the foundation teaching programme is mapped to the UK foundation curriculum over the course of two years. The GMC standards of medical education in training states that “organisations must demonstrate a culture that both seeks and responds to feedback from learners and educators... on education and training.”(GMC-uk.org learning environment and culture) We wanted to investigate the opinions of foundation doctors, a potential group of tutors and those involved in overseeing the foundation programme locally in order to understand where there may be unmet needs in their education.

**Summary of Work:** We developed online questionnaires to gather opinions from FY2s, training grade doctors, associate directors of medical education (ADMEs) and foundation programme directors (FPDs).

**Summary of Results:** We had responses from 17 FY2s, 18 middle grade doctors and 6 ADMEs/FPDs. Over half of the FY2s felt that there were gaps in the FY teaching programme. The majority requested more acute specialty specific clinical teaching. Some highlighted that this teaching should be delivered by more junior doctors rather than just consultants. 77% of training grade doctors surveyed were interested in delivering sessions for FY doctors, whilst also gaining formal accreditation. The ADMEs and FPDs identified deficits in dealing with challenging situations, interpersonal skills and professional behaviour. They felt that these issues should be addressed through a mixture of small group sessions such as tutorials and simulation.

**Discussion:** There is a willing cohort of training grade doctors to address these issues.

**Conclusion:** We will be implementing a sign up system for training grade doctors to deliver accredited teaching sessions for foundation doctors alongside a new simulation based programme for FY2 doctors. The barrier identified by all is weighing up these sessions against clinical commitments and time constraints

**Take Home Messages:** Balancing the perceived needs of learners against the needs perceived by their mentors and supervisors is achievable and training grade doctors are keen to deliver this.

#4FF06 (133587)

**Performance evaluation of the postgraduate clinical training program among healthcare professionals in a teaching hospital**

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**Background:** Healthcare Professionals are required to accomplish a two-year postgraduate clinical training (PGY) program after graduating from school in Taiwan. Little is known about performance of the PGY training program from PGYers and clinical mentors' points of view. The aim of this study is to identify the factors that may have influenced the performance of the PGY training program among 10 healthcare professional groups in a teaching hospital.

**Summary of Work:** Performance evaluation of the PGY training program was yearly conducted at MacKay Memorial Hospital in Taiwan between 2011 and 2015. PGYers who had accepted training over 6 months, over 18 months and clinical mentors who had involved in PGY teaching were requested to fill out a questionnaire using a 5-point Likert scale. Aspects of mentors' survey included performance of the training program, teaching ability, teaching processes and faculty development. Aspects of PGYers' survey included performance of the training program, learning ability, learning processes and self-evaluation.

**Summary of Results:** A total of 2343 questionnaires were replied by mentors (1146) and PGYers (1197) with average response rate of 85.3% (mentors 89.3%; PGYers 82.1%). Healthcare professionals included nurses, pharmacists, radiologic technologists, medical laboratory scientists, physical therapists, occupational therapists, respiratory therapists, dietitians, clinical psychologists and counseling psychologists. Our findings show that PGYers gave lower-than-expected self-assessment scores in learning ability while mentors' performance level was related to teaching capability, clinical workload and reasonable welfare. However, the main aspect contributing to the training program performance was somewhat different among 10 healthcare professional groups.

**Discussion:** Factors influencing the performance of the PGY training program include quality of the learning environment, faculty development and balance of clinical workload. These findings can be referenced as guidance for further improvement for individual PGY training program.

**Take Home Messages:** Performance evaluation from viewpoints of PGYers and mentors is valuable for further improving PGY training program.

#4FF07 (133614)

**Supervising uncertainty: different approaches in out-of-hospital settings**

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Cees Hertogh (VUmc, Amsterdam, Netherlands)

**Background:** During their training, residents gradually take on more responsibility. There is a paucity of evidence regarding the balance between patient safety and the possibilities for residents to work independently. We aimed to get more insight in current supervision practices in General Practice (GP) and Elderly Care Medicine (ECM, nursing home medicine) residency training in the Netherlands.

**Summary of Work:** We performed focus group interviews with two groups of GP-residents, two of GP-supervisors, two of ECM-residents and one of ECM-supervisors. We used constructivist grounded theory methodology. In this abstract we present the results of the preliminary analysis.

**Summary of Results:** Although supervision in GP and ECM residency training was expected to be similar, differences were large. GP-residents start with uncomplicated patients, gradually taking care for more complicated cases. However, often they are not trusted with the care for certain patients, e.g. with psychiatric and terminal diseases. ECM-residents are responsible for a ward in a nursing home, resulting in less possibilities to regulate the complexity of the cases. They are granted high levels of independency from the start of their training. This makes them feel uncertain about the "safety net" for their work.

**Discussion:** GP and ECM are characterized by uncertainty; often there are more solutions to a clinical problem. Therefore, supervision entails reflecting together on different approaches rather than teaching the best way to the resident. In GP-training, residents and supervisors do share and are content with this view. In ECM-training, residents seem to expect their supervisors to have an answer to all questions, being specialists in elderly care, thus neglecting the rather generalist approach in this profession.

**Conclusion:** In GP-training, broadening the case mix might further prepare residents for independent practice. In ECM-training, learning could be enhanced by developing a shared view on supervision.

**Take Home Messages:** In different contexts recommendations for improving residency training are different.

#4FF08 (133608)

**An evaluation of the Educational Supervision provided for Psychiatric trainees in Severn**

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Ami Kothari, AWP NHS Trust, Bristol, UK

**Background:** There is very little recent research assessing current practice of educational supervision (ES). A recent local audit of 57 Consultant Psychiatrist Educational Supervisors showed awareness of supervision standards was only 68%, with many difficulties prioritising supervision over interruptions and other pressures. A wide disparity in content of supervision was reported.

**Summary of Work:** We sought to gain supervisor views of obstacles to supervision, solutions and best practice in a workshop. Small group and individual feedback were recorded from participants. Data was weighted by frequency of comment.

**Summary of Results:** The workshop increased awareness of the ES standards to 100%; all participants felt the standards were useful. Obstacles included lack of time, private space and priority given to ES. 88% found the workshop beneficial; the most frequent suggestion for improving ES was for further trainer and trainee support and training.

**Discussion:** Adherence to best practice guidance around supervision remains a difficulty. This workshop improved awareness, provided a forum for peer support, and provided a range of ideas for further action to support trainers.

**Conclusion:** There is an ongoing need to support supervisors and trainees to prioritise and make the most out of supervision. Guidelines and standards have been helpful but obstacles to good practice remain. Trainers are able to identify potential solutions which can be further built on.

**Take Home Messages:** Educational supervision in Psychiatry is at the heart of training, yet adherence to guidelines of best practice is poor. Supervisors require support and regular forums to assess, reflect and improve their practice. Trainee involvement in interventions will be key.

#4FF09 (133922)

# **Improving resident satisfaction with postgraduate training through exit surveys**

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**Background:** At the university hospital of Lausanne (CHUV) in Switzerland, 46% of doctors' workforces are residents in postgraduate training. To ensure a high quality medical service, the hospital offers a high quality medical training as well as an attractive workplace. Exit surveys are well-known management tools to gather information on job satisfaction, but little is known on their usefulness for teaching hospitals.

**Summary of Work:** From 2010 to 2015, all doctors in postgraduate training leaving the hospital (N=1646) received an exit questionnaire focusing on quality of postgraduate training, supervision and working conditions. It included 16 items rated on a 5 point Likert-scale and 3 open questions allowing for qualitative feed-back.

**Summary of Results:** 521 doctors responded (32%). If satisfaction was generally high (more than 75% of residents satisfied with 7 items), the main areas for improvements (less than 70% of residents satisfied with the corresponding items) were appraisal interviews, career counselling, working hours and issues concerning work and private life balance.

**Discussion:** Residents are satisfied with structured educational activities (supervision, courses, journal clubs, case discussions etc.) and feel the hospital increases their competencies as physicians. However, there is a need for improving the appraisal system and individual career plan counselling.

**Conclusion:** Based on these results, initiatives to improve senior doctors' leadership skills as well as appraisal systems and career counselling of young doctors will be developed in addition to adapting working shifts to improve satisfaction with work and private life balance. Systematic exit surveys will be used to monitor the improvement of training and working conditions.

**Take Home Messages:** Exit questionnaires of residents are helpful as a tool for continuous improvement in physician human resources managements and quality of training. They provide relevant information for teaching hospitals to assess needs for quality improvement in postgraduate education and work environment.

#4FF10 (130545)

# **Self- and Work Director's Evaluations of Performance and Competency of Pediatric Graduates From Prince of Songkla University**

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Wassana Khotchasing

**Background:** An attempt was made to contact all 2004-2013 pediatric graduates (n = 78) from Prince of Songkla University (PSU) in order to evaluate their work performance, both in their own opinion, and in the opinion of their institute director. All 78 pediatric graduates could be located; 52 (66.7%) had found work in the public sector and 26 (33.3%) in the private sector.

**Summary of Work:** Competency/performance assessment questionnaires (10 items) were sent to both the graduates and their workplace directors. A rubric scale was used for rating each of 10 questions from 1 to 10 (1 = very poor, 10 = excellent). The workplace director was also asked to give at least 1 area in which the graduate's performance was "outstanding" and one area in which their performance could be improved.

**Summary of Results:** 45 directors (57.7%) (39 from a public sector workplace and only 6 from a private sector hospital) and 63 graduates (80.8%) returned the questionnaire.

**Discussion:** The average overall score for all competencies by both the directors and the graduates was over 8.00, with the highest rating in Ethics/morals in medical health care (9.11±0.88 by the directors and 9.01±0.92 by the graduates), and the lowest rating for "Concerns in health economics" (8.37±0.93 by the directors and 8.04±0.97 by the graduates). There were no differences in rating scores between the public and private sectors.

**Conclusion:** All of our pediatric graduates have achieved career success. We are satisfied that our program is successful, as most of our graduates are competent in their work as assessed by their directors.

**Take Home Messages:** The pediatric graduates from PSU are competent in their clinical professional practice. Their directors give more favorable ratings than the graduates.

#4FF11 (135270)

# Assessment of continuing training effectiveness

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**Background:** We understand training as investment to improve care, efficiency and management. However, very few hospitals have been successful in developing the comprehensive evaluation plan required for higher level assessment

**Summary of Work:** In 2009, Cruces University Hospital decided to implement Kirkpatrick evaluation model. First, the expected results are preset. Secondly, adequate behaviors, skills and attitudes are defined. Finally, a training scheme that guarantees trainees' involvement is designed, prioritizing relevant areas of expertise. This implied the development of our own methodological tools to assess the degree of implementation, which was analyzed in job performance, as well as the reasons why acquired knowledge was not always successfully transferred

**Summary of Results:** The percentage of professionals taking part in programs with efficacy assessment gradually increased from 8% (2010) to 36% (2014). During this period, 4,778 trainees (22.2 % of all participants) were evaluated at the level of efficacy assessment. The majority of those actions were programs related to clinical practice and safety and customer communication. Training effectiveness results: personal questionnaires (i.e. preventing pressure ulcers: 81.6%; diabetic foot-associated pathologies: 74.8%; customer communication: 83.0%), reports data sheets, laboratory reports, workplace-based assessment and risk assessment studies

**Discussion:** Effective evaluation of training design, consistency in the deployment, a gradual increase in scope, and accurate assessment tool design were identified as the key factors to the process.

**Conclusion:** Our commitment is to enhance model deployment, identifying areas for improvement and developing corrective actions, which guarantee the continuous upgrade of our evaluation procedure.

**Take Home Messages:** Effectiveness assessment is a key factor to measure the return on investment in training.

#4FF12 (133700)

# Studies completed in a model study program. And now? – Results of an alumni-survey

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**Background:** Since more than 30 years Witten/Herdecke University (UW/H) focusses on a somewhat different approach for medical education. The core themes are practical relevance and personality development trained in small groups with modern educational methods. This study should examine how the graduates perform in practice.

**Summary of Work:** An online survey with 28 questions (MCQ, short answer, Likert scales) about the satisfaction in the studies and in the job as about the career was created and sent to all 850 alumni via the alumni management system, e-mail and letters.

**Summary of Results:** 288 alumni (33.9%) answered the survey. Mean school exam grades were 1.9+0,6 and mean exam grades were 2.1+0,6. 86.3% of the alumni have experiences in foreign countries most of them in a clinical context. 76.7% are working in patient care (17% internal medicine, 15 % pediatrics, 9.5% general practice, 7.5% psychiatrics). 95.6% would again choose UW/H for their studies and felt well prepared for practice. Need for improvement was only seen in the field of training for research competencies. 95.7% are satisfied with their job; although 16.9% commit that the strains are high.

**Discussion:** Compared to the average of physicians in Germany more of the UW/H students gain clinical experiences in foreign countries and choose to work in patient care.

**Conclusion:** The special selection procedure allows different students to study medicine at the UW/H. They are able to gain experiences in several countries and a lot of them afterwards choose to work in primary care. The alumni were pleased with their studies and transferred this satisfaction into their job.

**Take Home Messages:** This model study program created the possibility to set an own focus and to educate competent physicians with a high job satisfaction.



#4FF13 (132977)

**In-Course Evaluation via Mobile Device Audience Response System – a Pilot Project in Postgraduate Medical Education at a University Children's Hospital**

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*Christoph Aebi (University Children's Hospital, University of Bern, Inselspital, Bern, Switzerland)*  
*Ara Tekian (University of Illinois, Chicago, USA)*

**Background:** Evaluation is a crucial quality improvement tool in medical education. Several factors might have hampered implementation of routine evaluation into postgraduate teaching lectures: lack of urgency, low value of feedback in general, and lack of time. Accrediting bodies will require evaluation in the near future. We aimed to implement an innovative in-course evaluation via mobile device (MD).

**Summary of Work:** Our prerequisite criteria for innovative evaluation were: evaluation should i) be anonymous and ii) available on-site in different lecture rooms; iii) take less than five minutes to complete the questions; iv) costs, as well as preparation and analysis of evaluations should be manageable and time-efficient, and v) it should allow for immediate feedback to the lecturer. We chose the gratis mQlicker web-based MD (smart phone, tablet, laptop) audience response system (ARS) for our pilot project.

**Summary of Results:** During the ongoing pilot project, six lectures by different lecturers were voluntarily evaluated via MD-ARS. A total of 107 evaluations containing 8-14 questions each were completed. Creation and analysis of different question types (check box, numbers, free text) was time-efficient and user-friendly. Anonymous log-in and completion of evaluation was easy but limited by availability (28-66%) and type of attendees' MDs. Response rates were 70-100% of attendees with MD. Attendees' satisfaction was high with 72% wanting to continue this new in-course evaluation. Immediate confidential one-to-one feedback with graphs and tables was appreciated by the lecturers.

**Discussion:** In-course evaluation was feasible via MD-ARS. Limitations applied to availability and type of MD. Only short questions can be read on the MD screen. Increased MD-ARS evaluation rates could be reached by officially asking people to bring MDs and participate in the evaluation.

**Conclusion:** Innovative in-course evaluation using MD-ARS was feasible in our setting. New technologies can help implementing evaluation without time-consuming aftermath.

**Take Home Messages:** ARS via MD can be adapted to suit in-course evaluation.

#4FF14 (133914)

**A quality improvement project to address self-identified learning needs in Urology for non-Urology trainees**

*Margaret Lyttle\*, Royal Liverpool and Broadgreen University Hospital Trust, Liverpool, UK*  
*Rebecca Bourdon- Pierre*  
*Grainne McKernan*  
*Rono Mukherjee*

**Background:** Cross cover of specialities by junior doctors is common in the UK. Trainees have less experience in Urology than other acute specialities.

**Summary of Work:** For each phase we sent SurveyMonkey questionnaires to all Foundation Year 1 and 2 doctors and core surgical trainees within our Trust (N=52). Phase 1: Self-identification of learning needs in Urology and preferences regarding the mode of intervention. Based on these results a targeted tutorial was delivered within the teaching programmes. Phase 2: Assess the perceived benefits of our intervention. Phase 3: Assess the durability of these benefits at 4 months.

**Discussion:** We identified that all non-Urology trainees in our institution felt additional training in Urology would be beneficial. We considered the self-reported learning needs to be so widespread that it constituted a patient safety issue.

**Conclusion:** Trainee self-identified learning needs can successfully be met and maintained by a targeted intervention.

**Take Home Messages:** Allowing trainees to admit learning needs, set the agenda for training and determine the teaching format results in effective and durable acquisition of skills and knowledge.

#4FF15 (134714)

**Factors Affecting Program Choice Among Physician Assistant Program Interviewees**

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Talia Sierra, Idaho State University, Caldwell, USA*

**Background:** Prospective physician assistant students consider a number of factors when choosing a program. This study aims to determine what factors have the greatest influence on a physician assistant interviewee's decision when choosing a PA program to attend.

**Summary of Work:** 286 applicants who interviewed with a physician assistant program were sent a survey which collected demographic information and asked applicants to rate 33 different factors on a Likert scale when choosing a program to attend. The responses to each of the 33 factors were averaged to determine which factors had the highest rankings and therefore were considered most influential. These results were further classified by application cycle, age, marital status and gender. At the time of completion of the survey, some respondents would have already accepted a seat in a program.

**Summary of Results:** From 124 responses, the three overall most influential categories were quality of faculty and staff, first time PANCE pass rates, and morale of faculty and staff. Results varied by populations such as marital status, age, and gender.

**Discussion:** This study highlights faculty and staff as the single most influential factor when choosing a PA program. This coincides with a similar study among pre-PA students, however the remaining factors varied significantly. Differences amongst the populations are considered.

**Conclusion:** Over time there has been a decreasing emphasis on program reputation and an increasing emphasis on the current quality of the program such as faculty, staff, and PANCE pass rates.

**Take Home Messages:** Faculty and staff have the greatest potential to draw quality students to their PA programs. PA programs may utilize this information to make their program more attractive to applicants. Applicants may utilize this information to aid them in finding a program that best fits their needs.

#4FF16 (133125)

**Graduated Medical Students' Perception on Performance of the Doctor of Medicine Program in Maharat Nakhon Ratchasima Hospital (MNRH) School of Medicine, Thailand**

*Nualpis Intarattep\*, Maharat Nakhon Ratchasima Hospital School of Medicine, Nakhon Ratchasima, Thailand*

*Surasit Chitpithaklert, Maharat Nakhon Ratchasima Hospital School of Medicine  
Sawitree Visanuyothin, Maharat Nakhon Ratchasima Hospital School of Medicine  
Panlapat Kotcharat, Maharat Nakhon Ratchasima Hospital School of Medicine*

**Background:** Maharat Nakhon Ratchasima Hospital School of Medicine has established the doctor of medicine program to serve the goal of producing a qualified doctor for rural area since 1997. Therefore the program evaluation was needed to assess the achievement.

**Summary of Work:** The evaluation study of alumni was conducted in Health Region 9, Thailand. The self-administered questionnaire had Cronchbach's alpha .926. They were distributed in 3 periods, which were 2008, 2013 and 2015 (batch 1-6, 7-9 and 10-12 respectively) via mail. Replied data were collected and analyzed by descriptive statistic.

**Summary of Results:** There were respond as followed: 64/156, 29/96 and 38/123. Five items as professionalism, communication skills, clinical skills, technical skills and quality of life were good level. However, medical knowledge, life-long learning and community- mind performance were fair to good.

**Discussion:** The perception on good performance because alumni were recruited from rural area and both community and centered hospital were set for medical learning. The context of program was not university, so this caused the 3-low items. Limitation was low response of respondents.

**Conclusion:** Alumni of Maharat Nakhon Ratchasima Hospital School of Medicine had good performance and quality of life of working in rural area. But there were rooms to improve in medical knowledge, life-long learning and community- mind.

**Take Home Messages:** The outcome assessment is necessary to evaluate the achievement of medical program.

#4FF17 (135262)

**Assessing the interns' opinion about their skill to work at Primary Care (PC) of the Unified Health System (UHS) in Brazil**

**Tatchia Poles\*, Pontificia Universidade Catolica de Sao Paulo, Sorocaba, Brazil**

*Carlos Alberto Oliveira, Pontificia Universidade Catolica de Sao Paulo, Sorocaba, Brazil*

*Fernando Almeida, Pontificia Universidade Catolica de Sao Paulo, Sorocaba, Brazil*

**Background:** The medical course of the Pontificia Universidade Católica de São Paulo (PUC-SP) started in 2006 a curricular reform introducing a new pedagogic project based on the 2001 National Curricular Guidelines for the Graduation Course in Medical Schools and centred in active methods of teaching/learning. In this curriculum, Practice in Health Attention (PHA) is a horizontal module carried out, from the first through sixth year, in several practice scenarios, prioritizing PC

**Summary of Work:** To evaluate according to the 6th year interns if the medical course, particularly the PHA, ensures the required skills to work as a generalist physician at the PC of the UHS. A structured questionnaire with multiple choice questions in Likert scale and 2 open questions was answered by 74 interns

**Summary of Results:** Participants consider that they are well prepared (58%) or very well prepared (14%) to work at the PC as a generalist, being humanistic, critic and reflexive, with skills to conduct actions in health prevention, promotion and rehabilitation according to the UHS hierarchy, and valuing multi-professional interaction

**Discussion:** Students consider as curriculum positive points: the insertion at the PC since the beginning of the course, favouring the humanization of doctor/patient relationship and the knowledge of the most prevalent diseases. As negative points they reported: inadequate structure at the PC to receive the students; they feel less prepared to solve common complaints; few activities in multi-professional teams; little knowledge about the functioning structure of the UHS and home visiting without the teacher

**Conclusion:** After the curriculum reform, interns at the end of the course feel themselves prepared and secure to work at the PC in the way proclaimed in the National Curricular Guidelines and offer critical suggestions to improve teaching/learning at this scenario

**Take Home Messages:** Last year medical students of PUC-SP consider themselves well prepared to work as generalists at PC of the UHS.

## 4GG Posters: Anatomy

Location:

#4GG01 (135166)

**Clinical Scenario as Anatomy Lab Tool for Teaching Human Neuroanatomy – Students' Perspective**

**Amna Siddiqui\*, Alfaisal University, Riyadh, Saudi Arabia**

Muhammad Faisal Ikram

Ahmed Yaqinuddin

**Background:** There is a reasonable consensus that the contextual learning fosters deep learning leading to long-term retention, which is superior to superficial learning. Therefore, we introduced clinical scenario in anatomy lab among Alfaisal University medical students aiming to generate a context to stimulate thought process and group discussion for better comprehension of the learning material.

**Summary of Work:** We introduced weekly, theme-oriented clinical cases in the anatomy laboratory session of a vertically-integrated neurosciences block. Students were given 30 minutes to dissect 2-3 cases in a group of 3-4 students. A detailed students' perspective survey was conducted after the block to identify the intervention's impact.

**Summary of Results:** With a response rate of 88%, the majority (80%) of the students appreciated the introduction of clinical cases at this early stage and agreed that cases covered the learning objectives well. Two-thirds of the participants agreed that cases were coarsely-integrated with other disciplines and assisted them in critical thinking and conceptual understanding. 90 % liked the idea of utilizing plastic models and pictures as resource material. However, 35 % of them perceived that the cases were difficult for their level and the time provided to solve the cases was not sufficient. Interestingly, 81 % enjoy the decreased participation of the facilitator.

**Discussion:** Interactive and instructional resources can be valuable recommended methods in teaching Neuroanatomy, as they enhance deep learning. However, it should be further studied by comparing between students' perceptions and achievements in the final exam, to assess detailed impact on learning process.

**Conclusion:** Most of the students found this activity encouraging as it favors deep understanding of the topic in clinical context.

**Take Home Messages:** Teaching Neuroanatomy can be more effective if solving clinical cases is given prime importance in the curricula rather than memorizing anatomical structures.

#4GG02 (135645)

**Getting to the heart of near peer anatomy demonstration: what drives demonstrator confidence?**

**Ann Griffin\*, University College London Medical School, London, UK**

Megan Griffiths

Nimesh Shah

Sarah Bennett

Alison Sturrock

**Background:** At UCL Medical School anatomy is taught to years 1 and 2 through cadaveric dissection; it is supervised predominantly by near peers (year 3 upwards) and surgical trainees. We sought to investigate the links between student tutor confidence, knowledge and teaching skill, assessing changes in these domains throughout anatomy demonstrating.

**Summary of Work:** Tutor training focused on teaching skills and student communication. Near peers and more senior demonstrators (surgical trainees, radiology trainees and researchers) filled out questionnaires before demonstrating and after 6 months of demonstrating anatomy. The questionnaire addressed teaching, anatomy knowledge and confidence in teaching, utilising Likert scales and white space questions.

**Summary of Results:** Pre-demonstrating questionnaires were filled by 94/94. Confidence in anatomy demonstrating showed a strong correlation to anatomy knowledge (Pearson=0.332,  $p=0.001$ ) but no correlation to level of teaching experience ( $\rho=0.062$ ,  $p=0.552$ ). Inadequate anatomy knowledge was the primary concern expressed in 60/94. Further data on knowledge, skill and confidence is being collected.

**Discussion:** Many UK near peer programmes aim to improve teaching skills in line with GMC recommendations in 'Tomorrow's Doctors'. These results suggest that confidence in anatomy demonstrating is intricately linked to perceived anatomical knowledge with teaching experience having little effect on tutors' expressed anxieties.

**Conclusion:** Near peers and surgical trainees represent a valuable resource for anatomy demonstration. For mutualistic development of the tutor and tutee both teaching skills and anatomy refreshers are advisable. Data collection regarding the effects of participation in this programme is ongoing. Full results will be available for discussion

**Take Home Messages:** 1. Near peers and surgical trainees represent a valuable resource for anatomy demonstration. 2. Their confidence and anxieties are predominantly driven by perceived lack of anatomical knowledge. 3. By better supporting our tutors with their anatomy and teaching knowledge, we can make out near peer demonstrating programmes more successful.



## #4GG03 (135832)

### Improving teaching quality in anatomy by training of teaching assistants

**Ellen Johansson\***, *Institute of Biomedicin, Gothenburg, Sweden*

**Tobias Holmin** (*University of Gothenburg, Gothenburg, Sweden*)

**Bengt R Johansson** (*University of Gothenburg, Gothenburg, Sweden*)

**Magnus Braide** (*University of Gothenburg, Gothenburg, Sweden*)

**Background:** In Gothenburg, medical students during their training in anatomy receive teaching performed by anatomy teaching assistants (TAs). Until a few years ago TAs did not have any special training as preparation for their teaching tasks. We therefore developed a continuation course in anatomy (comprising 7.5 higher education credits) to provide TAs with better knowledge in anatomy and teaching skills. Today all TAs take this course in which they study surface anatomy, perform dissections and are trained in small group teaching.

**Summary of Work:** To evaluate the effects of the continuation course, we compared the results from anatomy students' ranking of small group teaching by TAs before and after the introduction of the continuation course. We also interviewed students that had taken the course to better understand which parts of the course were useful for their teaching.

**Summary of Results:** The overall judgment of TAs' teaching after the introduction of the continuation course increased from 58 to 70 out of 100 ( $p < 0.0001$ ) and the variance in rankings decreased from 27 to 20 ( $p < 0.00002$ ). The TAs described that the course had provided them with better knowledge and with tools for teaching. They also described a sense of cohesiveness and of being important, since the institute invested in an extra course for them.

**Discussion:** Our results show a noteworthy and statistically significant improvement in the quality of the small group teaching performed by TAs. In addition, the variance in rankings has decreased, indicating a more even quality of teaching. The improved sense of cohesiveness is likely due to the fact that the TAs got to know other teachers of the institute better during the course.

**Conclusion:** Trained TAs perform better teaching. This sort of investment in the TAs boosts their confidence as teachers and gives them an important sense of cohesiveness.

**Take Home Messages:** Continued education for TAs improves quality of anatomy teaching!

## #4GG04 (134931)

### Cadaveric dissection versus plastic models and 3D anatomy computer software: Which is the best method for teaching human upper limb musculoskeletal anatomy?

**Vasileios Mitrousias\***, *University of Thessaly, Larissa, Greece*

**Aristeidis Zibis**

**Background:** To examine which method is best for teaching human upper limb musculoskeletal anatomy, when comparing training with dissection of cadavers to the use of plastic anatomy models and 3D anatomy computer software.

**Summary of Work:** The study was conducted in two consequent semesters. Overall, four groups of 1-year medical students of the University of Thessaly, without previous knowledge of anatomy, were compared. In the first group, 28 students were trained in the anatomy of the upper limb using lectures and cadaver dissection in the lab. In the second group, 27 students were trained using the same means except for the cadaver dissection, which was replaced by the study of plastic anatomy models. In the second semester, two more groups were compared. The first group (41 students) was trained using cadaveric dissection and the second group (32 students) using a 3D computer anatomy program. An anonymous examination was held after the end of the educational process. All students also fulfilled an anonymous questionnaire, evaluating their method of training. Anova and bonferoni t-test were used for the statistical analysis.

**Summary of Results:** Students trained with 3D computer software had a better performance in the exams comparing to students using dissection ( $p = 0.001$ ) and plastic models ( $p < 0.001$ ). Additionally, dissection seems to have a significant superiority as a training method comparing to plastic models ( $p = 0.001$ ), based on students' performance in the examinations.

**Discussion:** 3D computer programs seem to be more efficient from both dissection and plastic models. Dissection is still the most commonly used and most preferred method of training.

**Conclusion:** 3D computer programs can be used for teaching human upper limb musculoskeletal anatomy with better results compared to dissection and plastic models.

**Take Home Messages:** New technologies, such as 3D anatomy computer programs are gaining popularity and seem to be efficient enough to be used as a part of a typical medical education curriculum.

#4GG05 (135804)

**What role does the new interactive educational tool NearPod have in small group anatomy teaching at medical school?**

**Tom Dalton\***, Brighton and Sussex Medical School, Brighton, UK  
Alex Witek

**Background:** In recent years a number of technological applications have been developed for use in the educational setting, with NearPod being the one we looked at in this paper. NearPod allows a teacher to create a multimedia presentation then share it with a group of students whilst controlling the pace of the activity. It can also contain interactive quizzes from which responses can be reviewed and monitored.

**Summary of Work:** Our research used NearPod presentations in two small group teaching sessions for all Year 1 medical students at Brighton and Sussex Medical School: one to give a tutorial on heart embryology and a second session of a quiz of all aspects of thoracic anatomy. The tutorial session has previously been delivered using a more didactic method and Powerpoint, and the quiz has previously been given by writing down the answers on paper then reviewing results as a group. We gauged the response from both students and the tutors delivering the teaching with a questionnaire containing one open and six five-level Likert scale questions.

**Summary of Results:** Students found NearPod easy to log-on to, navigate and enjoyed the interactive elements. Tutors found the set-up and technical aspect of using NearPod slightly more difficult than the students, but thought that it helped their delivery of both a teaching session and a class quiz and provided valuable real time feedback of class performance.

**Discussion:** NearPod is an intuitive tool for students and was appreciated by a cohort of medical students of a wide range of ages and backgrounds. NearPod is limited to four types of interactive slides, which requires the material to be adapted to fit NearPods structure. We found NearPod was unable to provide students with confidential and detailed information on their performance to classmates which lead to them rating it least useful in this domain.

**Conclusion:** NearPod is a useful tool for improving the interactivity of a teaching session and for assessing students performance. We have identified its strengths and some areas where it could be improved.

**Take Home Messages:** Our feedback showed that students found NearPod a useful tool for delivering small group teaching sessions, enjoying particularly the interactive nature of it.

#4GG06 (135497)

**Interdimensional transitions in understanding between 2D clinical images and 3D anatomy**

**Iain Keenan\***, Newcastle University, Newcastle upon Tyne, UK

Megan Powell (School of Medical Education, Newcastle University, Newcastle upon Tyne, UK)

Gokulan Suthermaraj (School of Medical Education, Newcastle University, Newcastle upon Tyne, UK)

Masashi Stokoe (School of Medical Education, Newcastle University, Newcastle upon Tyne, UK)

**Background:** Application of anatomical knowledge to clinical image interpretation is a crucial skill. We propose that the ability to transform understanding by mentally switching between 2D images and 3D anatomy is a critical threshold concept for medical students and that this transition can be supported with modelling and drawing activities.

**Summary of Work:** We have identified medical student visuospatial ability, demographic data and their perceptions of their own learning and understanding of anatomy and clinical image interpretation with respect to an anatomy practical that included a supplementary drawing and modelling component in comparison to a session with an anatomy spotter activity.

**Summary of Results:** We show that many students consider interpreting anatomical features in cross-sectional images to be a difficult skill, that the interdimensional mental transition is a challenging aspect of this process and that students found that using artistic methods had improved their ability to interpret cross-sectional images by supporting the interdimensional transition.

**Discussion:** Following our findings, based on student perceptions, that the interdimensional transition is important for medical students, we aim to demonstrate experimentally that artistic learning methods can improve anatomy knowledge and clinical image interpretation through supporting understanding of the interdimensional mental transition.

**Conclusion:** The interdimensional mental transition is an important process for medical students during the development of their understanding of anatomy and clinical image interpretation. Artistic methods or similar activities could be incorporated into medical and anatomy curricula at an early stage to allow students the opportunity to bridge this threshold.

**Take Home Messages:** The ability to mentally switch between thinking in two and three dimensions is an important concept for medical student learning of anatomy and clinical imaging that can be supported through the use of drawing (3D-2D) and modelling (2D-3D).

#4GG07 (134334)

### 3D Printed Models in Anatomy Teaching and Learning

*Sreenivasulu Reddy Mogali\*, Lee Kong Chian School of Medicine, National Technological University, Singapore, Singapore*

*Michael Ferenczi, LKCM, NTU, Singapore*

*Dinesh Srinivasan, LKCM, NTU, Singapore*

*Gerald Jit Shen Tan, TTSH, Singapore*

*Heang Kuan Joel Tan, MAE, NTU, Singapore*

*Wai Yee Yeong, MAE, NTU, Singapore*

**Background:** Anatomy is a keystone of medical curricula. Traditionally, learning anatomy has been dissection or prosection based. However increasing number of medical schools across the world have limited or no access to cadavers as a mean to provide hands-on practice and for learning the three-dimensional organization of the body. The lack of effective alternatives may lead to deficiencies in students' understanding of anatomical relations. In recent years, advances in 3D printing technologies have been applied to medical education but little research has explored its impact on anatomy teaching.

**Summary of Work:** In collaboration with the Tan Tock Seng Hospital and Singapore center for 3D printing, we have scanned (CT scan) plastinated specimen of the upper limb and CT images converted into 3D printed models. The models were then piloted in anatomy teaching at the LKCMedicine as an optional and voluntary learning activity. Student opinion and their learning experience using 3D printed models were evaluated using a questionnaire and focus groups.

**Summary of Results:** Using a qualitative approach, questionnaire and focus groups discussion with medical students, we conducted a study to evaluate several aspects of the use of 3D printed models. First the quality of anatomical features in 3D printed models was compared with the existing plastinated specimens/plastic models. Secondly, the 3D printed models ability to provide meaningful hand-on practice in relation to the plastinated specimens was investigated. Finally the students' learning of the three dimensional anatomical organization and relation using 3D printing models was explored.

**Discussion:** The analysis of the focus group discussions and questionnaires showed promising results in terms of the effectiveness of 3D printing models as an alternative to traditional approaches to anatomy teaching.

**Conclusion:** 3D printed models could be an excellent teaching tool and useful adjunct to the plastinates/prosected specimens.

**Take Home Messages:** 3D printed models might play an important role in future anatomy teaching as well as in surgical training.

#4GG08 (134025)

### Medical student retention of anatomical knowledge in a longitudinal case-based anatomy program

*Jennifer McBride\*, Cleveland Clinic, Cleveland, USA*

**Background:** Medical education is transitioning from a teacher to student-centered approach. With this change, it must follow that presentation of content and overall course structure will occur. The anatomical sciences are particularly effected by these changes from a perspective of course hours and variety of educational activities available to the students. An important issue accompanying these changes is the level of knowledge retained by students after participating in these newly structured learning environments.

**Summary of Work:** The following discusses the level of anatomical knowledge retained by medical students as they transition from years 1-4 of an anatomy curriculum with instructional hours (~60) less than half of the current national average. Medical students voluntarily completed an assessment tool at the beginning of the first year, end of the 1st, 2nd, 3rd, and 4th years to assess their retention of anatomical knowledge during medical school.

**Summary of Results:** Results indicate that while students began with a low level of anatomical knowledge (baseline), their knowledge increased after the first year ( $P < 0.001$ ), continued to increase after their second year ( $P < 0.001$ ), showed a small drop after the third year, but was over 90% maintained through years 3 and 4.

**Discussion:** Retention of knowledge is a pervasive topic of discussion in the field of medical education. A review by Custers, addresses various aspects of this issue from a historic perspective, and by comparing retention of knowledge in general education to retention of basic science knowledge in medical education (Custers, 2010). Overall, loss of basic science knowledge appears to be subject based and largely dependent on the initial instructional methods used.

**Conclusion:** In conclusion, in this era of curricular reform and program innovations, an anatomy program with reduced hours (~60), utilizing active learning methods, contextual learning, cadaver demonstrations, increased exposure to imaging, and longitudinal reinforcement can provide students with a strong foundation of anatomical knowledge.

**Take Home Messages:** This longitudinal study provides evidence that a shortened course, utilizing a non-traditional teaching formats, can provide medical students with a solid foundation of knowledge to draw from throughout their educational program.

#4GG09 (133688)

**The Visualization Table - a New Tool for Students to Understand Anatomy through Radiological Images**

*Alexander Biskup\*, Linköping University, Linköping, Sweden*

*Christina Bendrik*

*AC Persson*

*Nils Dahlström*

**Background:** The Visualization table (VT) was introduced at Linköping University 2012. The VT consists of a large touch screen connected to a software for real-time interaction with three-dimensional image data generated from CT or MRI examinations. The VT has been implemented into the curricula of six study programs at the Faculty of Medicine and Health Sciences. More than 2000 undergraduate students have used the table for teacher-led sessions, self-studies not included.

**Summary of Work:** A number of modules were developed to fit into different study programs' objectives thereby reflecting different approaches to medical sciences. For example, the neuromorphology module that was developed for medical students combines studies of 3D MRI-images with brain dissections and demonstration of histological samples of brain tissue. Group-sessions and PBL-tutorials were used as the main teaching method. Students had free access to the VT for self-study.

**Summary of Results:** To evaluate the VT various data collection methods were employed. Altogether data show that students appreciate the table for its pedagogic advantages such as: the motivating "wow-effect" of 3D, the realism and that small structures are easily visualized, the interactive touch function, the opportunities for repetition etc. The table seems to promote group dynamics resulting in reflective discussions about anatomic structures, physiological functions and clinical applications. Most students, however, say that they would not want to leave out dissection as it offers additional aspects.

**Discussion:** We have found the VT to be a powerful tool to improve students' understanding and interest in both anatomy and pathology. It is worth noting that teacher involvement in the production of well-functioning learning material is crucial and time-consuming. Nevertheless, it is well worth the effort as it literally gives the students a new perspective on the human body.

**Conclusion:** The VT is a dynamic complement to traditional anatomy teaching highly appreciated by students.

**Take Home Messages:** Early adopters are crucial! Things take time!

#4GG10 (133502)

**Student leadership in the organisation of anatomy TAs**

*Hanna Erlandsson\*, University Of Gothenburg, Göteborg, Sweden*

*Teodor Svedung Wettervik*

*Kjell Olmarker*

*Ellen Johansson*

*Magnus Braide*

**Background:** Anatomy teaching assistants (TA) are medical students with in-depth knowledge in anatomy who work as near-peer teachers. At Sahlgrenska Academy TAs perform most of the medical students' education in surface anatomy, demonstrations of dissected cadavers and anatomical imaging (Sectra Visualization Table). An efficient TA organisation is necessary to achieve excellent educational quality. Sahlgrenska Academy decided to let us two medical students as chiefs of TAs lead, develop and administer the TA organisation.

**Summary of Work:** As chiefs of TAs we have investigated the main challenges of assistants' teaching by looking at the course evaluations, talking to fellow students, TAs and course leaders of the anatomy courses. Based on the investigation we have proposed a new anatomy TA organisation.

**Summary of Results:** We established two visions of the TA organisation. Our external vision was to create high educational quality in anatomy for life and for the exam. Our internal vision for the TAs was to make students immerse themselves in anatomy and teaching. Hence we found a need for increased formal quality standards and to reduce the number of TAs so that each TA performs a minimum amount of lessons. As for the TAs, it was important to develop a fair way to distribute the various anatomy lessons and to arrange an online platform with the necessary documents for the teaching assignments.

**Discussion:** Important for identifying these changes was our multiple roles as still students, TAs and chiefs of the TA organisation. This enabled us to lead the organisation taking into consideration the different perspectives.

**Conclusion:** Student leadership in anatomy organisation creates a link between students, TAs and the academy. This link brings the important perspectives together: to develop the TA organisation for better educational quality.

**Take Home Messages:** Student leadership may be the link of perspectives that improves the organisation of anatomy TAs and increases educational quality.



#4GG11 (134585)

**Formaldehyde measurement and the effect on the second year medical student during gross anatomy laboratory**

**Nantawan Soonklang\*, Thammasat University, Patumthani, Thailand**

*Naruwan Saowakon, School of Anatomy, Institute of science, Suranaree University of Technology, Thailand*

**Background:** In gross anatomy laboratory, the second year medical student may have a higher risk of exposure to formaldehyde that emitted from the cadavers during dissection. This study aimed to measure the formaldehyde inhalation in indoor air and breathing zone of the second year medical student during gross anatomy laboratory. Clinical symptoms from the second year medical student during class of gross anatomy were also determined.

**Summary of Work:** Indoor air samples were taken from the center and at the four corners of the laboratory during dissection class. Personal air samples in breathing zone were collected three times during anatomy dissection classes with sorbent tubes. Formaldehyde analysis was performed according to the NIOSH 2016 protocol. Clinical symptoms were also recorded by a self-report questionnaires.

**Summary of Results:** The mean of formaldehyde concentrations ranged is 0.117 to 0.415 ppm in the indoor air and 0.147 to 0.980 ppm in breathing zone of the students. Clinical symptoms that were observed included unpleasant odor, general fatigue, dizziness and headache, burning eyes and burning nose.

**Discussion:** The means of formaldehyde concentrations in the breathing zone of the students were significantly higher than those means of concentrations in the indoor air ( $p < 0.05$ ). The modified exhaust ventilation would be improved and reduce the formaldehyde inhalation during gross anatomy laboratory. The protective medical appliances can help to reduce the clinical symptoms, especially activated carbon mask, eyes goggle.

**Conclusion:** The means of formaldehyde concentrations in the breathing zone of the students were significantly higher than those means of concentrations in the indoor air ( $p < 0.05$ ). Clinical symptoms that were observed included unpleasant odor 52.5%, general fatigue 50%, dizziness and headache 41.25%, burning eyes 37.25% and burning nose 31.25%.

**Take Home Messages:** The modified exhaust ventilation would be improved and reduce the formaldehyde inhalation during gross anatomy laboratory by changing the embalmic chemicals, either perfusing bodies with a less noxious fixative that contain less formaldehyde.

#4GG12 (133454)

**Integration of photogrammetry as an innovative and interactive teaching tool in anatomy**

**Lauren Fisher\*, University of Liverpool, Liverpool, UK**

**Background:** An increase in student numbers requiring tailored anatomical teaching, inclusive of clinical relevance and incorporating advances in technology within the field, has led to a review of the methods of delivering effective anatomy teaching at the University of Liverpool.

**Summary of Work:** Using Aigsoft PhotoScan, a professional photogrammetry tool, we created 3D 'virtual prosections' of viscera within the thoracic region (heart and lungs), and considered the accuracy of the software in depicting anatomical structures in the generated 3D model compared with the prosection, as well as the acceptance and effectiveness of this as a teaching tool from a staff and student perspective.

**Summary of Results:** The 'virtual prosections' created using this tool were of a high quality and offered sufficient anatomical detail and interaction to be used as an alternative teaching tool to prosections, which aren't always available for all student groups.

**Discussion:** Photogrammetry is used widely in the field of medicine for the planning and monitoring of therapeutic treatments. With advancements in computer software, the accuracy and automation of the process has led to increases in the use of photogrammetry for reproducing 3D images with intricate detail in a number of fields. Our study shows its potential as a teaching tool in anatomy.

**Conclusion:** With the potential to integrate photogrammetry into anatomical teaching for a number of student cohorts across medicine and health sciences, we can cater for and deliver relevant teaching to larger cohorts of students and use the method to produce a 'virtual pathology laboratory' as we encounter human specimens of clinical interest.

**Take Home Messages:** Finding alternatives to teaching anatomy with human cadaveric specimens is an important step in moving forward with technological advances and enabling larger numbers of students to study relevant anatomy in a system which is under pressure in relation to time and space for teaching.

#4GG13 (132801)

**Integration of endoscopic application to teach human gastrointestinal tract anatomy for 2nd year medical students**

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**Background:** Major problem of medical students is can't identify the gross anatomy and correlation them with real clinical practice. Endoscopy is a standard diagnostic tool for gastrointestinal tract diseases and used widely in clinical practice. The aim of our study, to evaluate the effect of Integration of endoscopic application to teach human gastrointestinal tract anatomy for 2nd year medical students in an institute of medicine, Suranaree University of Technology.

**Summary of Work:** A total 80 2nd year medical students were enrolled in the study from October 2015 to December 2015 at the Institute of Medicine, Suranaree University of Technology, Nakhon-Ratchasima, Thailand. We design the endoscopic applications (esophagogastroduodenoscopy and colonoscopy application) and used them to teach human gastrointestinal tract anatomy for 2nd year medical students. End of the class, our evaluation of 80 returned questionnaires. The percentages of each questionnaire were calculated and compared by Student's t tests between pre and post class. A P-value of  $< 0.05$  was considered significant.

**Summary of Results:** Anonymous evaluation of 80 2nd medical students (male 24, female 56) returned questionnaires (100% response rate) showed that more than 80% of respondents considered the session had stimulated and improved their understanding of human gastrointestinal tract anatomy. When compared pre and post class, the result show that significantly improve their understanding of human gastrointestinal tract anatomy ( $p < 0.01$ ).

**Discussion:** mostly of 2nd medical students improve knowledge and understanding of human gastrointestinal tract anatomy after evaluation by questionnaires. Endoscopic application is the best teaching tools that can integration teach the Pre-clinic medical students.

**Conclusion:** Integration of the endoscopic applications to teach human gastrointestinal tract anatomy can improve their understanding gastrointestinal tract mucosa anatomy, interesting to topic, good organization, learning the clinical relevance of anatomy and pathology and future direction to learning about anatomy and physiology to medical students.

**Take Home Messages:** How to use the endoscopic application to teach human gastrointestinal tract anatomy?

#4GG14 (134056)

**Project-based learning: a learning tool for undergraduate veterinary medicine students studying anatomy**

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**Background:** In order to develop graduates who are lifelong learners and who are competent in problem-solving in profesional environments, it is important to strengthen students' academic preparation starting in the first year of their studies. For this reason, we implemented pedagogical innovations in anatomy, a first-year core course for the veterinary medicine degree that historically has seen high failure and dropout rates. We selected project-based learning (PBL) as the active learning methodology we would use to improve this course.

**Summary of Work:** PBL was implemented in the practice-based section of the course in 2014 ( $n=109$ ) and 2015 ( $n=134$ ). At the beginning of the semester, the students worked in teams to select an object to use in the clinic (e.g. syringe, intravenous catheter, etc.). They analyzed the object, associated it with a domestic species and an anatomical region, and designed and presented a final product such as a video or simulator.

**Summary of Results:** The satisfaction survey indicates that more than 80% of students prefer active learning classes compared to lecture-based ones. In addition, 66% and 86% of students indicate that PBL allowed them to improve their understanding of theoretical content for 2014 ( $n=96$ ) and 2015 ( $n=117$ ), respectively. The self-assessment demonstrates that over 80% of the students (2014,  $n=100$ ; 2015,  $n=126$ ) felt they were responsible with the project, that they conducted research, and that they developed their autonomous learning skills. After two years of implementing PBL, student dropout has decreased by 15% and failure rates have decreased by 21% in the course.

**Discussion:** The results demonstrate that students prefer active learning activities such as PBL because they motivate students in the learning process and provide opportunities to develop skills related to autonomous learning, responsibility, and group work.

**Conclusion:** Project-based learning generated positive effects helped to improve failure and drop-out rates.

**Take Home Messages:** Grant from FIAC UAB1102

#4GG15 (126470)

#### Small group discussion in gross anatomy

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**Background:** The same procedure does not apply in anatomy teaching for medical students in recent decades. There are some debate on which teaching methods of anatomy is most useful. Small group discussion (SGD) were used to working together, integral to learning developing intellectual skills and interactive learning experience

**Summary of Work:** The 72 first students for anatomy course were randomly assigned to either small group discussion (SGD) or lecture based teaching (LBT) in 2011. A pre-test and two of post-tests (beginning; 9-week; 16 -week) were used to assess anatomy knowledge. The questionnaires were designed to collect the attitudes of the students.

**Summary of Results:** The independent t-test showed an increased of the mean score of trunk anatomy from the ninth week from the SGD compared the LBT groups ( $17.9 \pm 2.2$ ,  $n=33$  vs  $15.3 \pm 1.1$ ,  $n=35$ ) and sixteen week ( $17.5 \pm 1.2$ ,  $n=31$  vs  $14.3 \pm 3.2$ ,  $n=32$ ). Based on questionnaires data, SGD improve effective interactivity (87.85%).

**Discussion:** In the SGD students have opportunity to working together and practice course concepts during class-time. They active participation in class and improve the attitudes of students toward the friends, teachers and class.

**Conclusion:** The SGD creating more collaboration, good performance, active participation, improves the anatomy knowledge and attitudes of students. Result of this study suggested we will use of this teaching strategy in our university

**Take Home Messages:** SGD creating a favorable learning space for medical student to improve knowledge and attitudes compared to the LBT.

#4GG16 (135067)

#### Attitudes of medical students from the Faculty of Medicine, Vajira Hospital, Navamindradhiraj University, toward cadaveric dissection

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**Background:** The objective of the current study is to assess the attitudes of first-, second- and third- year medical students in preclinical years at Navamindradhiraj University toward embalmed cadaveric dissection. In response to the recent increase in adoption of the virtual 3D cadaver technique for interactive anatomy education, the university plans to adopt this practice for future teaching using own staff. Thus, it is necessary to collect feedbacks from current medical students to make an informed decision for an effective curriculum review.

**Summary of Work:** A questionnaire instrument was used to collect data from 192 students across the three years toward embalmed cadaveric dissection. The question focused on students' reactions, concerns, coping strategies as well as their response to teaching methods.

**Summary of Results:** There were significant differences ( $P < 0.05$ ) among different academic year of medical students. For the first year students, scared and anxiety were found to be significantly higher than those of the second- and third-year students. Further, differences were pronounced between male and female students. Female students demonstrated that more concerns about genitalia than male students ( $p < 0.05$ ). The most frequent reactions among students to dissection were those of dizziness 18.82% and recurring images of cadavers 12.16%. The most frequent method of coping with stress was through rationalization 27.07%. In term of responses to current teaching methods, the overall rating of dissection ( $4.34 \pm 0.79$ ) was found to be significantly higher than through the use of textbooks ( $4.04 \pm 0.89$ ) and prosection ( $3.98 \pm 0.85$ ) ( $p < 0.001$ ).

**Discussion:** While results of the study indicate that active dissection remains a popular activity among medical students, they nevertheless require psychological preparation prior to such engagement. As a result, it is crucial that preclinical students receive appropriate supports from the teaching staff.

**Conclusion:** The outcomes from this study contribute to the pedagogy of cadaveric dissection within the medical school curriculum.

**Take Home Messages:** Cadaveric dissection remains relevant to medical student training. Providing students with psychological supports can potentially enhance their learning activity.

#4GG17 (131880)

**Feasibility of Three-Dimensional Printing of an Inguinal-Canal Model for Learning Anatomy**

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Robert J. Funnell (McGill University, Montreal, Canada)

**Background:** Teaching and learning anatomy is traditionally done using cadavers and illustrations. Prior research has been conducted regarding the effectiveness of computer-based 3-D models among students and has proven to be beneficial. One step further, 3-D printing technology allow physical manipulation of easy to reproduce models of anatomical structures.

**Summary of Work:** This research project assessed the feasibility for students to generate their own learning tool using 3-D printing. Using several advanced features in model-generation freewares as well as a 3-D printer, five subsets of the inguinal canal were printed by deposition of thermoplastic.

**Summary of Results:** In this project, we have refined and greatly improved an existing inguinal-canal model and have successfully repaired all of the problems that would prevent 3-D printing. Additionally, five subsets were created, 3-D printed, and painted using an all-purpose, water-based acrylic paint, to represent the different structures of the inguinal canal.

**Discussion:** The 3D printing technology can ensure the standardization in teaching, which study on dissections cannot offer. In addition, unlike plastic models which are commonly used in high schools despite their “hypothetical” and “caricatured” nature, the 3D printed models offer great accuracy and great level of details.

**Conclusion:** Over the course of eight weeks, we have refined an existing anatomical model and successfully 3-D printed several of its structures. We have concluded that there is a potential for students to generate a model and 3-D print it for further use as a learning tool.

**Take Home Messages:** The use of 3-D printing can help creating an innovative and anatomically accurate teaching tool to engage students and help them build 3D mental maps of the human body. Printing is rapid and affordable. Students could subsequently paint them appropriately to give them an anatomically correct representation.



## 4HH Posters: Undergraduate Communication Skills

Location:

#4HH01 (134982)

**Impact of communication skills training for medical students in the practice of comprehensive care**

**Rosa Malena Delbone de Faria\***, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil

Josemar Moura (UFMG, Belo Horizonte, Brazil)

Taciana Soares (UFMG, Belo Horizonte, Brazil)

Eliane Moura (Uifenas, Belo Horizonte, Brazil)

**Background:** The comprehensive care emphasizes the doctor's attentive listening regarding the patient unique perception about his illness. It is a challenge faced by educational institutions and researchers trying to help students to develop educational skills that adds knowledge, skills and attitudes.

**Summary of Work:** Based on comprehensive care, we conducted a pioneer strategy in our medical school using communication skills training as lecture, video, new registration model and simulated consultation with 46 medical students and evaluated the impact of communication skills training in comprehensive care practice (CAPES-PE-1606/2011). The study had four phases: 1: clinical consultation videotaped in a simulated environment with current registration model performed by 46 students. 2: students were divided into three groups: G1 underwent lecture without reflection on clinical care; G2 and G3: underwent communication skills training (video, lecture and discussion) based on comprehensive care. 3: clinical consultation videotaped in a simulated environment performed by all groups: G1 and G3 used the new registration model; and G2 current registration model. 4: G1 undergo communication skills training (video, lecture and discussion) and G2 underwent lecture without reflection on clinical care. The tapes were evaluated by three judges taking into consideration: start of the consultation; patient expectations about the consultation; patient's perspective on his illness; use of complementary investigation; therapeutic alliance using nominal and categorical scales.

**Summary of Results:** The total score of positive attitudes of each group was higher in phase 3 than phase 1 ( $p=0,001$ ), but there was no difference between groups in each phase ( $p>0,310$ ).

**Discussion:** All the interventions had a positive impact on the performance of students during the medical consultation. However there was no difference in relation to the intervention used.

**Conclusion:** Communication skills training strategies improve the student performance in consultation, considering the comprehensive care.

**Take Home Messages:** Communication skills training based on comprehensive care must be considered in the curriculum of medical schools.

#4HH02 (126644)

**Effects of micro- and subtle-expression reading skill training in medical students: a case-control study**

**Sang Yeoup Lee\***, Pusan National University School of Medicine, Yangsan, Gyeongsangnam-do, South Korea

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Sun Ju Im

So Jung Yun

Sun Yong Baek

Sun Hee Lee

**Background:** Teaching and assessing communication skills is an important component of medical school curricula. This study was undertaken to investigate the effectiveness of the Micro Expression Training Tool (METT) and the Subtle Expression Training Tool (SETT) to help improve the non-verbal communication skills of medical students.

**Summary of Work:** In a case-control method, all participants were pre-tested at the same time. Then, 41 training students took second METT and SETT tests after a 1-hour class about interpreting micro and subtle expressions and 41 control students took the second tests without attend the training class.

**Summary of Results:** Training and control groups were comparable for all variables. METT pre-test scores were positively related with female gender ( $r=0.329$ ,  $p=.003$ ), agreeableness ( $r=0.242$ ,  $p=.030$ ), whereas SETT pre-test scores were negatively related with age ( $r=-0.277$ ,  $p=.012$ ) and positively related with female gender ( $r=0.372$ ,  $p=.001$ ).

**Discussion:** METT score increases of 29.3% and SETT score increases of 36.2% were observed after training, whereas the control group achieved only METT score increase of 11.0% at second testing. Increases in METT and SETT scores in the training group were higher than in the control group.

**Conclusion:** METT and SETT are effective, simple tools for improving the micro- and subtle-expression reading skills of medical students.

**Take Home Messages:** Communication skills are an important component of medical school curricula. METT and SETT improve micro- and subtle-expression reading skills in medical students. METT, SETT may be useful in implementing curriculum for teaching medical interviewing.

#4HH03 (134805)

**Faculty Training in Communication skills using a Blended-Learning Model with Doc.Com in Brazil**

*Gustavo Salata Romão\*, University of Ribeirao Preto, Ribeirao Preto, Brazil*

*Suely Grosseman*

*Reinaldo Bulgarelli Bestetti*

*Lucélio Bernardes Couto*

**Background:** Family Health Strategy expansion in Brazil requires healthcare professionals committed to patient care and needs and who provide effective communication. In medical courses responsibility for communication skills training often falls to a multidisciplinary group of faculty who lack a common model for this purpose. The challenge was to train the primary care faculty in communication skills using a blended-learning model.

**Summary of Work:** Eight primary care teachers (five general practitioners and three nurses) participated in a one month training program using the Doc.Com program, a web-based resource including videos demonstrating interactional skills in encounters with standardized patients. During a two-week period participants individually accessed two modules of Doc.Com. and subsequently participated in a face-to-face role playing activity where teachers alternated their roles as doctors, nurses, patients or observers in simulated situations related to communication skills. After the role-playing participants expressed their perceptions about the activity in a semi-structured questionnaire.

**Summary of Results:** For most participants the training program resulted in the acquisition of new skills (87.5%) that could be applied in their working environment (75%) and the methodology facilitated the training (75%). The general practitioners highlighted the applicability of the inverted cone strategy in patient interviews. The nurses pointed out that these skills would be very useful for students in the context of home visits.

**Discussion:** The blended-learning model, using translations of Doc.com modules followed by a role playing, was considered very useful by the primary care faculty. Furthermore, the nurses involved in the pilot study intend to implement new skills during home visits. These outcomes demonstrate the value of the faculty training program in communication skills for primary care teachers.

**Conclusion:** The blended-learning model for communication skills training is useful and satisfactory in primary care.

**Take Home Messages:** Blended-learning is an effective strategy for communication skills training.

#4HH04 (134690)

**Communicating with patients with a disability: an example of skills teaching for medical students**

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*Lance Watkins (Princess of Wales Hospital, Bridgend, UK)*

*Robert Colgate (Princess of Wales Hospital, Bridgend, UK)*

**Background:** According to the World Report on Disability, physicians worldwide lack training about caring for and communicating with people with disabilities. This may compromise their health care experience and health outcomes. Most UK medical school curricula do not feature a dedicated disability component.

**Summary of Work:** A pilot program was initiated at a Welsh District General Hospital. Third year medical students attended three sessions; theory in week one; a practical session in week two using actors with learning disability (LD) from a local acting academy to role-play clinical consultations, and teaching on hearing impairment with tutors from Action on Hearing Loss in week three. Surveys on knowledge and skills were completed by students before and after the program. Students were also invited to participate in a focus group to explore their learning experience.

**Summary of Results:** The surveys were completed by 23 students. Students self-rated various competencies surrounding communication with LD patients as 1 (unaware), 2 (aware), 3 (informed), 4 (capable) or 5 (recognised). Descriptions of each level were provided. Students scored an average of 11.2 out of 30 in the initial self-assessment and an average of 22.0 out of 30 in the follow up questionnaire. This represented an average improvement of 116%.

**Discussion:** Our results demonstrate a marked improvement in student confidence levels. Focus group comments indicated that students found the teaching valuable because it was interactive and took place in a safe controlled environment.

**Conclusion:** Students enjoyed the opportunity to practice a variety of skills which are relevant to everyday communication with LD and hearing impaired patients. Self assessment of those skills improved after the intervention. We hope to extend the pilot to all medical students in Wales.

**Take Home Messages:** Teaching on communication skills for patients with disability should be more widely available at undergraduate level to help address healthcare disparities in this patient group.

#4HH05 (135525)

**Improving communication skills with the McGill Illness Narrative Interview**

*Alicia Navarro de Souza\*, Federal University of Rio de Janeiro, Rio de Janeiro, Brazil*

*Helio Antonio Rocha (State University of Rio de Janeiro, Rio de Janeiro, Brasil)*

*Daniela Freitas Bastos (Federal University of Rio de Janeiro, Rio de Janeiro, Brasil)*

**Background:** The communication in medical practice is frequently considered a skill to extract from and give information to patients. Words like “explain”, “conduct”, “pass”, “convey”, express how professionals can use their authority in medical-patient relationship in an asymmetrical way. The development of communication skills implies to achieve the competence to deal with patient’s narratives and psychosocial demands. The McGill Illness Narrative Interview (MINI) is a semistructured protocol, used to approach illness experience in health research that could be useful in clinical practice, helping students and professionals to develop communication skills.

**Summary of Work:** During rural Family Medicine internship, 22 students were trained to apply the MINI. Family medicine team selected patients with noncompliant behavior and medical unexplained symptoms. 58 interviews were recorded and examined using thematic analysis.

**Summary of Results:** The medical students concluded that the MINI contributed to obtain a more complete clinical history that includes many psychosocial aspects from patient’s life. The experience allowed them to realize the importance of patient’s perspective. They told to researchers that they used some questions in routine consultations, out of research.

**Discussion:** Anamnesis focused almost exclusively on disease according biomedical model underestimates patient’s narrative. As a consequence, the physician might lose important information and could have difficulties in doctor-patient relationship with consequences to therapeutic plan.

**Conclusion:** This qualitative study suggests that training students to use McGill Illness Narrative Interview can improve their communication skills for integrate patient’s perspective incorporating psychosocial aspects to clinical reasoning and promoting a dialogic doctor-patient relationship.

**Take Home Messages:** Integrating patient’s perspective through the MINI was valued as useful lesson to medical students. Improving communication skills is particularly important to promote a dialogic doctor-patient relationship.

#4HH06 (135814)

**A programme to prepare tomorrow’s doctors, combining communication skills sessions with point of care simulation**

*Richard Barlow\*, New Cross Hospital, Wolverhampton, UK*

*Jasdeep Bhogal, New Cross Hospital, Wolverhampton, UK*

*Harriet Smith, New Cross Hospital, Wolverhampton, UK*

*Indu Lakshminarayana, New Cross Hospital, Wolverhampton, UK*

**Background:** Literature suggests that foundation doctors are not well prepared for performing certain tasks. A local focus group of foundation doctors highlighted key challenging tasks including communication with patients and relatives, practical prescribing and interaction with colleagues.

**Summary of Work:** To address this we have developed a two part programme for final year medical students to increase preparedness for foundation year one. One session used role players to simulate difficult communication scenarios with patients and relatives. The second session was point of care simulation where students were given a pager for a day and contacted to perform a series of hypothetical scenarios covering prescribing, acute management and inter-professional communication. This was called “Bleep Day”. Feedback on the sessions was gathered by questionnaire.

**Summary of Results:** In the communication skills session 100% of students agreed or strongly agreed that they felt more confident in approaching communication after completing the role play scenarios. In addition, 100% of students stated they found “Bleep Day” very useful and felt more confident. Through qualitative feedback students felt particularly more confident regarding prescribing and communication.

**Discussion:** This programme has been shown to improve confidence in students preparing to enter their foundation years. By linking tasks to aspects of the curriculum this programme gave students simulation similar to on the job experiential learning, whilst being reproducible in a safe controlled environment. We do acknowledge that as an education tool this method is time and resource intensive.

**Conclusion:** Programmes such as this are a method of helping participants to make the transition from student to doctor. The experience gained may be difficult to replicate by other teaching methods or be guaranteed by shadowing alone.

**Take Home Messages:** We feel a structured programme of communication skills and point of care simulation can help students prepare for life as a doctor.

#4HH07 (126540)

**Communications skills - how does the medical education system affect students' confidence in patient interaction?**

*Natasha Helen Cutmore\*, University of Birmingham, Birmingham, UK*

**Background:** During the last decade, both the Japanese and British medical education systems have been overhauled, and education and examination styles in communication skills differs between the two countries. This study aims to provide quantitative data for the self-reported confidence of senior medical students in two different systems.

**Summary of Work:** Self-assessed confidence in patient communication skills were assessed in a group of penultimate year medical students from the University of Birmingham and Keio University. The PCMI and PPOS scales were used, and analysed statistically using Chronbach's alpha, mean scores and standard deviations. Student T-test was used to calculate statistical significance.

**Summary of Results:** Total PPOS and caring domain scores were significantly higher for University of Birmingham students, but Keio University students scored better on the PCMI scale and demonstrated confidence in different categories to Birmingham. Male students scored higher in the PCMI, whilst female students had greater patient orientated PPOS scores.

**Discussion:** Birmingham students demonstrated more patient-orientated communication, whilst Keio students were more confident in providing structure, explanation, planning and closing the session with a patient. Female participants were more considering of patient's beliefs, emotions and lifestyle, whilst male participants were more self-confident in their capabilities.

**Conclusion:** This study has demonstrated that style of communication skills education has the potential to influence students' self-reported confidences and affect their approach to patient communications. Gender also has an impact on student orientations and self-confidences

**Take Home Messages:** This small scale study has shown that there is still room to improve communication skills education to increase student confidences in the areas that currently fall behind. Gender imbalances in the approach to patient communication should be highlighted and addressed where possible.

#4HH08 (135114)

**Aspiring to improve communication skills with foreign patients---English-speaking simulated patients increasingly introduced in medical education in Japan**

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*Junji Otaki (Hokkaido University, Hokkaido, Japan)*

**Background:** With the increasing mobility of people across borders and medical tourism adding to the trend, more countries are called to make their healthcare environment ready to accept foreign patients. Ideally doctors should be prepared to communicate in the patient's language, and for those practicing in non-English-speaking countries, English communication skills are indispensable. When authors had started working with English-speaking simulated patients (ESSPs) in Japan in 2012, very few universities had worked with ESSPs. However, since then, the need for English communication skills has surged, partly because of the government's policy of globalization of health.

**Summary of Work:** We conducted a nationwide survey to all 80 medical schools in Japan to investigate the involvement of ESSPs in education. The results were analyzed to explore its current situation, its problems and future possibilities

**Summary of Results:** Sixty universities responded.

Twenty-two universities were working with ESSPs, and 23 universities were willing to introduce ESSPs. The backgrounds of ESSPs that had been involved varied: international students being the highest in number followed by full-time English language teachers. Many ESSPs had received less than 2 hours of training; some none. The interviews were performed more as practical training than as exams.

**Discussion:** Many ESSPs were recruited conveniently from nearby people without training. As more than half of medical universities are expected be working with ESSPs, exploring means to recruit and train ESSPs is important. More formal assessment can be introduced to ensure students' competency.

**Conclusion:** ESSP availability and quality should be secured so that high-stakes skills exams, such as OSCEs, can be introduced to assess students' competency in English communication skills.

**Take Home Messages:** Networking of ESSPs and ESSP educators within the country and across countries can help enhance ESSPs' involvement in education and work to provide better care for foreign patients.



#4HH09 (131812)

**How exciting! Emotional challenges in communication skills studies**

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*Eeva Pyörälä (University of Helsinki, Faculty of Medicine, Helsinki, Finland)*

**Background:** At the University of Helsinki, medical students learn to conduct a patient interview in their 2nd study year as part of communication skills studies. We aimed to find out how students express emotions related to experiential communication skills learning with role plays and simulations.

**Summary of Work:** The research data were collected in 2012 and 2013. Students filled in a web-based self-assessment questionnaire in the beginning and the end of the course. In 2012 80/90 and in 2013 80/88 students gave their informed consent. We examined emotional expressions in the data by using qualitative content analysis.

**Summary of Results:** We identified a large number of emotional expressions in students' written answers. We discovered that experiential learning methods are stimulating and stressful at the same time. Other emotional expressions demonstrate that these methods provoke fear and uncertainty, but practicing communication especially with peers is also fun and reduces anxiety.

**Discussion:** Learning communication with experiential methods is emotionally challenging for students. When they assess their own communication skills learning, they use various emotional expressions. Besides emotional distress, complementary ways of practicing communication skills and reflective feedback discussion also reduce anxiety and prepare the students for the future communication with real patients.

**Conclusion:** Communication skills learning is based on experiential and reflective learning. Emotions associated with students' experiences, either positive or negative, affect learning and should therefore form an integral part of feedback discussions in all communication studies (Boud et al. 1985; Artino et al. 2012).

**Take Home Messages:** Experiential learning methods evoke strong emotions. Emotions should be reflectively processed in order to enhance students' communication skills learning and to promote their well-being.

#4HH10 (131911)

**Do we all need a Psychiatry Pitstop**

*Jigna Patel\*, Leeds and York Partnership Foundation Trust, Leeds, UK*

*Alex Chatziagorakis*

*Eleanor Watson*

*Michael Lacey*

*Christopher Abbott*

**Background:** Medical students often express feelings of apprehension and a lack of confidence when talking to people with mental health problems. Mental health remains stigmatised and therefore a challenging subject to teach. Psychiatry Pitstop was introduced for medical students to improve their communication skills and raise awareness on the interplay between physical and mental health.

**Summary of Work:** Psychiatry Pitstop is run by psychiatrists over a 6-week period twice in the year at two different medical schools. Each session consists of small group teaching covering common psychiatric conditions. The students then practice communication skills with simulated patients. The sessions are facilitated by psychiatrists who provide structured feedback and encourage group discussion. We have conducted both quantitative and qualitative evaluations.

**Summary of Results:** Students (n=61) reported improvement in their communication skills ( $\chi^2=27.5$ ,  $df=1$ ,  $p<0.01$ ), feeling more comfortable talking about mental health ( $\chi^2=10.2$ ,  $df=1$ ,  $p<0.01$ ), improved knowledge about how to ask about mental health symptoms ( $\chi^2=9.6$ ,  $df=1$ ,  $p<0.01$ ), and are more aware of the impact of mental health on physical health (Yates'  $\chi^2=3.9$ ,  $df=1$ ,  $p<0.05$ ). Students reported consistently that the facilitated rather than didactic sessions and the structured feedback were most valuable.

**Discussion:** Psychiatry Pitstop provides a supportive environment with a structured approach to supplement mental health teaching. Students describe this as a fantastic opportunity with useful content delivered in an exciting manner.

**Conclusion:** This novel approach in undergraduate medical education has proved successful in improving communication skills.

**Take Home Messages:** The Psychiatry Pitstop approach can easily be replicated to allow for more medical students to experience this successful, innovative high-quality teaching.

#4HH11 (131670)

**Patients' reflections: weak point of medical students in communication skill**

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*Noppol Thadaku (Vachira Phuket Hospital, Phuket, Thailand)*

**Background:** To communicate with patients and family effectively, communication skills is very important. It will help translate the medical term understandable, get a patient to cooperate, and suing the doctor rate will be lower. Studying and evaluating to improve communication skills is the goal of our research.

**Summary of Work:** This research focus on a group of the sixth years of medical student. During advice to parent of patient who had febrile convulsion, researcher record audio from the conversation. We used descriptive statistics theory to analyzed the communication skill from them including introducing themselves, medical diagnosis, incidence, symptom, treatments, prognosis, suggestibility, and proving the understanding.

**Summary of Results:** The statistic of informing patient from medical student are 74% good introducing oneself, 60% giving the treatment plan, 58% giving the incidence, 50% giving the prognosis, 50% giving suggestibility. Only 28% of medical student prove the understanding from patient and 22% not inform the symptom.

**Discussion:** Communication skill among medical students are different. Most of them are focus on diagnosis but only advice life style modification half of the conversation. Proving the understanding of patient is the lowest. From this reason, it will fail the communication between doctor and patient

**Conclusion:** Most of medical student know only know about one-way communication. Giving the information about the disease not the easy understand suggestibility. And, importantly, not prove the understanding from patient at the end of conversation.

**Take Home Messages:** Medical student should practice communication skill especially the understanding of patient every time. It will help the communication between doctor and patient effectively. Don't forget two-way communication.

#4HH12 (133313)

**An educational game for teaching medical history taking skills**

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*Lu-Chih Kung*  
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**Background:** Medical history taking of a patient is a key part of the diagnostic reasoning. The order of the questions during interviewing reflects the logical process as an attempt to unveil the diagnosis. However, pre-clinical students often find it difficult for them to engage in this kind of logical thinking, especially in the emergency environments while participating in the care of the undifferentiated patient.

**Summary of Work:** We designed a 2-hour workshop which incorporated a novel, game-based, approach into emergency medicine clerkship program as part of the communication skill curriculum. The key concept of the game is similar to solitaire in which records for every single question during patient interviewing were carded. The participant then creates piles of conditions related to their potential differential diagnosis and decides with which of the piles each card matches and drags the card to that pile (similar to solitaire). The workshop included an interview of an emergency patient, followed by a game exercise and a feedback discussion session.

**Summary of Results:** A total of 24 students participated in our workshop and completed the post-course survey. All participants rated it helpful and engaging. 87.5% of students wrote that the workshop was a unique experience for them to literally "visualize" their thoughts in terms of the spectrum of differential diagnosis, the range and the chronological order of questions delivered to include or exclude the diagnosis. At the end of the game, most of the participants indicated that the exercise enabled them to deliver more structural feedback on how their history taking skills could be improved in the future.

**Discussion:** Our engaging game-based workshop empowers students to review their logical structure of a medical interview and allows instructors to observe whether the students understand the illness and is able to apply their medical knowledge. Ongoing evaluation of these participants will demonstrate whether their history-taking skills can be persisted after the workshop.

**Conclusion:** Games for medical education that is directed at exploring deeper into their thinking may facilitate students learning higher order thinking skills that are difficult to achieve with traditional lecture model.

**Take Home Messages:** Interactive games may be a practical tool to teach history taking skills.

#4HH13 (131740)

**Assessing medical students' verbal communication in CPX using Roter Interaction Analysis System**

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HyeRin Roh

**Background:** Standardized patients tend to give medical students mark subjectively and comprehensively in communication skills in CPX. Medical teacher as observant might have different a way of thinking in evaluation of communication skills. Therefore, we are aim to analyze medical students' communication skills using objective methods.

**Summary of Work:** High rank students and low rank students in patient-physician interaction (PPI) of CPX were selected. Roter interaction analysis system (RIAS) was used to compare verbal communication behaviors of the students and the standardized patient (SP). Patient-centeredness scores, physician's verbal dominance, and number of utterances were compared between the two groups.

**Summary of Results:** Patient-centeredness scores and physician's verbal dominance had no difference between groups. The number of utterances was higher in the high ranks students. High rank students used more back-channel responses and closed question. The SP having interview with high rank students gave information more and requested for services more.

**Discussion:** Back-channel responses by student doctor and requests for services by SP are both one of the type of participatory facilitators. Open question of medical conditions were more in high ranks students, but not significant. However, the number of giving information by SP was higher.

**Conclusion:** The number of utterances during the limited time of five minutes of CPX was higher in high ranks students, which means the process of conversation was active. Participatory facilitator and information exchange was more in high ranks students' medical interview.

**Take Home Messages:** Medical communication teacher should keep in mind the fact that using more back-channel response by student doctor and more service requests and giving information by SP could lead to high quality medical communication.

## 411 Posters: Simulation 2

Location:

#41101 (134666)

Expanded Skills lab, answer to students' call

**Ninka Havu\***, *University of Helsinki, Helsinki, Finland*  
**Hanna Lampela** (*University of Helsinki, Helsinki, Finland*)

**Background:** In skills labs, students can train in a safe learning environment. A recent study revealed that 90% of medical students from University of Helsinki wished for more practice in practical skills, for which peer-assisted learning is highly suitable. We describe a student centered development process of a Skills lab.

**Summary of Work:** We inquired students' and teachers' opinions and wishes on skills training, and use of the Skills lab by web questionnaires. 220 students and 52 teachers answered. After analyzing results, we purchased numerous new training phantoms, recruited three peer assistants, expanded opening hours, and started collecting feedback by a web form.

**Summary of Results:** 83% of ≥3rd year students had practiced in the Skills lab and felt welcome (average 4.2, Likert scale 1-5). Need to call the nurse to get in, lack of time, and unawareness were worst obstacles. In first three months, 66 students' average grade for the expanded Skills lab was 4.5.

**Discussion:** Students' and teachers' wishes for new skills training possibilities were surprisingly similar. Continuous advertising is needed to raise both students' and teachers' awareness of existing training possibilities. Supervised teaching events and including Skills lab training in clinical course requirements could attract otherwise passive students.

**Conclusion:** Both students and teachers consider skills lab training beneficial and worth increasing. A diversely equipped Skills lab attracts students, but continuous advertising is essential. Students should be inspired to train by themselves too, in order to gain enough repetition.

**Take Home Messages:** Success in students' practical skills training requires both diverse options in a Skills lab and continuous encouraging.

#41102 (133805)

Integrating high-fidelity simulation in Non-Invasive Mechanical Ventilation Learning - a two years' experience

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**Joana Jesus**, *Coimbra Hospital and University Center, Coimbra, Portugal*

**Tania Churro**, *Hospital Center of Cova da Beira - Academic Medical Center, Covilha, Portugal*

**Vitor Melo**, *Hospital Center of Tondela Viseu, Viseu, Portugal*

**Ricardo Tjeng**, *University of Beira Interior Faculty of Health Science, Covilha, Portugal*

**Luís Patrao**, *University of Beira Interior Faculty of Health Science, Covilha, Portugal*

**Background:** Non Invasive Mechanical Ventilation (NIMV) courses are typically delivered through a theoretical approach. Several authors defend that practical aspects such as dealing with the interface and selecting the ventilator mode and settings are crucial to NIMV adherence in selected patients.

**Summary of Work:** Over the last two years we ran two NIMV courses to medical students and three post-graduate courses to health professionals, adding high-fidelity simulation (HFS) scenarios to overcome the usual lack of practical approach in a classical NIMV course. Participants' post-course questionnaire analysis was done.

**Summary of Results:** Eighty-nine trainees completed the course (32 medical students, 23 physicians, 27 nurses, and 5 cardiopneumologist technicians). Participants' satisfaction rate was high in all the covered aspects of the questionnaire. All trainees valorised the practical stations (HFS) of the course and mainly the debriefing sessions after simulations. As improvement points, they asked for more clinical simulation based scenarios, and in some cases better adequacy between the clinical cases and the daily role in health care systems (specially cardiopneumologist technicians).

**Discussion:** Integration of HFS in NIMV learning is viewed as a positive method by undergraduate and post-graduated participants from different backgrounds. The HFS can be dynamically adapted to several clinical cases and health care professionals, based on their experience, leading to a more individualized learning.

**Conclusion:** Integrating HFS in NIMV course makes the learning experience more active and individualized, being well accepted by the trainees, motivating their further professional education development.

**Take Home Messages:** The use of high-fidelity simulation in Non-Invasive Mechanical Ventilation courses is well accepted by the participants and motivates their learning.



#41103 (133372)

**Does a short pre-work conversation help to improve an initial management of acute coronary syndrome?**

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*Dobruška Černela, Faculty of Medicine, University of Maribor, Maribor, Slovenia*

*Sebastjan Bevc, Clinic for Internal Medicine, University Medical Centre Maribor, Maribor, Slovenia*

**Background:** We organized simulations of initial management of acute coronary syndrome (IM-ACS) on SimMan 3G advanced patient simulator. Students were given 15 minutes to stabilize a patient with ACS.

**Summary of Work:** 10 groups of 3 medical students, who are at least in 3rd year of study, voluntarily participated in the simulation. We assessed each group in taking quick focused medical history, performing physical examination and diagnosis, application of the correct therapy after venous catheter placement, teamwork and communication with patient. 5 randomly chosen groups had five minutes pre-work conversation (PWC) about 13 important steps in IM-ACS before simulation started. Other 5 groups started simulation without pre-work conversation (noPWC). The aim of the evaluation was to determine whether a short pre-work conversation helps to improve results of IM-ACS.

**Summary of Results:** PWC group's mean score was  $40.8 \pm 4.2/50$  points. Mean time spent for patient stabilization was  $11.5 \pm 1.4$  minutes. NoPWC group's mean score was  $40.0 \pm 3.9/50$  points and mean time spent  $11.3 \pm 2$  minutes. A t-test performed for PWC and noPWC groups showed no significant difference between groups ( $p=0.764$ ). Sub-analysis showed that 5 groups (regardless PWC), which had at least one student from 3rd or 4th year, achieved lower score (mean score  $38.6 \pm 2.1$  points) and spent more time ( $12.0 \pm 1.7$  minutes) compared to groups with all students from 5th or 6th year (mean score  $42.2 \pm 4.0$  points, mean time spent  $10.7 \pm 1.5$  minutes) ( $p=0.113$ ).

**Discussion:** There was no significant difference in final score considering PWC. Our results showed that student's year of study and consequently clinical experience had impact on the outcome.

**Conclusion:** A short pre-work conversation does not help to significantly improve outcome of initial management of ACS but rather clinical experience during medical education.

**Take Home Messages:** It is more important to enrich students with clinical knowledge and experiences than having a quick review of important steps right before the situation they have to solve.

#41104 (134725)

**GeriSim – A multidisciplinary approach to geriatric simulation**

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*Vaughan Holm*

**Background:** Despite an increasingly aging population and the increasing age of patients in hospitals, there is a lack of simulation based learning to address managing this patient group. A multidisciplinary approach to this is a cornerstone of elderly care medicine. However, frequent rotations can create a lack of cohesion and understanding within teams.

**Summary of Work:** Junior doctors, physiotherapists, occupational therapists and nursing staff learnt about managing the elderly through simulated scenarios, case discussions and use of a unique geriatric simulation suit. This suit allowed the wearers to feel a variety of impairments that may limit their treatment of the older generation.

**Summary of Results:** The feedback from the session demonstrated that geriatric simulation based learning is uncommon in undergraduate training across all disciplines. Undertaken after graduation it was found to be beneficial and applicable to daily practice. The participants' feedback that this format is needed to develop the skills to manage elderly patients as a multidisciplinary team.

**Discussion:** A key theme of the session was to gain an understanding of the multidisciplinary team's roles and of being frail by using the simulation suit. As training is not organised across disciplines this format allowed the team to gain a greater understanding of each other's perspectives in managing the elderly.

**Conclusion:** Simulation has a key role to play in developing teams to manage complex geriatric patients who commonly present to hospital in the UK. It is hoped that a greater understanding of the patient and each other in the team will increase the quality of care delivered to the older population.

**Take Home Messages:** • The older population is projected to increase significantly in years to come and we need to train our frontline staff to manage these patients safely as teams. • Simulation has a role in helping multidisciplinary teams to learn about older patients and each other's roles to enhance team-working.

#41105 (133260)

**Identifying technical procedures in pulmonary medicine that should be integrated in a simulation-based curriculum: A nationwide general needs assessment**

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*Paul Frost Clementsen (Gentofte University Hospital, Hellerup, Denmark)*

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*Karen Gilboe Lindorff-Larsen (NordSim – Centre for Skills Training and Simulation, Aalborg, Denmark)*

*Bjørn Ulrik Nielsen (Simulation Centre, Odense, Denmark)*

*Lars Konge (Copenhagen Academy of Medical Education and Simulation, Copenhagen, Denmark)*

**Background:** In response to today's demanding healthcare environment, simulation-based training has become a central thread interwoven into the medical curriculum. However, the development of simulation-based training programs is often dictated by what simulation equipment is available commercially. Curriculum development should follow a structured approach which requires deliberate planning. To identify what needs to be integrated into the medical curricula, it is pertinent to perform a "general needs assessment" which is the first step in curriculum building.

**Summary of Work:** We performed a nationwide needs assessment by initiating a three-round Delphi process among 62 key leaders in pulmonary medicine. The first round consisted of an open-ended question to identify technical procedures that pulmonologists should learn. The second round was a survey using a newly developed needs assessment formula to explore frequency of procedures, number of operators, discomfort when performed by inexperienced doctors, and feasibility. The third round allowed for ranking of the procedures according to priority.

**Summary of Results:** The response rate for the first Delphi round was 74% with 30 technical procedures identified. In the second round, 63% answered a developed online survey. Mean scores were calculated for each procedural item and ranked according to priority. The final round resulted in 11 technical procedures that should be integrated in a simulation-based curriculum.

**Discussion:** The development of new training modalities should be guided by a deliberate selection of what procedures are most suitable. A careful needs assessment among the end-users of simulation-based training will allow us to plan our educational activities and live up to the demands of an advancing medical society.

**Conclusion:** General needs assessment is imperative in curriculum development. The prioritized list of 11 technical procedures can be used by medical

educators to plan simulation-based training programs in pulmonary medicine.

**Take Home Messages:** Full integration of simulation in the medical curricula requires a structured general needs assessment as first step.

#41106 (127263)

**"Developing Excellence Amongst Future Clinical Leaders" - Evaluation of an innovative, interprofessional simulation pilot for higher specialty trainees**

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*Nicholas Woodier, Trent Simulation and Clinical Skills Centre, Nottingham University Hospitals NHS Trust, Nottingham, UK*

*Bryn Baxendale, Trent Simulation and Clinical Skills Centre, Nottingham University Hospitals NHS Trust, Nottingham, UK.*

*Vicky Garrod, Northampton General Hospital, NHS Trust, Northampton, UK*

*Fiona Poyner, Northampton General Hospital, NHS Trust, Northampton, UK*

**Background:** The complexity and constraints of modern healthcare necessitates collaboration among emerging clinical leaders which requires a strong focus on interprofessional education.

**Summary of Work:** Six multifaceted high fidelity simulation targeted at senior general internal medicine registrars (residents) and nurses will be piloted across two centres. Using a one-to-one rotational model that allows for personalised debrief, the simulation aims to foster collaborative working and address deficiencies in traditional curriculum training models such as high stakes decisions, challenging communication, complex capacity assessment, supervising trainees and root cause analysis of critical incidents. Self-evaluation and JeffSAT1C1 questionnaires will be administered pre and post simulation to explore attitudes toward interprofessional collaboration. Participants will be invited to a semi-structured focus group interview to explore perception towards interprofessional simulation.

**Summary of Results:** The first simulation pilot is scheduled for 15/03/2016. Preliminary results will be available for AMEE 2016. Assuming normal parametric distribution, descriptive analysis will be calculated for items on the questionnaires. Pre and post JeffSAT1C scores will be compared using paired T-test.

**Discussion:** Simulation provides experiential learning without compromising patient safety and is an effective model for developing interprofessional collaboration. This pilot provides a user-centered model that can potentially transform the way health professionals acquire decision making and clinical leadership skills.

**Conclusion:** Healthcare needs to better prepare its staff to work collaboratively and as clinical leaders. This innovative approach seeks to address that need.

**Take Home Messages:** Interprofessional simulation based training replicates real workplace challenges and can be utilized to prepare staff for complex decision making and leadership roles. Reference 1. Hojat et al, The Jefferson Scale of Attitude Towards Interprofessional Collaboration (JeffSATIC): development and multi-institutional psychometric data. Journal of inter-professional care, volume 29, issue 3, 2015, page 238-244

#41107 (134264)

**Low cost and creative approach for realistic simulation: Photographs as the simulated props**

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Hung-Wei Cheng

**Background:** Sometimes it's hard and complicated or time consuming to "make up" the simulator to conduct medical simulation, such as the surgery processes, by using commercial props and materials. **Summary of Work:** In order to preserve the realism that related to the scenario, we tried to create the complicated "realism" by high-resolution pictures. At first, the pictures were photographed as the similar clinical conditions. The pictures were then amended by computer software to ensure the contents were in their actual proportion, color and luster. The pictures were printed in high resolution by high-grade thick paper in order to be curved around the limb or abdomen. Before starting the scenarios or different frames, the edges of pictures were pasted by sellotape or Tegaderm in corresponding areas.

**Summary of Results:** The method had been used to create necrotizing fasciitis, diabetic foot gangrene, total knee arthroplasty, and surgical conditions during each stage of liver transplantation. Questionnaires to survey scenario realism, print photo quality, photo realism, agreement of the photograph method were obtained from 60 participants and 21 faculty. Overall evaluation was extremely positive. There were no ratings of fair or poor by any participants.

**Discussion:** Realism is fundamental for simulation. In our experience, commercial props and materials suitable for scenarios are not always readily available, and it is sometimes difficult and complicated or time-consuming to create simulations of surgical processes and wound. The high-resolution pictures were used and the preserved the realism. In the cases of complicated structure or difficult production, we advocate to use high-resolution photographs for creation of surgical field and wound, rather than complicated moulage or make-up.

**Conclusion:** High-resolution pictures photographs could be used as a low cost and creative approach for realistic simulation.

**Take Home Messages:** Creativity is an essential tool for increasing realism by using available resources.

#41108 (136208)

**A non invasive mechanical ventilation course based on high fidelity simulation: a portuguese pioneer approach**

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**Background:** Non invasive mechanical ventilation (NIMV) courses are typically delivered based on a theoretical basis and usually lack a clinical and practical approach, as real situations where NIMV should be used are hard to replicate. There are many european annual NIMV courses, but until 2014 none of them was based on high fidelity simulation. By April 2014, a high fidelity simulation-based NIMV course was created in Portugal in the Faculty of Health Sciences – University of Beira Interior, to enhance students' clinical and practical skills on this specific theme.

**Summary of Work:** Two pre-graduate courses of NIMV were developed to 5th year medical students and two graduate courses of NIMV to junior and senior doctors, using high-fidelity simulation (HFS) scenarios. Participants' post-course questionnaire analysis was done.

**Summary of Results:** Fifty-five participants completed the course (32 medical students, 23 physicians), 74,5% females and their median age was 26,23±5,9 years. After the course the participants changed positively their opinion about using HFS in a NIMV course. All valorized the practical stations (HFS) of the course and mainly the debriefing sessions after simulations.

**Discussion:** The presented work was developed to overcome the usual lack of practical approach in a classical NIMV course. These courses started as being optional in our faculty, but due to participant's satisfaction and their importance, they are now part of the 5th year medical curriculum.

**Conclusion:** We found that adding HFS to a classical NIMV course was important to increase participants' self-perception about their practical knowledge and skills related to NIMV therapy. In the future we want to continue this investigation to verify if HFS in NIMV course objectively traduces better clinical results.

**Take Home Messages:** Since April 2014 there are now NIMV courses based on high fidelity simulation on a portuguese medical school and they seem to accompany participants needs and to enhance their satisfaction and knowledge.

#41109 (135109)

**The Influence of Medical Simulation Competition on Obstetric Staff**

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**Background:** Obstetric risks are unpredictable, with short onset and little reaction time. The Joint Commission of Taiwan has hosted the first medical simulation competition on high-risk obstetrics in 2015 to make the participants recapture the essential medical managements and the importance of teamwork through simulating various emergent obstetric scenarios. With the instructions from the observing experts and feedbacks from the participants, we were able to enhance patient safety and care quality.

**Summary of Work:** Each team of the simulation competition is composed of 5 members from the obstetrician department, who practiced the lessons learned from the competition on the daily basis. Questionnaires were designed and focused interviews were conducted for other medical staff to document any changes or impact brought by the 5 participants in simulation competitions.

**Summary of Results:** From the results of the questionnaires, it has been found that medical staff was prone to miss alarming messages in the process of mother-infant care. Focused interviews help training other medical staff for common mistakes and the important routine skills, such as patient identification and briefing with ISBAR system to ensure patient safety. Through simulations, patient care quality was enhanced and medical errors reduced on the daily basis not only by the 5 competition participants, but also other medical staff.

**Discussion:** Although only 5 members were directly involved in the medical simulation competition, its impact extends to the entire obstetrician department in terms of enhancing patient safety and reducing medical errors. Simulation should be recruited as part of obstetrics training programs.

**Conclusion:** Medical simulation competition had an impact beyond individual participants, extending change into the organizational culture.

**Take Home Messages:** Medical simulation competition influenced the attitudes of obstetric team members and created the culture of patient safety.

#41110 (135587)

**Medical simulation for medical students - practicing initial treatment of critically ill patients**

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**Background:** Education of highly qualified personnel for health services must aim at achievement of best evidence- and standard based competence. During clinical rotation medical students frequently meet patients after the initial treatment has been implemented. The patients are often sick, old and bedridden non-communicative with scant clinical signs inadequate to meet the students learning objectives. To ensure that all 3rd year students got sufficient practice in initial diagnosing and treatment of COPD exacerbation and septic pneumonia; simulation was introduced by the department of Thoracic Medicine, Trondheim University Hospital in 2011.

**Summary of Work:** At the Medical Simulation Center groups of 8 students participated in two scenarios (one of each category) using a man-sized advanced patient simulator (SimMan 3G, Laerdal Medical, Stavanger, Norway) with palpable central and peripheral pulses, chest movements, verbal response (a wireless sound transmitting system) and a monitor showing the patient's physical parameters. 4 students interviewed, investigated and treated, while the 4 others observed, then the students switched roles. A consultant and nurse were accessible, and the scenario ended with the consultant entered the room for discussion, followed by debriefing with all 8 students.

**Summary of Results:** More than 600 medical students at NTNU have participated in this simulation training. Based on the positive experiences from both students and consultants, simulation has also been implemented in the cardiology rotation since 2014.

**Discussion:** Tailored patient case scenarios involves each student in a close-to-reality setting. The students prepares for real-life patient encounters supervised by an experienced teacher in a safe environment.

**Conclusion:** Medical simulation provides opportunity to bridge the gap between theoretical knowledge and professional competence meeting the students learning objectives.

**Take Home Messages:** Clinical rotation is based on a random selection of seriously ill patients. Simulated



patient scenarios provide learning outcomes not readily obtained in real life.

#4111 (133996)

**Evaluating the feasibility of using simulation training to teach junior doctors the management of diabetic emergencies**

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**Background:** Over 20% of inpatients at our district hospital have diabetes. Most out-of-hours management of diabetic emergencies (MDE) is provided by junior doctors. Evaluation of junior doctors' understanding of MDE has shown consistently poor results (Gouveia 2011). Historically, we have provided training on MDE to junior doctors by small group teaching sessions, case-base discussions and grand round lectures. With a growing popularity for simulation training, we wanted to evaluate whether teaching MDE using simulation could be effective and preferred by junior doctors.

**Summary of Work:** We designed a three hour simulation session with scenarios covering the management of the common diabetic emergencies: diabetic ketoacidosis, hyperosmolar hyperglycaemia syndrome and hypoglycaemia. Twenty-one junior doctors (1-3 years post-graduation) agreed to participate and tackled each scenario in groups of 2-3 trainees. We evaluated their experience of the simulation training by anonymous feedback forms utilising Likert scales and free-text response boxes. We also interviewed 7 self-selected participants to further explore the feasibility of simulation training as a mode of teaching MDE.

**Summary of Results:** All 21 participants provided anonymous feedback. All "strongly agreed" or "agreed" that the simulation sessions were relevant to their training, interesting and informative. 20/21 trainees felt that simulation training was a better method of teaching MDE than traditional lectures. Participant interviews highlighted various themes which made simulation best tailored for this teaching including deep learning following reflective practice, increased confidence, realism and practicality.

**Discussion:** Trainees found using simulation to learn MDE, increased their confidence and was more realistic than learning from lectures, provided practical experience with reflection, promoting deeper learning. Whether this translates into safer patient care is unknown and likely to be challenging to evaluate.

**Conclusion:** Simulation training is a feasible and popular method for teaching junior doctors MDE.

**Take Home Messages:** Teaching MDE by simulation to junior doctors • is achievable in a district hospital • increased trainees' confidence • is preferred to traditional lectures.

#4112 (133940)

**Autonomous learning platform (HybridLab) is an effective medical simulation based tool for development of the technical and non-technical competences**

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Zilvinas Dambrauskas (Lithuanian University of Health Sciences, Kaunas, Lithuania)

**Background:** HybridLab is a fusion of distance learning and medical simulation that allows residents to train 24/7 at their work place without presence of the instructor and/or technician.

**Summary of Work:** In 2014 the advanced trauma life support course developed on the HybridLab platform was evaluated. Twenty-seven surgical residents of Lithuanian University of Health Sciences were enrolled. Skills were grouped into 7 categories according to ABCDE principles and were independently evaluated by 3 reviewers. Reviewer 1 was present during the simulation and Reviewers 2 and 3 assessed skills using the video recording system. Progress of the students and the interobserver agreement were evaluated.

**Summary of Results:** There was a 2.5-fold increase in the overall score of the course (from 35% to 89%), and the significantly increased performance levels were observed in each group of practical skills. Reevaluation after 6 months revealed only slight decrease in the overall score (from 89% to 82%). Analysis showed moderate to substantial (range 0.45 – 0.77) agreement between reviewers in five categories and didn't differ between reviewers present during the simulation and those using video recordings.

**Discussion:** Participants significantly improve their skills using the learning platform without instructor and/or technician. Interobserver agreement is overall good when comparing results of skills assessment by reviewer present during the simulation exercise and online reviewers. In almost all categories the kappa levels are moderate or substantial, implicating that practical skills of the course participants can be evaluated online.

**Conclusion:** HybridLab is an effective medical simulation based tool for development of the technical and non-technical competences. In order to

achieve better agreement, we must more clearly define the rules of the skills evaluation.

**Take Home Messages:** Clear and structured algorithms, well defined rules of formative and summative assessment are the key factors ensuring the functioning and reliability of the autonomous learning platforms.

#### #4113 (133596)

##### **Assessment of Team Behaviour during Simulation-based Scenarios in Paediatric surgery**

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Kristy Beckwith

Doris Dimatatac

LW Chiang

CL Bong

**Background:** High-fidelity simulation training is regularly used to train interprofessional healthcare teams in resuscitation. However, it remains difficult to assess training efficacy in terms of improving teamwork. There are various checklists available to assess team-based competencies but they are not validated locally.

**Summary of Work:** We chose 2 tools best suited to our context - Mayo High Performance Teamwork Scale (MHPTS) and Team Emergency Assessment Measure (TEAM). We aimed to confirm their reliability for evaluation of our simulation training programme. Content validity was assumed as the context of our training program is similar to prior validation studies. Nine teams of junior doctors and nurses participated in video-recorded simulation team training with immediate debriefing. With ethical approval, these video-recordings were rated by 3 blinded expert observers using the MHPTS and TEAM. Data was analyzed using Cronbach's alpha and intraclass correlation to assess the internal consistency.

**Summary of Results:** Cronbach's alpha calculated for MHPTS and TEAM was 0.60 and 0.75 respectively while intraclass coefficient calculated for MHPTS and TEAM was 0.34 and 0.50 respectively.

**Discussion:** Both tools were fairly reliable but TEAM had greater internal consistency and inter-rater reliability. Our experts preferred TEAM because it had clearer behaviour descriptors, while MHPTS had some repetitive items that could overweight certain components of teamwork. When considering assessment tool utility apart from reliability and validity, tools also fulfilled other criteria of feasibility, acceptability and educational impact.

**Conclusion:** In our simulation team training program, both MHPTS and TEAM were reliable for expert assessment of teamwork, but TEAM had better inter-rater agreement and internal consistency.

**Take Home Messages:** Reliability of assessment tools is context specific.

#### #4114 (133570)

##### **Simulation-based training of difficult patient management for resident**

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**Background:** We frequently experience difficult patient (DP) encounter, and have to manage such patient appropriately for providing patient-centered care. The physicians develop their abilities to manage DP encounter on their own, but their management quality were diverse. To provide learning opportunities for DP management just enough, we developed its simulation-based training program for residents. Here, we report effectiveness of the training program and the factors influencing the training effect.

**Summary of Work:** All 32 second-year residents in our hospital participated in simulation-based training of DP management. Participants were assigned either to direct encountering simulated DP group (n=18) or to just monitoring the DP encounter group (n=14). All residents' pre-training psychosocial beliefs were assessed using The Physician's Belief Scale (PBS), which measures psychosocial orientation. All participants were debriefed and discussed for better DP management with attending physicians after each encounter. All participants completed self-assessment questionnaires of their training effects immediately before and after training.

**Summary of Results:** The training improved residents' confidence and learning motivation for managing DP in both direct and indirect DP encounters. Almost all participants reported that they could acquire new knowledge and skills. Positive correlation is observed between the participant's pre-training PBS and training effect.

**Discussion:** Simulation-based training of DP management is useful for developing trainee's knowledge, skills, confidence, and learning motivation for managing DP. Debriefing session following simulated DP encounter is considered essential for the training because both direct and indirect DP encounters of simulated patients are effective. Recognizing importance of psychosocial approach in patient-centered care quality is considered necessary for better DP management.

**Conclusion:** Simulation-based training of DP management followed by debriefing session, especially regarding psychosocial approach, is effective for improving resident's abilities and capabilities for DP management.

**Take Home Messages:** We can improve resident's knowledge, skills and attitudes for DP management effectively by simulation-based training. Psychosocial approach is important for better DP management.

## 4JJ Posters: eLearning

Location:

#4JJ01 (133038)

**Evaluation of The Latin American Online Vaccinology Course**

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*Miguel Betancourt- Cravioto (Carlos Slim Foundation, Mexico City, Mexico)*

**Background:** The Latin American Online Vaccinology Course is a distance learning program with 194 semester hours, based on a virtual platform developed by a nonprofit organization for its distance learning program in Mexico. It was designed for health care workers from public health institutions which operate vaccination programs.

**Summary of Work:** The goal of the study is to evaluate the impact of the course on the health professionals that take the educational intervention. The design is quasi-experimental with pre and post test, looking for the impact of the intervention in knowledge, attitudes and satisfaction. The instruments included an adaptation of the Distance Education Learning Environments Survey (DELES) tool and the development of an ad hoc 45 items multiple-choice question test to assess knowledge change, using Downing's steps for objective exams.

**Summary of Results:** The instruments' development is concluded and has been applied in a pilot study. The course started in November 2015 with 460 healthcare professionals from 5 countries in Latin America, and the pre-test has been applied. The final results and the pre-post comparison will be finalized in April 2016. The knowledge exam results will be analyzed with the Classical Measurement Theory model.

**Discussion:** The development of the evaluation instruments for online courses needs to take into account local and contextual characteristics. After the final results have been analyzed a comparison with the international literature will be conducted.

**Conclusion:** The course seeks to generate knowledge, unify criteria and strengthen the critical decision making capacities of the participants, by exposing students to fundamental elements of vaccinology.

**Take Home Messages:** Teaching of vaccinology through an online course is a tool that can improve the knowledge and attitudes of health professionals in this area.

#4JJ02 (131739)

**Introduction of e learning teaching method for pharmacy training programme**

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**Background:** The teacher-centered teaching and learning method models do not completely help to stimulate the critical thinking and self-learning competence of students. e-learning models facilitate greater classroom interaction between teachers and students. The introduction of e-learning method to the Pharmacy education may enhance the professional competency of pharmacy students.

**Summary of Work:** The 80 Pharmacy students were selected. From using the question paper, student's satisfaction and effectiveness on the e-learning, were collected. test paper was prepared. two questions were on using e-learning teaching model and other two questions were on using normal classroom teaching model and collected the answers. Performances were analyzed to see the difference of e-learning teaching method and normal teaching method.

**Summary of Results:** Out of eighty, seventy four students were scored more than 50% marks for the test paper. Six students were below 50% marks. The marks compared with e-learning teaching model questions and normal teaching model questions. Marks more than 50% student group used to compare marks. 78% student collected more marks for e learning teaching model and 22% students collected more marks for normal teaching model questions

**Discussion:** teaching and learning methods also develop with modern technology. students can motivated to self directed learning All students used lap tops or smart Phones for the e learning sessions. before 24 hours I posted lecture sessions and relevant supportive sites to the students. It is more easy and time consuming, environment friendly student centered, teaching method.

**Conclusion:** Student's knowledge improved after introducing e-learning method. Their attention, involvement and attractions for the e learning environment are higher than previous method used for training programme. E-Learning group can be useful to continue Health professional education and it is a user-friendly teaching method

**Take Home Messages:** e learning teaching and learning method is more convenient to use both teachers and trainers.. it is environment friendly student centered teaching method.

#4JJ03 (134155)

### Monitoring Uptake of MindEd e-learning: lessons for large projects

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Alan Ryan

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MindEd Consortium

**Background:** MindEd ([www.MindEd.org.uk](http://www.MindEd.org.uk)) is an innovative evidence-based e-learning portal, grant-funded with £3.7m by Departments of Health and Education UK commencing October 2012, aiming for parity of esteem for mental health and evidence-based, early intervention. Developed by a multi-professional consortium of Medical Royal Colleges and other stakeholder organisations, hosted by RCPCH, on a modified e-learning for healthcare (e-LfH) platform, it is free to UK users, defined as "those who work with children and young people (CYP)" and to specialist audiences, including psychologists, paediatricians and child psychiatrists. It is accessible worldwide.

**Summary of Work:** Module development by focus-groups, topic selection, content authorship, instructional design, and module linkage was managed by an experienced e-learning team in a phased plan. MindEd was launched in March 2014 and now has an encyclopaedic 330 modules on CYP mental health issues, in four curricula, with sessions still being added. It is cross-referenced to other key texts.

**Summary of Results:** Website hits passed 1.2 million in January 2016 – approximately £3.00 (\$4.33) per web-hit. Overall there have been 53,089 session completions - £69.69 (\$100.45) per session. The "Introduction to MindEd Core Content" session has most (3884, 7.3% of total) completions. The 21,566 current registered users, in 39 groups, can register to save and re-enter sessions, and access tailored learning paths. The top five groups are counsellors, teachers, social workers, youth workers, psychological therapists. Users were from 25 countries, with 92.5% from UK in January 2016.

**Discussion:** Registration optimises data collection, though website analytics can demonstrate audience growth. Website and session development have proceeded rapidly and a pre-planned marketing phase is now increasing awareness.

**Conclusion:** Well-managed e-learning projects can maximise benefit and minimise cost per user. Data suggest that usage will accelerate over the next years.

**Take Home Messages:** e-learning support is cost-effective and will help unify problem-solving approaches and terminology.

#4JJ04 (133682)

### Peer review in an online graduate health course

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**Background:** In an online graduate course in the field of health, the "database" resource in Moodle was used to offer alternatives to academic forums for the collaborative construction of knowledge.

**Summary of Work:** In one required activity of the online course, the "database" resource was used for students to: 1) draft an individual project and share it in a project gallery, thus allowing peers to view their work; 2) visit the project gallery and provide feedback on the works of two peers, asking questions, establishing ties with their own work and suggesting areas for improvement. Then the whole activity was analyzed.

**Summary of Results:** Most students exceed the required level of participation. Discussion is stimulated when authors respond to feedback on their work and thank those who provided it. In addition, participants say that both providing and receiving feedback gives them opportunities to revise their initial work.

**Discussion:** -Does knowing that one's work will be evaluated by peers (and not just by professors) modify the work criteria? -What type of role does the professor play in such an activity? -How do technologies favor opportunities for sharing scientific/educational work?

**Conclusion:** An activity that involves peer feedback serves as motivation, encouraging participation that goes beyond course requirements. When peers evaluate a student's production, the work criteria is usually enriched. It is possible to promote interaction in settings outside academic forums.

**Take Home Messages:** -To develop a role for the professor that favors this type of exchange -To enhance students' ability to give and receive constructive feedback -To include this resource in new proposals for education.



#4JJ05 (134957)

**Patient Stories enabling creative online learning and organisational learning**

*Sonia Joseph\*, RHSC, NHS Lothian, Edinburgh, UK*

**Background:** In 2015 the chief medical officer for Scotland set out a directive that all clinical mandatory requirements for all staff groups must be modernised, streamlined and cohesive. The first draft of the paper created by learning and development leads is due to be reviewed for acceptance in February 2016. Doctors are to become a separate job family with the clear outline of which "corporate" training topics must be undertaken as part of professional accountability.

**Summary of Work:** Multiple clinical and corporate teams have been brought together to create a bank of online modules. These were launched in August 2014.

**Summary of Results:** The result is a bank of 20 modules which role model good practice, organisational risk through every day errors and ask for application of knowledge. The learning objectives for each case intertwine with the others within the case bank. Feedback from senior staff and trainees has been very positive for this change to training delivery. The challenges remain related to capacity of NHS IT systems however these are being addressed.

**Discussion:** Patient stories provide the richest learning for medical staff therefore, its only by embracing and utilising this that our team have been able to meet the needs of national standards, governing bodies and individual learners. It is only by immortalising patient stories where things "slipped through the net" that the individuals in an organisation can understand the importance of their contribution to their patients.

**Conclusion:** Despite cultural and organisational challenges the overriding message is that clinician involvement, multi-professional and patient collaboration leads to powerful learning.

**Take Home Messages:** Doctors learn in terms of the patient therefore developers must work together to create cohesive intertwined learning outcomes for online learning rather than continuing to work in silos.

#4JJ06 (135557)

**Support Provided to Students by the Academic Support Group: analysis of technical skills in a distance course in Primary Health Care**

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*Karla Conceição Acosta*

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**Background:** Brazil's Open Health University (UNA-SUS) of Federal University of Health Sciences of Porto Alegre (UFCSPA) offers a Family Health Specialization course, on the e-learning modality, which plays a role in the continuing education of physicians, dentists, and nurses. Some of the challenges to overcome are identifying learning barriers and providing individual support in a systematized way. In this course, students receive support from the Academic Support Group (ASG), a help center which serves as a complementary strategy to tutoring and helps students through learning process.

**Summary of Work:** This study analyzes the difficulties met by students enrolled in one of the course's classes as they sought support from the ASG and also the strategies and methods for individual counseling and support. Two hundred and thirty-five e-mails, sent by 162 out of 239 students in total, were analyzed. The messages were categorized and the difficulties were quantified.

**Summary of Results:** Difficulties identified (number of cases): trouble browsing through the course platform (36); specific situations such as lack of motivation, difficulty with assignments, absence excuses, and requests for different deadlines (28); internet connection problems (28); specific demands and demands from other groups (16). Strategies adopted by the ASG: study plans designed specifically for each student, focusing on time management and good understanding of subjects; individual support and detailed advice given to students through phone calls; and referral of specific cases to better suited help centers.

**Discussion:** Individual counseling and the identification of difficulties made it possible for strategies for overcoming difficulties to be created.

**Conclusion:** Data analysis showed that the most common problems concern technical skills: trouble using technology tools and adapting to this teaching method.

**Take Home Messages:** Individual counseling in distance learning courses is made possible by specific and effective organizational structures designed to help students deal with difficulties and to follow the development of their technical skills, thereby motivating them.

#4JJ07 (134174)

**Second Life and Classroom Platforms: Comparing Small Group Teaching and Learning in Developing Clinical Reasoning Process Skills**

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*Anne Conan*

*Fortune Sithole*

**Background:** Medical education and clinical practice support the development of clinical reasoning competency. The process of clinical reasoning is traditionally taught through small group discussions both in preclinical and clinical medical training. There is a need to explore further learning approaches to develop clinical reasoning process skills.

**Summary of Work:** A study was designed to compare teaching and learning environments in developing veterinary students' clinical reasoning process skills. Participants were first year veterinary students; thirty four participated virtually through Second Life (SL), and forty one experienced traditional classroom interactions. Students and one facilitator engaged in three small group meetings to process a clinical case. A seven-item clinical reasoning rubric guided the teaching, learning and assessment. Clinical reasoning assignments were scored on a grading scale from 0-4 with a maximum result of 28.

**Summary of Results:** Descriptive statistics, mean and Standard Deviation (SD) for clinical reasoning assignment scores were 14.0 (SD=2.6), and 12.2 (SD=2.6) in SL and classroom interaction, respectively. Results indicated positive associations for all participants between the rubric item score of gathering historical information with 1) gathering physical examination information ( $p < 0.01$ ) and 2) prioritizing patient's problems ( $p = 0.003$ ). Additionally, the rubric item score of gathering physical examination information was positively associated with the rubric item score for prioritizing patient's problems ( $p = 0.02$ ). Specifically for the SL cohort, results demonstrated that rubric item scores were significantly higher for gathering historical information ( $p = 0.03$ ), gathering physical examination information ( $p < 0.01$ ) and prioritizing patient's problems ( $p = 0.02$ ).

**Discussion:** Small group interaction using SL and traditional classroom environments offer a comparable educational platform for developing clinical reasoning process skills.

**Conclusion:** The complex process of clinical reasoning can be taught and learned through virtual world engagement.

**Take Home Messages:** Early exposure to the process of clinical reasoning can be facilitated through active participation in SL.

#4JJ08 (134698)

**Evaluation of the student-led Barts and The London Personal Development (BLPD) e-Portal - Widening Access to Academic Opportunities, Pastoral and Learning Support for Medical Students**

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*Siobhan Cooke (Barts and The London School of Medicine and Dentistry, London, UK)*

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*Danushan Srirathan (Barts and The London School of Medicine and Dentistry, London, UK)*

**Background:** The competitive nature of medical careers demands that students build a suitable portfolio for their future career path. Since July 2015, the BLPD e-portal has been developed in collaboration between students and faculty. This aims to provide extra-curricular academic opportunities, learning support and pastoral information under a single platform for students and mentors.

**Summary of Work:** The aim of the study was to evaluate the quality of the content and ease of access provided by the BLPD Portal. All medical students (including Graduate-entry and intercalating students) were invited to participate in this mixed methods study using questionnaires and analysis of portal usage statistics. An initial questionnaire explored students' perceptions of academic and careers support available prior to portal release. A follow-up questionnaire evaluated the various sections of the portal. Responses were anonymised and data coded and analysed.

**Summary of Results:** Results pre-launch, showed that students rated the access to portfolio-enhancing opportunities as poor and believed that the medical school has a role in providing these. Students appreciated the range of academic opportunities and information available to them through the portal.

**Discussion:** Students valued the single platform and although the portal was criticized for lacking key content, they recognised that this is evolving. Students and faculty can contribute to portal development.

**Conclusion:** The weakness in the medical school's approach to providing academic, career and pastoral support to students was highlighted. The BLPD Portal has attempted to tackle this issue. Further evaluation using focus groups, would inform portal content to meet the needs of students.

**Take Home Messages:** A Personal Development Portal can widen access to academic opportunities as well as pastoral and learning support for students. Collaborative working of students and faculty will support its continued development.

#4JJ09 (133370)

**Students' attitude towards and self-reported practice of risk-based management of caries after using blended method compared with workshop**

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Zohre Karimi*

**Background:** Traditional methods of teaching in medical sciences has been improved by applying new methods such as electronic media.

**Summary of Work:** The aim was to assess attitude and self-reported practice of students following a course on caries risk assessment (CRA) using blended method compared with workshop. A validated questionnaire (Cronbach's  $\alpha=0.7$ ) was used and a group of 82 students were invited and assigned to two groups randomly as I) a 3-day workshop and II) blended learning working with the developed website ([www.risk-assessment.ir](http://www.risk-assessment.ir)). The mean score of attitude and self-reported practice were compared before and immediately after the course using SPSS ver 16.0. The medium-term practice of students was assessed by reviewing the patients note in the following semester.

**Summary of Results:** The response rate was 95% and 59% of the respondents were female. In the traditional group ( $n=38$ ) the baseline mean score of attitude (0-30) was 26 (2.95) and in the blended learning group was 25.82 (3.48), both improved after the course 27.28 (2.54) and 26.73 (2.43), respectively. The mean score of practice (0-4) has improved in both groups significantly ( $p<0.05$ ). In medium-term follow up the more students in the blended group delivered risk-based management including risk assessment, oral hygiene instruction ( $p<0.05$ ) and fluoride therapy for their patients.

**Discussion:** Both methods were successful in improvement of attitude and practice of undergraduate students regarding caries assessing risk. The medium-term assessment showed more sustained practice in the blended group.

**Conclusion:** In complicated education topics, learning can be facilitated by combination of traditional and modern techniques.

**Take Home Messages:** e-learning can be a useful method in medical education.

#4JJ10 (134405)

**Medical Education in a Conscript Military: Making use of Information Technology as a learning tool**

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**Background:** Each year, the Singapore Armed Forces (SAF) Medical Training Institute trains a large number of medics. It is particularly challenging when the duration of their vocation training is only 3 months long, and more than 90% of these trainees do not have prior medical knowledge or experience. Traditional methods of lesson delivery such as flip charts and slides also do not appeal to the new generation of learners.

**Summary of Work:** In July 2015, we kick-started the LEARNet transformation for our Emergency Medical Technician course. In this project, app-based courseware were developed for the theory lessons, which were then downloaded into tablet devices, which every medic trainee would possess. These courseware also incorporated demonstration videos on common procedures and drills, knowledge check questions and a formative assessment at the end of each courseware. Furthermore, wireless infrastructure was built in our camps so that medics can have access to the coursewares outside their classrooms and even in their accommodation quarters.

**Summary of Results:** The proportion of time spent on didactic lessons was cut down by 9.5%, and diverted to more hands-on practice sessions.

**Discussion:** The transformation encouraged medics to do self-learning before attending face-to-face lessons, which could then focus on reinforcement of key messages.

**Conclusion:** Despite the challenge of having to impart medical knowledge to a lay population with no prior knowledge over a short time frame, we managed to overcome these difficulties with the use of a course transformation using information technology. Face to face lesson time can subsequently be used to facilitate more in-depth learning.

**Take Home Messages:** Information Technology is an enabling tool that can increase the efficacy of lesson delivery, engage new-generation learners and allow "learning-on-the-go".

#4JJ11 (126809)

**Medical students managing anaphylaxis: Can combining E-Learning and simulation using blended learning improve student satisfaction and learning outcomes in clinical skills education?**

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*Dason Evans (Bart's and the London School of Medicine and Dentistry, Queen Mary University of London, London, UK)*

**Background:** Simulation and E-Learning are established pedagogical tools, but there is little evidence considering the academic impact of combining them in a blended learning style, despite blended learning having been shown to improve student achievement. This pilot explored the impact of combining these technologies in clinical skills teaching.

**Summary of Work:** Up-to-date guidelines and expert consultation were used to construct an E-Learning package and simulation session leading students through anaphylaxis management and associated clinical and basic sciences. Quantitative and qualitative outcomes were assessed using a knowledge-based questionnaire before and after the E-Learning package and a focus group following the simulation session.

**Summary of Results:** There appeared to be quantitative improvement in knowledge following completion of the E-Learning package, to which students reacted positively, reporting that it was good preparation for simulation. Students commented that the simulation improved their confidence dealing with real-life medical emergencies, and twinning technologies improved the quality of their simulation experience.

**Discussion:** The quantitative and qualitative outcomes of this study demonstrated the effectiveness of E-Learning and simulation as a teaching method in higher education, as illustrated in the evidence base. This study also illustrated the effectiveness of twinning these technologies in improving learning outcomes and student satisfaction.

**Conclusion:** This small study illustrated a potential improvement in learning outcomes, confidence and preparation for clinical practice. Twinning the technologies enhanced the student experience and supported learning. The next step will be to extend the pilot to sessions within the formal taught curriculum.

**Take Home Messages:** This study explored the impact of combining simulation and E-Learning in a blended learning style on undergraduate clinical skills teaching. Quantitative and qualitative assessment showed potential improvement in learning outcomes and preparation for clinical practice. The next step is to extend the pilot to sessions within the formal taught curriculum.

#4JJ12 (136141)

**Comparison between social constructivism model and traditional model of clinical blended learning**

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**Background:** Blended learning is an emerging topic in clinical learning environment. It is important to figure out how to blend the online learning with face-to-face supervision in clinical environment for better learning outcome. This study aims to compare social constructivism model with traditional model.

**Summary of Work:** Traditional model meant traditional clinical supervision supplied by core knowledge construction with online learning. Social constructivism model meant redesign of clinical supervision with role-play and small group exercise supported by identical online learning support except a short introduction about the expectation of the student's role in face-to-face activity. We collected data from a clinical diagnostic image rotation with 82 students in traditional model and 98 students in Social constructivism model. We compared these two models by scenario-based written test and self-regulation and motivation survey.

**Summary of Results:** Exploratory factor analysis revealed that the survey is valid to use in this study. Independent T-test showed the social constructivism model was significantly better than traditional model both on students' written test and self-regulation and motivation survey (factors of Self-efficacy, intrinsic motivation and Goal setting) in the end of the course.

**Discussion:** Through the role-play and small group activity with introduction of the role expectation prior to face-to-face clinical learning, the students were motivated and performed better in scenario-based exam. This social constructivism model is more compatible with the underlying educational goal of blended or flipped classroom that is applying knowledge to resolve clinical problem and even to show competent professional role.

**Conclusion:** Social constructivism model is better than traditional model for blended learning in clinical environment.

**Take Home Messages:** When design your own clinical blended learning, try to add professional role-play and small group activity with a short introduction to tell the students how you expect their role in face-to-face activity.



#4JJ13 (130496)

**Moodle - the Swiss Army Knife for e-Learning in Medical Education**

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**Background:** In the modern socio-economical context the use of traditional methods in medical education is generally not enough. E-learning provides well-known benefits. Many institutions find and implement e-learning instruments and platforms but there are many medical education institutions which are still searching for the best solution for their specific context.

**Summary of Work:** We are trying to find a single e-learning platform which is capable of being used in different medical education contexts and scenarios. The platform must meet some mandatory criteria to be useful for educational purposes (availability, authenticated access, etc.) and the implementation, technical requirements and maintenance costs must be minimal.

**Summary of Results:** Moodle is an open-source platform which can be used in medical education. Being one of the oldest e-learning platforms, the community of users is large and a dedicated technical team provides support and updates. It can be accessed using different devices (i.e. computers, smartphones) and fits with many existing infrastructures.

**Discussion:** At our University, we've used Moodle for different medical education pathways: additional support for teaching and learning using traditional methods, support for PBL, support for competition-based learning, support for virtual patients, support for continuing education, etc. Those doing the learning have been both students (undergraduate or postgraduate) and administrative staff.

**Conclusion:** Moodle can serve as a tool for supporting many medical education methods. The ease of installation, implementation, usage and maintenance, the adaptability to existing infrastructure, its multiple use possibilities for different approaches, all entitle the comparison with a Swiss Army Knife for e-Learning in Medical Education.

**Take Home Messages:** Moodle can be a very good choice for institutions which are starting to use e-learning for medical education. It is very important that those responsible for e-learning programs are aware of the limitations of the technology and the importance of the human infrastructure when implementing these programs.

#4JJ14 (127132)

**Developing Reflective Practitioners: Evaluation of a Web Based Tool Used During Placement Experiences**

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**Background:** Taking time to pause and reflect in order to make informed practice decisions is vital in today's rapidly changing health care system. Reflective practice provides practitioners and learners with the skills to examine practice questions. Reflexivity is often touted as a bridge between theory and practice.

**Summary of Work:** Theory and reasoning processes utilized by experienced practitioners is often tacit and not made explicit to learners. This project included the development of a web based tool to allow students to track clinical activities with accuracy, link these "interventions" to theory and provide students with a tool for personal reflection.

**Summary of Results:** Pilot data collected revealed the following: overall positive feedback with the system though somewhat time consuming to record each and every encounter; the opportunity to seamlessly reflect in written format and receive feedback; seeing their progression during placements particularly related to the roles they were tracking and their level of participation (supervision to independence).

**Discussion:** The information and data collected, sorted and reviewed adds to the evidence that the curriculum is being reinforced in the practice setting. The students anecdotally report that weekly reflections of their experiences- successes, challenges, surprises and heartbreaks, helps to solidify their learning and give them resources to draw on for the next time they are in a similar situation.

**Conclusion:** Receiving responses from the academic faculty on their reflective entries is what makes the act of journaling so much more meaningful. The academic feedback provides strategies and solutions that are helpful and sometimes just receiving affirmation that they are on the right track is just what is needed.

**Take Home Messages:** Utilization of web based tool for tracking clinical encounters, analyzing roles undertaken and reflecting on encounters during clinical placements can be used as an: 1) Educational Tool, 2) Evaluation Tool, 3) a Communication Tool and 4) a Planning Tool providing valuable information to learners, the educational program, and the community partners.

#4JJ15 (134063)

**Involving patients with heart failure in the design of an educational website**

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**Background:** Heart failure is a serious condition. Ideally, patients with heart failure should make deliberate decisions about treatment and healthcare behaviors. Unfortunately, many patients fail to perform successful self-care. Little is known about the patients' own views about their learning needs and their possible role as co-designers of online learning tools.

**Summary of Work:** This was a two-step study. Step one: Sixteen patients described their learning needs in focus group interviews or diaries. Analyses of these guided the design of prototypes of a website. Step two: Four patients participated in video-recorded design sessions employing a think aloud method. A content analysis was performed.

**Summary of Results:** Three themes regarding learning needs emerged: "worried about life", "managing my condition", and "managing daily life". These were triggered by daily situations and driven by anxiety. When designing, patients emphasised different ways of adapting the design to the patient group, enabling interaction with peers and professionals, and specific interface issues.

**Discussion:** Involving patients in the discovery of own learning needs showed what patients really need in order to deal with daily life. Using prototypes and working with patients as co-designers can contribute to a more meaningful design and content.

**Conclusion:** Discovering patients' questions and concerns in the context of their everyday life is an important contribution to knowledge of patients' learning needs. Specifically designing to meet patients' learning needs in-between visits to the out-patient clinic will further support patients' learning on how to deal with their condition.

**Take Home Messages:** Patients with heart failure can help identify what is important to learn when it comes to dealing with a chronic cardiac condition in everyday life. Moreover, they can, work as co-designers of a website and provide useful ideas and insights on how to better support patient learning.

#4JJ16 (126905)

**Development of e-learning material for sophomore nursing students to simulate clinical practice**

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**Background:** Clinical practice is important for novice nursing students to understand actual patients. However, the severity of patients' illness inhibits students' training opportunities. This study develops e-learning material to train students for intervention required by a sudden change in patients' condition and to measure the effects of e-learning material use.

**Summary of Work:** E-learning material to simulate patient conditions changed abruptly conducted for this study. The materials based on experience from students' interviews One hundred and two sophomore nursing students participated in using the e-learning material before their clinical practice in a hospital and then completed a questionnaire related to their experience.

**Summary of Results:** Fifty students answered the questionnaire, of which 88% confirmed understanding how to treat sudden changes in patients, 42% said, "they called staff," and 16% chose "using the nurse call button." "Check vital signs" and "don't leave patients" were other answers. Further, 80% found knowledge about clinical practice materials were useful.

**Discussion:** E-learning material helps students understand clinical practice and intervene for sudden changes in patients, as initial e-learning training simulates clinical practice, including sudden changes. The trainees' satisfaction was affected by the time of implementation of the e-learning.

**Conclusion:** Using e-learning before clinical practice is effective to simulate actual bedside situations and treatment of sudden patient changes. Additionally, the timing of the use of material is important for retaining knowledge and effects learners' satisfaction. Future tasks of this study are to promote fixing knowledge about patient's sudden changes.

**Take Home Messages:** E-learning helped participants recognize that the learning content was relevant to their clinical practice. This training had a positive effect on participants' clinical practice, and improved their satisfaction.

#4JJ17 (136185)

**A web based module in interpreting neonatal head ultrasound: effect on trainees' knowledge and skills**

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**Background:** Accurate interpretation of head ultrasounds is an important skill for physicians in the neonatal intensive care (NICU). These scans help identify babies who are at risk of poor neuro-developmental outcomes and they are used to guide management and diagnose infants who may require regular follow-up care. We designed and implemented a web-based learning module to assist pediatrics trainees in acquiring the skills of reading and interpreting neonatal head ultrasounds.

**Summary of Work:** Our aim in this study was to assess whether the knowledge and skills learned from the module have affected trainees' performance and were actually put into practice. All trainees studied the module over six-months period of implementation, participated in this evaluation n=23. We used simple, one group time series pre-post-test design to assess the extent to which our educational intervention has had an impact on trainees' learning. We created two separate sets of knowledge tests and performance/practical tests.

**Summary of Results:** The knowledge test scores showed that the mean baseline knowledge of interpreting neonatal cranial ultrasound was low at (42%). The mean participant knowledge in posttest increased to (76%). Using the paired t test we found a very significant difference between the two groups ( $p < 0.001$ ). We also found significant change in the performance scores between the pre and post-tests. There was total of 200 answers in each set, 99 were wrong diagnosis in the pre-test and only 17 wrong diagnosis in the post-test ( $p < 0.001$ ). There were only 52 complete answers in the pre-test compared to 126 in post-test ( $p < 0.001$ ).

**Discussion:** The web-based neonatal cranial ultrasound module significantly improved medical trainees' understanding of this topic as well as their ability to put their knowledge into practice. This encouraged us to use our experience to plan for similar modules for other topics with a high-perceived level of difficulty in different areas of neonatal medicine.

**Conclusion:** The web-based module contributed to the trainees' self-directed learning opportunities and enhanced their knowledge and expertise in reading neonatal cranial ultrasounds, which may translate to better patient outcomes if the knowledge and skills are appropriately and consistently applied in practice.

**Take Home Messages:** Web based module are effective learning modality when properly designed and implemented.

#4JJ18 (133746)

**Short films for education of primary health care professionals**

**Luciana Pinheiro\***, UFCSPA, Porto Alegre, Brazil

Luciana Pinheiro (UFCSPA, Porto Alegre, Brazil)

Alessandra Dahmer (UFCSPA, Porto Alegre, Brazil)

Maria Eugênia Pinto (UFCSPA, Porto Alegre, Brazil)

**Background:** Since 2009, Federal University of Health Sciences of Porto Alegre (UFCSPA), participant of the Brazil's Open Health University (UNA-SUS), offers an e-learning Family Health Specialization (FHS) course that has graduated 1327 students (physicians, dentists and nurses). FHS course was provided in two modules. In the first one, general content concerning public health is covered. The second is based on a problem-based-learning strategy in which professionals are exposed to complex clinical cases. The aim of this study was to describe the adaptation of learning complex cases originally presented in text to short films.

**Summary of Work:** Thirty cases designed by the UNA-SUS/UFCSPA's team were used on FHS course. From these, seven were adapted to short films. They have scripted narratives in which literary elements were used to organize the stories and make scenes more similar to what is experience at work, preserving the clinical aspects of it, to represent the daily life of professionals, patients and their conditions.

**Summary of Results:** Topics covered in the films include clinical, social, and family aspects, as well as community-related ones. The scenes depict a realistic portrait of health services provided by Brazil's Universal Health System, they help to develop observation and communication skills, critical analysis of the attitudes, besides clinical knowledge.

**Discussion:** Complex cases represent an expressive way to learn and interact with different knowledge and skills which are required of health professionals. Students are able to identify themselves with real-life situations projected onto the screen.

**Conclusion:** Complex cases have been properly adapted to the screen based on the simulation of real-life situations for educational purposes.

**Take Home Messages:** To use complex cases adapted to short films could be a promising tool in the education of health professionals. This method makes the learning process more attractive for multiples reasons.

## 4KK Posters: Written & Computer Based Assessment

Location:

#4KK01 (133298)

The use of a tablet-based testing in high-stakes exams

**Marcos Borges\***, *Ribeirao Preto Medical School, University of Sao Paulo, Ribeirao Preto, Brazil*  
Valdes Bollela (*Ribeirao Preto Medical School, University of Sao Paulo, Ribeirao Preto, Brazil*)  
Ricardo Cavalli (*Ribeirao Preto Medical School, University of Sao Paulo, Ribeirao Preto, Brazil*)  
Rui Mamede (*Ribeirao Preto Medical School, University of Sao Paulo, Ribeirao Preto, Brazil*)  
Fabiana Valera (*Ribeirao Preto Medical School, University of Sao Paulo, Ribeirao Preto, Brazil*)

**Background:** Multiple-choice question is the most used cognitive assessment method in undergraduate, graduate and continuing medical education exams. High-stake exams traditionally use paper-based (PBE) tests and there is scarce information about students' perception and acceptance on delivering these exams on tablets, the tablet-based exam (TBE).

**Summary of Work:** A 100-item PBE used to select first year residents, in a program with 1,500 applicants, was applied simultaneously in a TBE to 99 final year medical students. After the exam, a questionnaire was applied focusing on the frequency of tablet or smartphone use in personal and professional activities, the quality of items in the exam and students' perception on the experience.

**Summary of Results:** Eighty-nine (90%) students reported they use tablet or smartphone daily. The most frequent activities were send/receive messages, social web services, and studying. The majority of the students acknowledged the good quality of reading; images and graph in the exam; and reported that security was appropriate in TBE, however they missed a place to draft and make notes during item resolution. Of note, 68% of them still preferred paper-and-pencil exam over TBE.

**Discussion:** Students highlighted several advantages, such as the possibility of amplifying figures and include videos and audio in the exam. Compared to PBE, TBE was considered more practical and faster; but tiredness was considered similar. However, in high-stake exams, students still preferred PBE.

**Conclusion:** Although TBE seems to have several advantages, students still prefer PBE for high-stakes exams.

**Take Home Messages:** Despite the fact that 21st century students are considered native on digital era, during high-stake exams medical students tended to be more old-fashioned and this should be considered when planning this type of exams.

#4KK02 (132572)

Progress tests in pharmacology: limitations

**Joachim Neumann\***, *Medical School, Depart Pharma Tox, Halle, Germany*  
Ulrich Gergs (*Pharmacology, Halle, Germany*)  
Stefanie Simmrodt (*Pharmacology, Halle, Germany*)

**Background:** It is a continuous task to assess the gain of knowledge in medical students. One such possibility lies in using progress tests: This has been used before by given identical test before or during or after completion of a curriculum. We wondered whether this would be helpful in a pharmacology course comprising only lectures in medical students.

**Summary of Work:** The initial voluntary test (containing 30 MC questions) was taken by 82 % of the electable students (n=159). Defining a passing grade of 60 % only 2 % of the students passed the test. Range was 6 and 21 points. This indicates practically no previous knowledge of pharmacology is present in these students, which was to be expected.

**Summary of Results:** The final now, obligatory test at the end of the course lectures was taken by all electable students (n=159) and was passed by 95 % (range of points obtained was 12 to 29)

**Discussion:** Only, one student dropped in performance from 13 to 12 points. The highest improvement was from 6 to 29 points in one student and from 8 to 29 points in three students. This might be interpreted as gain of knowledge by the course, but also (judged from informal talks with students) due to memorization of the questions (which were never formally released) by students.

**Conclusion:** Hence, progress tests are useful but probably need to be modified when given twice to be of real merit.

**Take Home Messages:** Progress tests for medical students in pharmacology have limited value in clearly indicating why widely and deeply students increase their knowledge in a lecture bases course.



#4KK03 (131563)

**Prediction of the final examination with recall or problem-based type of test in formative assessment - which one is useful?**

*Thananda Trakarnvanich\*, Department of Medicine,  
Faculty of Medicine, Vajira Hospital, Navamindradhiraj  
University, Bangkok, Thailand*

*Supatsri Sethasine*

*Charnarong Trisuwanwat*

*Metavee Boonsiri*

*Tanun Ngamvichukorn*

**Background:** Assessment is an essential part in any educational program. Formative assessment is recommended to produce feedback about the learning process. We studied 2 types of formative quizzes, recall type and problem-based question and study the association between these two types of examination with the summative and the previous grades.

**Summary of Work:** There are 76 fourth - year medical students divided into four groups in the 2015 academia year. The students have two types of formative questions (recall and problem-based) in the mid-course of internal medicine ward rotation. By the end of the rotation, summative examination was performed.

**Summary of Results:** The preliminary results of two groups (39 students) revealed that only recall-type questions can predicted summative assessment. Formative (both types) and summative assessment have association with grade point average (GPA) in the preclinical period (year 1- year 3).

**Discussion:** The recall question which can be answered from memory is being replaced by newer problem-based type. Herein, the use of recall examination better provided information about the achievement. This indicates that memory recall still have influence in subsequent outcome. The GPA during the preclinic also a predictor in clinical years.

**Conclusion:** Presently, we have information that formative assessment with recall-type question has some predictive value with summative assessment but not the problem-base type. This indicated that the use of two indicators would be more specific to identify the risk of students for failure.

**Take Home Messages:** Formative assessment provides information to direct future learning. Multiple measurements using both recall and problem-based type can increase the power of prediction. The grade results previously in the past also correlate with the final test and render the teachers to concentrate in high risk students and help to improve them.

#4KK04 (135172)

**Current status and issues of web-based test: WBT at a school of medicine in Japan**

*Hajime Furusaka\*, Chiba University, Chiba, Japan*

**Background:** A web-based test has been introduced and the current system has been operated for three years at the school of medicine where I work.

**Summary of Work:** A web-based test, which is called, wbt is operated for each unit for mainly from the second to fourth grade medical students. There are approximately 40 units currently such as Allergy-Collagen Diseases unit, Dermatology-Plastic Surgery unit. Wbt is held in daily-basis all year around and questionnaires on lesson evaluation of each unit are followed after every wbt. Analyzing the results of these questionnaires, they are returned to each faculty in charge of the unit. Afterwards, faculty provides answers for students and I obtain feedback on wbt at the same time.

**Summary of Results:** Current wbt system operating in my university offers multiple benefits for faculty members. According to feedback from faculty, the biggest benefit is that they can receive the scores of test-takers and the result of analysis promptly. Introduction of wbt brought faculty members remarkably to reduce time and labour for unit exams.

**Discussion:** Whereas there are a significant number of advantages on wbt such as saving troubles, time and evading cheating, we have some disadvantages, which are necessary to be solved, in terms of cost and special knowledge of wbt system.

**Conclusion:** Nevertheless, 100% of faculty members who used wbt for unit exams answer that they wish to use wbt for their unit exams again.

**Take Home Messages:** It is necessary to consider how to challenge and overcome the issues on wbt in order to improve the current system.

#4KK05 (135248)

**How to construct an exam blueprint - a comparison of two methods used in a new medical school**

*Claire Ann Canning\*, Lee Kong Chian School of Medicine, NTU, Singapore, Singapore*

*James Stratford-Martin*

*Naomi Low-Beer*

*Katharine Boursicot*

**Background:** The ultimate goal of constructing an exam blueprint is to ensure content validity. To align assessment with the taught curriculum, it is standard practice to develop an examination blueprint or test specification grid where test items are mapped to learning outcomes. A blueprint is generally a two-dimensional matrix that correlates an assessment item to a learning outcome and defines the numbers of items within the learning domains to be assessed. Multiple approaches can be undertaken for particular assessment purposes, and we present two distinct methods of blueprint construction that were employed and compared for item content.

**Summary of Work:** Two distinct exam blueprints were constructed for the year 1 MBBS end of year exam. The first method utilised the relative proportion of time assigned to different teaching modules in the curriculum and was algorithm based. The second method employed faculty with subject specialty to choose test items they deemed important for student knowledge. Length of exam, weight of each item in relation to learning outcomes and proportion of items, were taken into account for the faculty led method.

**Summary of Results:** As an initial study, four learning domains were analysed and compared across the two different blueprints for a Year 1 undergraduate medical exam. No significant differences were found between the numbers of domain items sampled in the two separate blueprints. However, when analysed further, certain learning domains displaying different types of characteristics (e.g. those pertaining to vertically integrated courses) highlighted some important differences.

**Discussion:** Our results demonstrate that there were no substantial differences in the composition of an exam blueprint constructed either by faculty-led domain sampling versus weightage of time assigned to distinct curriculum modules.

**Conclusion:** There are multiple methods to constructing an exam or test blueprint. Whichever method is utilised the fundamental goal is to ensure content validity. No major differences were observed when two distinct methods were chosen for the same exam.

**Take Home Messages:** When careful attention to all domains and consensus between multiple faculty members is ensured, a robust exam blueprint can be constructed by faculty-led test item sampling. Faculty responded positively and this generated additional benefits in terms of faculty engagement.

#4KK06 (128601)

**Factors influencing national license examination step 1 score in preclinical year medical students**

*Pongtawat Lertwilaiwittaya\*, Faculty of Medicine*

*Siriraj Hospital, Mahidol University, Bangkok, Thailand*

*Chantacha Sitticharoon*

*Pailin Maikaew*

**Background:** Passing 3 steps of National License Examinations (NLE) is required to obtain a medical license in Thailand. NLE step1 which tests basic medical sciences knowledge is considered to be tough and stressful due to large amount of basic medical contents. This study determined factors that influenced NLE step1 score (NLE1S).

**Summary of Work:** NLE1S of the second preclinical year, academic achievement, and class attendance were obtained officially. Other factors including study behavior were obtained from questionnaire with 81.97% being returned (241/294). Students were subdivided into 4 groups including fail (<52%), pass (52%-<70%), good (70%-<80%), and excellence (>=80%) according to Z-score.

**Summary of Results:** Preparation time/day was lower but stress was higher in the fail group. Internet for academic use and reading to level of expectation were higher, but internet for non-academic use, late+absence, stress level, and check-in time were lower in the excellence group. Academic achievement had strong positive correlations with NLE1S.

**Discussion:** Different behaviors of student for preparing NLE step 1 including preparation time, internet for academic/non-academic use, late+absence, checkin-time, and stress level as well as academic achievement including GPA, subject scores, and comprehensive examination have an influence on NLE1S. Sleep time and exercise time were not the factors affecting NLE1S.

**Conclusion:** Students with good NLE1S also had good academic achievement in preclinical study and good behavior including lower internet for non-academic use, late+absence, and early checkin-time and higher internet for academic use and reading to level of expectation. Performing good study behavior regularly might lead to good academic achievement and NLE1S.

**Take Home Messages:** Good study behaviors are encouraged to preclinical students to perform regularly in preclinical years in order to obtain good academic achievement, good NLE1S, and lower stress level during period approaching NLE exam.

#4KK07 (133352)

**Students' views about the factors affecting their performance on continuous assessment at the College of Medicine, KKU, KSA**

**Omer Elfaki\***, College of Medicine, KKU, Abha, Saudi Arabia

Abdulaziz Al-Amri (College of Medicine, KKU, KSA)

Karimeldin salih (College of Medicine, KKU, KSA)

**Background:** The system of continuous assessment (CA) used in the College of medicine, KKU can be described as frequent summative assessments since there is no regular feedback. The curriculum adopted is discipline-based. Separation of male and female students into two university camps might be a factor affecting the performance of students in CA. The objective of this study was to examine the relation between each of gender, feedback and students' perception of learning and students' performance in CA.

**Summary of Work:** The target population of this study was the 4th, 5th and 6th year students of the college of medicine, KKU. The average of each of the three batches was 130 students. Non-probability convenience sampling was used aiming at 25% - 30% of the total. A correlation design was adopted. A structured self-administered questionnaire was developed and validated before use. Pearson's correlation coefficient(r) was computed using SPSS. P value of <0.05 was considered significant.

**Summary of Results:** The total number of respondents was 128 with 58% of them males and 42% females. The computed r for the perception of learning with performance in CA was .741 and for feedback with performance in CA was .766.

**Discussion:** This cross sectional study clearly indicates a significant positive correlation between the studied constructs except gender. Although profound evidence does exist on the positive effect of CA on academic performance and motivation of students, this effect seems to be dependent on how the assessment system is used.

**Conclusion:** The respondents viewed their perception of learning and feedback as significantly and positively related to their performance in CA

**Take Home Messages:** Even with minimum feedback, still CA resulted in motivation and better performance.

#4KK08 (134687)

**Formative comprehensive examination (FCE) enhances clinical knowledge in medical students**

**Surasak Aumkaew\***, Medical Education Center, Buriram Hospital, Buriram, Thailand

Surisa Siri Wong, Medical education center, Buriram hospital, Anesthesiology

Walaiporn Ployted, Medical education center, Buriram hospital, Otolaryngology

Narin Chindavech, Medical education center, Buriram hospital, Medicine

Yupin Prawai, Medical education center, Buriram hospital, Obstetrics& Gynecology

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**Background:** Comprehensive examination has been used for medical knowledge evaluation before graduation. Formative evaluation use for improve all domains of student learning. Applications of formative feedback in comprehensive examination may be improve clinical knowledge and inspire active learning.

**Summary of Work:** Seventy five medical students (4th, 5th, 6th year) were performed the first formative comprehensive examinations (FCE) used by 100 items MCQs case scenarios at the mid year. Students were informed their examination scores, percentiles and feedback their knowledge weak-points for active learning. The second FCE was performed at the end of the year with the same table of specification. The improvement of scores was analyzed with paired t-test. The regular examination score in each clinical year was compared between before and after FCE application.

**Summary of Results:** Baseline characteristics were similar in all clinical year students. The first FCE scores were significantly different in 4th, 5th and 6th year ( $31.58 \pm 5.84$  vs.  $45.34 \pm 6.04$  vs.  $45.10 \pm 7.20$ ,  $p=0.00$ ). The second FCE scores were significantly improved in 4th, 5th, and 6th year ( $44.73 \pm 9.22$  vs.  $60.49 \pm 7.65$  vs.  $56.19 \pm 7.19$ ,  $p=0.00$ ). The mean difference of FCE scores of each clinical year were not significantly different ( $13.15 \pm 6.53$  vs.  $15.15 \pm 5.32$  vs.  $11.08 \pm 7.88$ ,  $p=0.12$ ). After FCE application, regular examination scores were significantly improve in 5th and 6th year ( $69.05 \pm 7.01$  vs.  $69.97 \pm 6.93$ ,  $72.70 \pm 7.77$  vs.  $61.20 \pm 6.83$ ,  $p=0.00$ ) but no significantly improve in 4th year ( $69.23 \pm 7.47$  vs.  $66.98 \pm 6.04$ ,  $p=0.29$ ).

**Discussion:** Formative comprehensive examination enhance active learning in clinical year especially in 5th and 6th year because this examination emphasis in application of clinical knowledge.

**Conclusion:** Formative comprehensive examinations not only improve FCE scores in all clinical years but also achieve higher regular examination score especially in 5th and 6th year. This may be result from enhancement in clinical knowledge active learning.

**Take Home Messages:** Formative comprehensive examination and feedback may stimulate active learning of clinical knowledge.

#4KK09 (134033)

**ADEM PLUS: Performance assessment of medical students in Brazil**

**Ricardo Komatsu\***, HSL - Hospital Sirio-Libanes and  
FAMEMA - Marilia Medical School, Sao Paulo - SP,  
Brazil

Roberto Padilha

M. B. Anderson

Raja Subhiyah

Paulo Chapchap

**Background:** There are in Brazil initiatives of assessment and evaluation in Medical Education as National Exam of Students' Performance – ENADE, part of SINAES–INEP–MEC (Ministry of Education), progressive tests, organized by consortia of medical schools, beyond of proposals of terminal exam such as applied by Sao Paulo State Medical Licensing Council – CREMESP.

**Summary of Work:** The objective of this study is to support and promote medical students' performance assessment, and physicians assessment in first two postgraduate years, and to support program evaluation of Brazilian's undergraduate medical schools. We are conducting a longitudinal assessment involving sequential exams in clinical sciences at the end of: 3rd., 4th., 5th. and 6th. years of MD Program (2013) and during the 1st.(2014) and 2nd (2015) postgraduate years. The exams will be developed and applied by National Board of Medical Examiners (NBME) with questions wrote, reviewed and validated by a Brazilian Committee for ADEM+ (HSL-IEP).

**Summary of Results:** Results of the three administrations have been encouraging and yielded useful information which will be described in the presentation. One result was that students in higher training levels obtained higher mean scores, as expected. Also, mean scores in the second administration were higher than in the first, suggesting that the students were getting habituated to this form of testing.

**Discussion:** ADEM plus is a successful initiative surely contributing to reinforce the culture of assessment and evaluation in MD programs in Brazil.

**Conclusion:** The program is presenting visible progress in increasing the length and quality of the examination.

**Take Home Messages:** Assessment of medical students and doctors is a needed and useful process to develop students' and doctors' assessment and program evaluation in Brazil.



## Session 5: Simultaneous Sessions

Monday 29 August 2016: 1545-1730 hrs

### #5A Symposium: Faculty Development in the Health Professions: From Skill Acquisition to Professional Identity Formation

Location: Auditorium



*Yvonne Steinert\** (McGill University, Montreal, Canada)

*David Irby\** (UCSF, San Francisco, USA)

*Patricia O'Sullivan\** (UCSF, San Francisco, USA)

Faculty development programs are gaining prominence in most health professional schools and educational organizations. However, despite a significant growth in the scope and breadth of available offerings, the major focus of faculty development activities has been knowledge acquisition and skill development for teachers and educators. While this focus enables growth and renewal among faculty members, a frequently overlooked area in faculty development concerns health professionals' identities as teachers and educators, a critical factor in faculty members' commitment to the educational mission and the task at hand. The goal of this symposium is to carefully examine the role and importance of faculty members' professional identities and how these identities can be supported and nurtured by faculty development programs and activities. Research in this emerging area will be shared, as will different approaches by which teachers' professional identities can become the focus of formal and informal faculty development offerings. Faculty members are our most important resource; respecting and supporting their identities is essential in the achievement of our educational objectives.

### #5B Symposium: Exploring active learning strategies for large group settings

Location: 211 – P2



*Peter GM de Jong\** (LUMC, Leiden, The Netherlands)

*Ann Poznanski\** (USA)

*Joseph P Grande\** (USA)

*Frazier Stevenson\** (Conceptual Medical Education, USA)

(On behalf of IAMSE)

It is known from the literature that active elements in teaching and learning improve engagement of learners in the learning process and have positive effects on learning outcomes. Active learning activities promote higher-order cognitive tasks by actively engaging the student with course content. It also brings the focus in teaching and learning more to the learner. However, there are challenges in initiating this

pedagogy, often involving the development of both students and faculty who may be more used to lecture-based curricula. This symposium provides an overview of active learning strategies currently used in health sciences education, and will focus on a few strategies in more detail. In a concluding panel discussion the opportunities and challenges of introducing active learning strategies into teaching activities will be discussed with the audience.

### #5C Symposium: Making the implicit explicit: Theories informing simulation-based education

Location: MR 112 – P1

*Debra Nestel\** (Monash University, Australia)

*Nancy McNaughton\** (University of Toronto, Canada)

*Walter Eppich\** (Northwestern University Feinberg School of Medicine, USA)

*Gabriel Reedy\** (Kings College London, UK)

*Ryan Brydges\** (University of Toronto, Canada)

*Peter Dieckmann\** (Copenhagen Academy of Medical Education and Simulation, Denmark)

Junior doctors have long been considered clinical apprentices who learn on the job. A paradigm shift occurred when institutions around the world began designing structured learning experiences for postgraduate (PG) trainees targeting outcomes and framing specific activities that junior doctors should perform independently before graduation. Today, the medical profession offers a variety of career choices beyond a specific medical specialty, including educationalist, researcher, administrator and advocate. Junior doctors are expected to engage in a host of roles beyond that of a clinician, but does their training prepare them to take on such roles? This Symposium will review tailored PG tracks already in place in some countries and data from junior doctors on what further career training they feel they require. Participants are invited to share their own experiences with supplemental PG training and debate the need to train PGs around the world with a focus on their career goals.

## 5D AMEE Fringe 1

Location: MR 117 – P1

#5D1 (136245)

**Music: A Full Brain Workout!**

**Wendy Stewart\***, *Dalhousie University, Quispamsis, Canada*

**Summary:** Music is ubiquitous in all societies and transcends all cultural boundaries. We are exposed to music in all areas of life; the car, the elevator, grocery stores, and waiting rooms, for example. We actively seek out music as entertainment at rock concerts, classical concerts, or even just a sing-a-long with family and friends. So what is the attraction? Over the last 15-20 years, there has been a growing body of evidence around the impact of music on the brain and, in turn, how it affects our bodies. Using a technique known as functional MRI, it is possible to identify the areas of the brain that are activated when we are involved in listening to or playing music. These studies show that music activates many different areas of the brain: understanding melody and interpreting tempo and meter all involve different parts of the brain. If we play an instrument in a music group, we are using our motor skills to play the instrument, our eyes to read the music and our ears to listen to our colleagues playing along with us. Music has a number of positive effects on the body; affecting the autonomic nervous system, hormone levels, pain receptors and our motor system. It impacts our breathing, heart rate and blood pressure, and activates the rewards systems of the brain, making us feel good. This interactive presentation will draw on recent research to provide the audience with an understanding of how music can be used in clinical care, health and medical education. Using different media and live music, the presenter will engage the audience in a variety of interactive activities to provide an understanding of how music affects our brain and body, and how this knowledge can be used in teaching and clinical care.

#5D2 (135340)

**The observatory: A sensory training workshop**

**Anna Harris\***, *Maastricht University, Maastricht, Netherlands*

**Summary:** Doctors are expert observers. Medical education involves an ongoing tuning of the skills of attention and observation required for good medical practice. Such skills are incredibly difficult to teach however. It is a challenge to create learning environments in which novices learn to notice the big and small differences that are important for diagnosis. Other expert observers deal with the same challenges. A wine critic must learn to distinguish between vintages, a perfume maker between scents. Drawing inspiration from these other fields of sensory expertise, and the recent surge in art appreciation and creative writing classes in medical schools, in this

Fringe activity medical educators will be invited to engage in a multi-sensory training workshop which attends to noticing and observing differences. Three tables will be set up with wine odour smell kits, different teas to taste and clays to feel. Participants will spend five minutes at a chosen table, attempting to distinguish and articulate differences in what they sense. This activity will be followed by the presentation of a series of images of dermatological conditions and sounds of respiratory pathologies, with an interactive quiz for participants to find differences. The last five minutes will be an open discussion, led by the workshop organiser - a medically trained anthropologist - of the kinds of questions and resonances that medical educators may find with teaching diagnostic skills, through creatively engaging with what it means to observe and articulate sensory differences. The aim of the Fringe activity is to create an inspiring sensory training exercise which attends to differences (in taste, smell, texture etc.) that participants might otherwise not notice; to find ways to articulate these experiences; to consider how such exercises might be introduced in medical schools; and to reflect on the skills of observation that are required for medical practice.

#5D3 (126656)

**Memory is a tricky thing... The limitations of human memory and its impact on error**

**Nick Woodier\***, *Trent Simulation and Clinical Skills Centre, Nottingham, UK*

*Patience Ehilawa (Trent Simulation and Clinical Skills Centre, Nottingham, UK)*

*Bryn Baxendale (Trent Simulation and Clinical Skills Centre, Nottingham, UK)*

**Summary:** Introduction Memory is complex. Ensuring that healthcare learners have an understanding of the limitations of memory and the impact of distractions on their practice supports an appreciation of why errors occur. Slips (distraction) and lapses (forgetting) are common active, human errors in healthcare, particularly when prescribing. Basic models of memory suggest that three memory stores exist: sensory, short term (STM) and long term (LTM). STM is the most relevant to daily healthcare work being where incoming information is initially stored. It has a finite time for recall and capacity and therefore, for retention, information requires rehearsal resulting in encoding in LTM. STM has both auditory (phonological loop, PL) and visual (visuospatial sketchpad, VSS) receiving components. Both the PL and VSS are regularly called upon in dual-task processes. When one combines an auditory and visuospatial task they are both possible because they use separate processes. However, combine two visuospatial or two auditory tasks and it is difficult and error prone. Using a variety of engaging experiences, we develop healthcare learners' understanding of memory and its limitations through practical exercises under "stress" situations.

This supports an appreciation of the impacts of “trying to remember” and “distractions” on practice, and how to address these influences, in an effort to create safer practitioners. **Aim** The aim of this session is to provide the audience with an understanding of human memory processes, and more importantly, how memory can fail us. This will be achieved through active participation using a variety of auditory and visual exercises, with the primary outcome being for participants to appreciate the limitations of memory on their practice and how this can contribute to error. **Audience** Anyone who is interested in “testing” their memory under different situations. The psychology of memory is relevant to domestic and professional life from any background.

**#5D4 (134814)**

**The world without medical students**

**Andrea Daniela Maier\***, *University of Copenhagen, Faculty of Health and Medical Sciences, Copenhagen, Denmark*

*Pernille Linde Jellestad, University of Copenhagen, Faculty of Health and Medical Sciences, Denmark*

*Jørgen Kurtzhals, University of Copenhagen, Faculty of Health and Medical Sciences, Denmark*

*Thomas Fahrenkrug, University of Copenhagen, Faculty of Health and Medical Sciences, Denmark,*

*Freja Dalsgaard Olsen, University of Copenhagen, Faculty of Health and Medical Sciences, Denmark*

**Summary:** Imagine a world without students. Might sound tempting for the faculty at any university. No one demanding curriculum changes. No one screaming and shouting over financial cuts. And no one complaining over the lack of course structure or the demands for speed reading (1000 pages in 9 weeks - what is this? Medical boot camp?) But then, imagine the class rooms being empty. The lecturers giving dashing lectures to each other, only to praise each other's petite p-values. Eventually, the professors and lecturers would become bored and want to lecture someone, who can really be dazzled by their academic excellence and their ability to disseminate. And so students are invited into the university. The lecturers observe how the students' critical sense has value for research, educational methods and development of theories. But the students also question the way the curriculum is developed as well as how the political decisions are made. Madness! All the decisions should be top-down, even though they affect students. Revolution! Students on the streets protesting, and making faculty staff life very difficult - as well as making the implementation of the decisions costly and inefficient. The students demand a say in every decision influencing them, whether management likes it or not. In the beginning, crazy ideas like ice-cream at the lectures and comfortable couches in class prevail, but after some time students become the innovative voice in faculty development and a vital part of any university. This fringe session will invite you to investigate how the students are effectively

incorporated into faculty development using real life examples and worst/best case scenarios as illustrations.

**#5D5 (134520)**

**What are they thinking? Clinical teaching in 55 word stories!**

**Lucie Walters\***, *Flinders University Rural Clinical School, Mount Gambier, Australia*

*David Campbell*

*Ian Couper*

**Summary:** Coming together from across the globe To explore GP experiences of teaching clinical reasoning in primary care. Sharing common understandings and drawing out unique thinking Listening; developing the thinking of learners Always open to better ways of managing the journey of junior colleagues and patients. Such passion. Such compassion. Perhaps intuition?. Much critical enquiry The 55-word story format was developed in 1987 by Stephen Moss, editor of the San Luis Obispo New Times, for a short-story contest, which attracted a lot of interest, with many of these being published. More recently, the format has been used as a device in assisting health care practitioners and students to reflect on their experiences. Come and try your hand at incorporating short stories into your teaching. Please bring a short story of your own experiences of teaching in clinical practice. We will share these and perhaps develop some common insights.

**#5D6 (134391)**

**I am an actor and a medical student - that changes everything**

**Ugo Caramori\***, *Pontifical Catholic University of São Paulo, Sorocaba, Brazil*

*Gabriela Biava (Pontifical Catholic University of São Paulo, Sorocaba, Brazil)*

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**Summary:** Before getting into medical school you can imagine all sort of things you will do while in university. Extension programs, scientific research, international exchanges and internships. But what about being an actor, writing a script, take drama classes and performing in front of an 300 hundred people audience? For more than 55 years my medical school has a student-based organization named “Show Medicina”. “Show Med” ,as we call, was “born” in the 50s with the willing of creating a space for criticizing society, health, our medical school, teachers, medical education and the country politics. That space was so relevant that during the dictatorship that stroke Brazil during 1969-1975 “Show Med” was banned by the censorship. Nowadays, making part of Show Med brings up possibilities that are simply indescribable. Being an actor and a medical

student changes everything! Words aren't enough to say how deep drama impacts your way to relate with people, because drama is a way of expressing art with 100% of each individual personality and how that personality is able to divide itself to create characters. Comprehending and performing the art of drama was essential to me as medical student, specially when I got myself close to patients and communicated with them. The same division our personality is required while performing to an audience should be done with our patients. "Show Med" is a unique experience, something worth to be shared and reproduced because it brings out the artist within every person. And bringing out that we can grow as physicians and human beings for our patients.

#5D7 (132828)

**The pain artist/Play: "How to see pain"**

**Caroline Wellbery\*, Georgetown University, Bethesda, USA**

**Summary:** Challenging circumstances can take many forms, and in addressing this conference theme, we should not assume that its inquiry is directed solely at physicians and educators. For often it's patients who face the most difficult circumstances. What can we learn from such patients and how do we respond? In this presentation, I draw on the story of Martin O'Brien, a 27 year-old cystic fibrosis patient and performing artist, who undergoes self-mutilating endurance acts as a form of theatrical expression. Mr. O'Brien cuts himself in public with scalpel blades, suffocates himself and smears himself with blood and mucus, often many hours at a time. After seeing him on stage, I became deeply preoccupied with his notion of masochism as a form of survival. I have written about him in several contexts: first, in an essay posted on my medical humanities website [mdarts@georgetown.edu](mailto:mdarts@georgetown.edu); and second, in a play that will be performed at Georgetown University on March 31, 2016 as one of a series of 10-minute plays on the theme of the body. For this presentation, I provide a brief introduction to Martin O'Brien and his work, followed by a reading of the two-person play, in which two audience members will be invited to read the parts of the young man and his mother, respectively. The mother confronts her son about his self-destructive acts; the son in turn, challenges her right to question him, since she is the carrier of the CF gene, which has condemned him to a life of progressive illness. After the reading, audience members will be invited to imagine the reasons the artist/patient has for engaging in this sort of 'performance art.' In addition, they will be invited to discuss their response to this scenario as physicians, and its utility as an educational tool.



## 5E Research Papers: Empathy, caring, and professionalism

Location: 212 – P2

#5E1 (126831)

**What does it mean to be caring? Phenomenological primary research using the novel Pictor technique**

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Nigel King

Gerard J Gormley

Andrew EW Gilliland

Martina Kelly

Tim Dornan

**Introduction:** Medical students and residents have to learn to care for patients. But what is caring? Morally, patients should answer that question. But only a handful of publications have allowed them to do so whilst hundreds of publications have allowed professionals to do so. Interpretive phenomenology is a research methodology, which allows respondents to provide deep answers to complex, sometimes very personal questions. To give patients a voice in education for caring, we asked a carefully selected set of patients to recall memorable experiences of being cared for by healthcare professionals (HCPs) and analysed their answers in depth.

**Methods:** With ethics approval, two general practitioners purposefully recruited 10 patients whose experiences of primary, secondary, and/or tertiary care from doctors, nurses, and other HCPs ranged from strongly positive to strongly negative. Men and women of different ages living in city and country districts participated. A researcher asked them to depict one or more memorable episode of care using Pictor diagrams. (1) In keeping with phenomenology, the sample size allowed her to explore the individual essence of caring in great depth, using minimal, open prompts. We analysed transcripts of participants' audio-recorded experiences, also in depth, using a template method (2).

**Results:** Experiences of caring resulted from complex interactions between participants and HCPs. Caring encounters were sometimes founded on little things, which were individually unremarkable, but whose net effects were greater than their component parts. Caring HCPs not only communicated well; they formed relationships. Their actions as well as their words went above and beyond what participants expected. Caring HCPs treated participants and their situations as highly individual and tailored their responses accordingly. Caring HCPs were competent, knowledgeable, and able to respond appropriately to participants' concerns. Limitations in resources and/or time, however, constrained caring HCPs' capacity to care.

**Discussion:** Caring HCPs show a variety of attributes and take actions, some of which might seem trivial to professionals. Not all HCPs show all those attributes and behaviours; rather, patients value carers' individual amalgams of traits. These findings

complement a rigorous scoping literature review in which we showed the same: that patients experience caring as multifaceted. Caring is communicating and managing care well, forming relationships, having positive personal attributes, and being 'present'. This consonance between primary and secondary research, both conducted from the epistemological stance of interpretative phenomenology, contributes validity to the findings presented here.

**Conclusion:** In addition to a patient-centred definition of caring, these findings give methodological insights: 1) they show how interpretive phenomenology can give patients a voice; 2) they introduce Pictor to medical education research; 3) they show how triangulating primary and secondary investigations, which share an epistemological orientation, contributes validity to research findings.

Phenomenological interviewing is not just a research methodology; good HCPs explore patients' lived experiences when they listen to them. Our educational conclusion is that encouraging HCPs to find how little things add up to experiences that are greater than the sum of their parts might make them more caring.

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#5E2 (127660)

**The lack of five-star teachers: Perspective of students about challenges of teaching professional ethics in clinical practice**

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Sedigheh Najafipour (Tehran University of Medical Sciences, Tehran, Iran)

Mahla Salajegheh (Tehran University of Medical Sciences, Tehran, Iran)

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**Introduction:** The role of teachers and trainers is to transmit moral values, to provide cultural experiences, and to shape the behavior and attitudes of students. Graduates of medical degree are expected to have a basic knowledge about the "professional ethics in clinical practice". This study aimed to explain the students' understanding of the challenges in teaching professional ethics in clinical practice.

**Methods:** In this qualitative study, seventeen students at the hospital were selected purposively until data saturation. Data collection was through focus group

interviews. All interviews were recorded, transcribed and then analyzed. Data analysis was performed using content analysis.

**Results:** After completing the information about 200 statements were obtained. These statements resulted in classes first, and finally 5 main themes or motifs. Themes included "lack of pattern-based teacher", "improper practices in clinical education of professional ethics", "individual differences in characteristics of students", "difference in the characteristics of individual patients" and "improper structure of the clinical environment".

**Discussion:** The students said that teachers' adherence to professional ethics, especially in clinical practice is an important factor in the implementation of professional ethics by students. According to the students' perspective, characteristics and performances of a teacher is the key to create the desired success in achieving the goals of clinical education of professional ethics.

**Conclusion:** Due to the special status of teachers in the transmission of positive values and students' formation of professional character, teachers should pay more attention to aspects of their personal and professional ethics.

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#5E3 (128219)

**Developing professionalism amongst medical interns who have taken part in open disclosure after medication error: Feedback that avoids 'Facebook reflection'**

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Christopher Roberts

**Introduction:** Mistakes are common within healthcare, especially mistakes involving the prescribing of medications. Many of these errors have potential for severe harm to patients including death. Open disclosure is a policy stating doctors should apologise for errors, discussing them with the harmed parties. Many junior doctors take part in open disclosure without any formal training or experience, and this can become an overwhelming emotional situation for doctors, especially with concerns about whether admission of error could leave colleagues or themselves facing legal consequences. This can lead to a failure of the open disclosure process, and increased patient and family frustration.

**Methods:** By referencing the theoretical frameworks of apology by Slocum et al, (ref 1) and 'thinking fast and slow' by Kahnemans (ref 2), a Phenomenological study of medical interns who had been involved in open disclosure was conducted. Medical interns were selected using purposive and criterion-based sampling,

with theoretical and thematic saturation reached after ten participants. Face-to-face semi-structured interviews were conducted illuminating their experiences and interpretation of clinical scenarios which involved open disclosure after medication error. The data was coded and analysed using Interpretative Phenomenological Analysis, which identified three super-ordinate themes.

**Results:** One super-ordinate theme was labelled 'Rationalisation of medical error', which described how the interns rationalised error in three different ways. The theme 'Error is in the eye of the beholder' described rationalisation of their observations. The interns demonstrated lack of knowledge and clinical reasoning when conceptualizing their clinical practice. The theme 'Apologetic justification' described rationalisation of their thoughts. The interns justified and defended accepted errors using diffusion and distortion of responsibility. The theme 'Softening the blow' described rationalisation of their language. The interns utilised euphemistic language and discourse markers.

**Discussion:** Whilst their observations, thoughts, and actions demonstrated rationalisation techniques, they also demonstrated unconscious incompetence. However with expert facilitation they developed conscious incompetence, and with further guidance they demonstrated the ability to progress through the competency matrix to conscious competence and ultimately unconscious competence. Rationalisation led to generalization of error and apology concepts in their theoretical ideals and family discussions. This led to families feeling frustrated during open disclosure, whereas critical reflection led to contextualization of the error and apology, therefore creating a greater potential for optimal open disclosure.

**Conclusion:** Expert mentorship by clinical supervisors and medical educators is required to instil the ability and promote the ongoing personal desire to develop reflective competence. This translates pragmatically to doctors reflecting with the right people, at the right time, in the right manner. Lack of expert mentorship leads to cognitive rationalisation techniques, and an inability to progress beyond the stage of unconscious incompetence when negotiating the competency matrix. The inability to develop the critical reflection required to develop appropriate professionalism has been labelled 'Facebook reflection'.

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#5E4 (128245)

**To what extent is empathy research comparable? A cross-cultural evaluation of concurrence and underlying constructs of the Jefferson Scale of Empathy and the Interpersonal Reactivity Index**

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Marco Carvalho-Filho

Pia Thiemann

Manuel João Costa

Thelma Quince

**Introduction:** Nurturing the empathy of medical students is important as physician empathy can be therapeutic by itself. Even though empathy is a multidimensional construct with complex and sometimes contradictory definitions, there are available measures that capture parts of it. Research studies have used one of two scales to measure students' personal inclinations on empathy: the Davis's Interpersonal Reactivity Index (IRI) or the Jefferson Scale of Empathy (Student version) JSE- S. However, the two scales may measure fundamentally different constructs: the IRI reflecting generic or dispositional empathy and the JSE reflecting context specific empathy. Indeed, the theoretical constructs that have guided the development of the two scales are not identical and, unlike the JSE, the IRI was not developed specifically for the medical environment. Given the widespread use of the IRI and of the JSE throughout the world, it is important to clarify the equivalence, or lack of equivalence between the two measures. It is also timely to elucidate whether single country studies are comparable internationally. To consider the underlying structural and conceptual differences of the IRI and JSE this study was conducted with data from five countries and asked: i. Whether the latent or underlying factorial structures of the IRI and JSE-S reflected the dimensional constructs of empathy indicated by their respective subscales; ii. How the scales related to each other in terms of their total and subscale scores; iii. Whether IRI scores as a generic measure of empathy predicted JSE-S scores as a measure of empathy specific for the medical environment.

**Methods:** Medical schools in five countries applied both the JSE and the IRI in the original version – UK, Ireland, and New Zealand – or with country adaptations – Portugal and Brazil. Data from 3069 undergraduate students were collected. Exploratory factor analyses, correlation analyses and multiple linear regression analyses were performed.

**Results:** In total, there were 3069 participants, representing the 5 schools. Exploratory Factor Analysis yielded identical results in each country, confirming the 3-factor structure of the JSE and the 4-factor structure of the IRI. Results of correlation analyses indicated significant but weak correlations ( $r=.313$ ) between the total IRI and JSE-S scores. All inter-correlations of IRI and JSE-S subscale scores were statistically significant but also weak (range  $r=-.040$  -  $r=-.306$ ). Multiple linear regression models

revealed that the IRI subscales were weak predictors of all JSE-S subscale and total scores. The IRI subscales explained between 8.9% and 15.3% of variance for JSE-S subscales and 19.4% of JSE total score.

**Discussion:** Findings support the subscale structures of each instrument across countries.

**Conclusion:** The IRI and JSE-S are only weakly related, suggesting that they measure different constructs. Cross-cultural research addressing medical student empathy needs clearer understanding and definition of the construct under consideration as measures from the two scales are not comparable.

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#5E5 (128502)

**Association between the Hidden and Informal Curricula in Medical Education and its Impact on Empathy: A Report from the Medical Student CHANGE Study**

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Brooke Cunningham (University of Minnesota, Minneapolis, MN USA)

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**Introduction:** The multidimensional learning environment in medical education embraces three interrelated spheres of influence: (1) the stated, intended and formally offered curriculum; (2) an unscripted, predominantly ad hoc and highly interpersonal form of teaching/learning called the Informal Curriculum (IC) and (3) a set of influences that function at the level of organizational structure and culture called the hidden curriculum (HC). Many determinants of physician identity operate within the IC and HC. However, little work has been done to understand how the IC and HC may impact important aspects of patient care delivery such as empathy.

**Methods:** Longitudinal web-based survey (The Medical Student Cognitive Habits and Growth Evaluation Study) conducted in the fall of 2010 and spring of 2014. A national sample of medical students enrolled in 49 medical schools across the U.S. (n=3756). Empathy was assessed using the Jefferson Scale of Physician Empathy scale and the Interpersonal Reactivity Index (IRI). IC is comprised of measures including negative role modeling; patient discrimination; witnessed microaggressions; and attitudes towards obese patients. HC is comprised of variables such as the racial climate scale, witnessed insensitivity; learning orientation; and social mission rank.

**Results:** HC and IC both significantly predict a decrease in empathy from the first year of medical school to the last year of school ( $p < .001$ ). URM students were found to have higher empathy scores at the start of school ( $p = .01$ ) and the empathy scores of URM students were less impacted by the HC and IC at year 4 in comparison to their white counterparts ( $p < .001$ ). For white students, HC was significantly associated with a decline in empathy at year 4 ( $p = .01$ ).

**Discussion:** The HC and IC appear to significantly impact levels of empathy among medical trainees, suggesting that teachings beyond that provided in the classroom are powerful and pervasive. There has been concern for quite some time regarding shifts in empathy during medical training. Understanding that the hidden and informal messages in medical education significantly impact empathy—a vital aspect of high quality, patient-centered care—is an important step towards shifting the “culture of medicine” in a positive way.

**Conclusion:** Understanding the critical incidents that shape the socialization processes of medical students and how institutional culture influences their empathy is vital for achieving the Institute of Medicine’s call for a better understanding of the “culture of medicine”. It is important that we explore the hidden and insidious messages students may be receiving as they develop their professional identities as physicians. These findings may also have important implications for medical schools as they consider their institutional values and what they represent. It is important that schools and training programs consider how their unspoken values are perpetuated among students and faculty.



## 5F PhD Reports 1 (PhD Thesis Award Session)

Location: MR111 – P1

#5F1 (128304)

### Watching People Fail: The Impact of Providing Peer-Feedback on Erroneous Diagnoses on Own Diagnostic Competencies

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Jan-Willem StrijbosIngo Kollar

Martin Fischer

**Introduction:** Diagnostic reasoning is a complex, error-prone core competence of physicians. Instructional methods to decrease diagnostic errors are essential in medical education. A holistic diagnostic competence model includes conceptual knowledge about facts, conditional knowledge about procedures, strategic knowledge about the rationale behind these procedures and error detection skills. Videos of peers performing erroneous diagnoses (erroneous cognitive modeling examples) have been hypothesized to be fruitful for acquiring cognitive skills. Actively providing peer-feedback on these videos might increase this effect.

**Methods:** N=121 advanced medical students completed a pre-test for diagnostic competence, then watched three cognitive modeling examples on dyspnea and completed a post-test for diagnostic competence. In a 2x2-factorial-design with a control group it was evaluated if (a) type of cognitive modeling example (erroneous vs. correct) or (b) providing peer feedback (yes vs. no) on modeling examples increased learning gain. The control group learned with a textbook. Diagnostic competence was operationalized with 15 multiple-choice-items for conceptual ( $\alpha=.51$ ), 15 key-feature-questions for strategic ( $\alpha=.58$ ), six problem-solving-tasks for conditional knowledge ( $\alpha=.59$ ), and 15 detectable errors in complex diagnoses for error detection skills ( $\alpha=.61$ ).

**Results:** Watching cognitive modeling examples led to more conceptual knowledge than learning with a textbook,  $t(40)=2.651$   $p=.011$ . Erroneous versus correct modeling examples did not make a difference for diagnostic knowledge ( $F(1,95)=.264$ ,  $p=.609$ ) but for error detection skills,  $F(1,95)=4.290$ ,  $p=.041$ ,  $\eta^2=.045$ . Providing peer-feedback negatively impacted knowledge ( $F(1,95)=8.866$ ,  $p=.004$ ,  $\eta^2=.090$ ) and error detection skills ( $F(1,95)=5.066$ ,  $p=.027$ ,  $\eta^2=.053$ ). Cognitive load was higher when providing feedback ( $M=3.95$ ,  $SD=.78$ ) than when just observing ( $M=3.50$ ,  $SD=.657$ ),  $t(86)=3.040$ ,  $p=.003$ . There was no interaction. Elaboration of feedback was correlated with conditional knowledge ( $r=.31$ ,  $p=.035$ ) and cognitive load ( $r=.38$ ,  $p=.011$ ).

**Discussion:** Observing peers' performance was beneficial for participants' own learning overall compared to traditional learning methods. Watching

erroneous or correct examples did not make a difference concerning diagnostic competence acquisition. Erroneous examples fostered distinct error detection skills. Providing peer feedback had a negative effect on both the acquisition of diagnostic knowledge and error detection skills. Higher elaboration was connected to more cognitive load but also post-test knowledge.

**Conclusion:** Erroneous performances need to be further integrated in teaching methods as they might decrease flaws in reasoning. The negative effect of providing peer-feedback highlights the importance of training this skill before students provide feedback to avoid overload and superficiality which decreases learning gain. However, the intervention was one-shot and needs to be replicated as well as reasons for the detrimental learning effect need to be examined. A follow-up study examined the effect of modeling how to provide elaborated feedback to improve feedback quality and if providing spoken versus written feedback makes a difference in cognitive load (results are pending).

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#5F2 (126447)

### Medical Student Selection - a mixed methods study

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Andrew W Murphy

**Introduction:** Introduced in 2009, the Health Professions Admission Test (HPAT)-Ireland is a new aptitude tests for selection to medicine. At the outset of this thesis its predictive validity and stakeholder acceptability were unknown. Multiple Mini Interview (MMI) is rapidly gaining popularity. The need to establish the feasibility, predictive validity and acceptability of MMI in educational and cultural contexts settings outside of North America was highlighted (1). Therefore the aims of this thesis were to establish: a) the predictive validity of HPAT-Ireland and explore its stakeholder acceptability b) the feasibility and predictive validity of MMI and explore its stakeholder acceptability.

**Methods:** This thesis uses a multi-phase mixed methods research design. It synthesises the research evidence describing stakeholder views of selection tools for medicine (a systematic review), establishes the predictive validity of HPAT-Ireland for communication and clinical skills (an observational study), explores the views of doctors on the job-relatedness and acceptability of HPAT-Ireland (a qualitative study), demonstrates the feasibility of MMI in an Irish setting (quantitative study) and explores the predictive validity and stakeholder acceptability of

MMI in an internationally diverse student population (a mixed methods - explanatory sequential study). Organisational justice theories are used to relate and integrate overall findings (2).

**Results:** HPAT-Ireland moderately predicts communication and clinical skills in Year 2 of the course. Stakeholder perceptions of the acceptability and job relatedness of HPAT-Ireland are reasonably good, however not uniformly so across its subsections. Concerns exist regarding potential negative impact on socioeconomic diversity. MMI was perceived as authentic with high levels of job relatedness, by both assessors and candidates. However cultural issues and English language proficiency were identified as potential barriers to international students. While MMI is feasible in an Irish setting this thesis did not demonstrate evidence for its ability to predict performance for the medical class as a whole

**Discussion:** Predictive validity data suggests that HPAT-Ireland measures something relevant to doctor patient communication. The corresponding subsection (Section 2) was most strongly endorsed by stakeholders. From a procedural justice perspective, job relevance is an important influence on acceptability. Paradoxically stakeholders remained sceptical of HPAT-Ireland's ability to predict good doctors. The positive views of the job relatedness of MMI were highly influential on assessors' and students' perceptions of its acceptability. However stakeholders expressed concerns regarding potential barriers to international students, in violation of distributive justice. They generated a series of recommendations for the design of MMI to minimise these.

**Conclusion:** This thesis provides further evidence regarding the predictive validity and utility of aptitude tests and MMI. It demonstrates that organisational justice theories are a useful lens through which to develop a deeper understanding of the influences on stakeholder acceptability. In terms of policy and practical implications it concludes that HPAT-Ireland has a predictive profile similar to other aptitude tests in its class and that its continued use should be contingent on the outcome of a national predictive validation study and more widespread stakeholder consultation. MMI is feasible in an Irish setting, generally acceptable to stakeholders and worthy of further consideration.

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GREENBERG, J. & COLQUITT, J. A. 2005. *Handbook of organizational justice*, New York, Psychology Press

#5F3 (127736)

## Conceptions of learning and teaching in teachers, in student-centred curricula in Medicine

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**Introduction:** Teachers' conceptions of learning and teaching affect their teaching behaviour, and indirectly students' achievements.<sup>(1)</sup> Therefore, teachers' conceptions should align with the philosophy of student-centred curricula, to result in effective small group learning formats. With respect to faculty development, this might imply more attention for teachers' conceptions of learning and teaching. Previous studies demonstrated that teachers' conceptions can be changed. Our research questions were: [1] Can teachers' conceptions of learning and teaching be measured? [2] Which patterns of conceptions can be determined? [3] What factors influence conceptions of learning and teaching, and what are the mechanisms?

**Methods:** We conducted four studies in two medical schools in the Netherlands, with a different tradition (40 yrs vs. 10 yrs) in student-centred education. Several quantitative and qualitative methods were used. In study 1, an instrument was constructed to measure teachers' conceptions, using a Delphi procedure and confirmatory factor analysis. In study 2, we investigated with a multiple regression analysis the predictors of conceptions. In study 3, using a cluster analysis we explored whether teacher profiles could be assessed. Finally, in study 4 we investigated with individual interviews more in-depth which personal and contextual factors influenced teachers' conceptions.

**Results:** A valid and reliable 18 item questionnaire was constructed, named COLT, with three scales (teacher centredness, appreciation active learning, orientation to professional practice). The COLT-scores differed significantly in the two medical schools. The most important predictor was medical school. Discipline, gender and teaching experience explained some variance, but 80% of the variance was unexplained. We found five teacher profiles, ranging from 'Transmitters' (transmitting knowledge) to 'Conceptual Change Agents' (stimulating deep learning). The distribution differed in the medical schools. Next to the different tradition, the interviews yielded personal factors (as agency, motivation to teach) and contextual factors (as leadership department heads).

**Discussion:** In student-centred medical curricula, the partly implicit conceptions of teachers of learning and teaching can be measured with the COLT

questionnaire. There were five teacher profiles. Medical school was the most important predictor, and discipline, gender and teaching experience also contributed. The impact of medical school can be explained by several factors, e.g. the tradition with student-centred curriculum and the leadership style of department heads (contextual factors). In addition, several new personal factors not included in our multiple regression analysis, seem to account for the large interpersonal range of teachers' conceptions of learning and teaching.

**Conclusion:** We conclude that insight into teachers' conceptions and corresponding teacher profiles will be useful for individual teachers, medical schools, departments and also for faculty development initiatives. This holds especially in a curricular change to student-centred education. Teachers' conceptions can be influenced, for example in long faculty development trajectories or by adaptations in the teaching context, but this requires time. Further, more attention is needed for the pivotal role of department heads and their leadership style.<sup>(2)</sup> We advocate future research into teachers' conceptions, personal factors, contextual factors and faculty development.

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#5F4 (126870)

#### **The Art of Staying Engaged; The role of personal resources in mental well-being of young veterinary professionals**

**Nicole Mastenbroek\***, *Utrecht University, Utrecht, Netherlands*

**Introduction:** Both veterinary and medical professionals perceive transitions e.g. from university to professional practice or from resident to a position as an attending consultant to be challenging and stressful. Research shows a high level of agreement with respect to the importance of non-technical attributes like problem-solving and coping skills. The aim of the thesis was to identify, in addition to work-related aspects, person related characteristics that affect mental well-being and performance in recently graduated veterinary professionals, and to reach a greater understanding of the role of personal resources in their well-being process.

**Methods:** Based on the Job Demands - Resources (JD-R) model (Demerouti et al., 2001), a questionnaire measuring work engagement, burnout and its potential predictors, was constructed and administered to 1760 veterinarians who graduated in the Netherlands between 1999 and 2009 (response rate 41% of which 73% females). A conceptual model in

which the JD-R model was extended with personal resources was analysed using Structural Equation Modeling. Mean levels and prevalence of burnout and engagement were assessed. Relative importance of their potential predictors was assessed by computing Johnson's Relative Weights. An intervention aiming at increasing personal resources was evaluated using qualitative and quantitative methods.

**Results:** Small effects of gender and years after graduation on exhaustion resulted in 18 percent of female veterinarians developing burnout in the first five years after graduation, while only 13 percent of them could be classified as being highly engaged. While burnout was explained mainly by job-characteristics (demands and resources), work engagement was best explained by job and personal resources. Personal resources appear to have an important mediating and initiating role in explaining work engagement and performance. Self-reported ratings of reflective behaviour, proactive behaviour and self-efficacy were significantly increased after a 1 year resources development programme.

**Discussion:** This thesis contributes to the literature on the role of personal resources in work-related well-being in several respects. First, we showed that personal resources predict performance through the relationship with work engagement. Second, personal resources appear to mediate (partially) the relationship between job resources and work engagement. Practical implications relate to the shared responsibility of employers and employees concerning job (re)design, and to the responsibility of both students, graduates and veterinary educational institutes regarding the development of personal resources, with reflection skills seeming to be essential for development of other personal resources. Strengths and limitations will be discussed.

**Conclusion:** We conclude that female veterinarians in the first five years of their career appear to be more sensitive to developing a burnout and a decrease in work engagement than male veterinarians. Job demands and resources can explain variance in burnout, while job and personal resources explain best variance in work engagement. As personal resources can be developed and deployed in any work environment, they can be important targets for interventions. A multi-module development trajectory for recently graduated veterinary professionals seemed to be an effective intervention for enhancing personal resources.

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#5F5 (127012)

# **Accessing Clinical Wisdom: Mapping Clinical Students' Experiences of Integrated Learning**

*Susan McNaughton\*, University of Auckland, Auckland, New Zealand*

**Introduction:** Clinical wisdom is usually regarded as phronesis, or as metacognitive, transformative or spiritual capacities. This thesis study investigated health professional students' clinical learning experiences and whether differences in these and discernment of their critical elements contributed to integrated learning and access to clinical wisdom. Integrated learning refers to contextualised synthesis of some or all of the five domains of a learning experience (thinking/knowing, emotions/feelings, actions/artefacts, attitudes/values and beliefs) to create a personally coherent meaning or interpretation. Based on systems theory, embodied phenomenology and integrative dualism, such integration is proposed to allow access to clinical wisdom as an external resource comprising all situated elements.

**Methods:** Participants from Occupational Therapy and Medicine created up to three modified concept maps each over an eight month period of clinical placement-based learning towards the end of their programmes. They identified connections they perceived between the five domains and documented specific clinical experiences related to these. Visual methodology, ethnography, self-assessment and a phenomenographic approach informed development of the mapping data collection tool and map analysis.

**Results:** Perceived connections to and from emotions/feelings, actions/artefacts, thinking/knowing, beliefs, attitudes and values in clinical learning showed consistent patterns, but also individual variation. Analysis of associated experiences suggested two sets of critical elements in clinical learning. The first set contained contextual factors, related mainly to interpersonal interactions (e.g. with clients/patients, supervising clinicians, academic staff). The second set contained six critical elements of experience, the most prevalent being "Changing or revealing beliefs, attitudes, values" and "Building or negotiating relationships", followed by "Experiencing or transforming emotions", "Altering actions or outcomes", "Cementing or challenging theory or knowledge" and "Exposing or disrupting identity or sense of self". These elements related to personal, professional and near-graduate becoming and the (re)forming of identity

**Discussion:** Students' beliefs and values were revealed to them and sometimes changed through relationships with patients, clients and educators. Frequently mentioned emotional aspects of clinical learning were often unresolved, while bodily aspects went all but unnoticed. Awareness of integration, beliefs and values appeared central to the (re)formation of student identity, shaping their becoming as persons, graduates and members of identifiable professions. Certain participants

integrated three or more critical elements and in some instances this supported the theorisation of clinical wisdom as an external resource comprising all information relevant to each unique, situated interpersonal interaction. The inner self/soul recognised by these participants is proposed to mediate this access. A potential model for this was developed.

**Conclusion:** Clinical students are aware of connections between the domains of learning but integration and access to clinical wisdom appears infrequent. Clinical education needs a more systematic, embodied approach to integrating contextual, cognitive, affective, psychomotor and attitudinal elements with beliefs and values. More attention to supervisory relationships, to developing the inner self and to negotiating conflicts of beliefs and values may enhance student, educator and client/patient becoming. The inner self/soul may mediate integration and sometimes access to the external resource of clinical wisdom.

#5F6 (128266)

# **Medical student (and patient) attachment-orientation and clinical communication skills in the simulated and clinical (primary care) setting**

*Peter Leadbetter\*, Edge Hill University; University of Liverpool, Ormskirk, UK*

**Introduction:** Doctor-patient communication influences patients' health, with clinical communication integrated into the teaching/assessment of medical students. Despite this, the field lacks a strong theoretical framework. Attachment theory is psychological theory that offers insight into why some students struggle with clinical communication. There has also been a lack of research examining the relationship between medical students' clinical communication skills outside the OSCE and across contexts. The aim of this thesis was therefore: to explore relationships between medical students' attachment-orientation and clinical communication skills (OSCE and clinical setting): to explore longitudinally medical students' clinical communication skills (OSCE and clinical setting).

**Methods:** Two empirical studies were conducted. The first study investigated the influence of fourth year medical students' (n = 508) attachment-orientation on communication ratings in the OSCE. The second study comprised three phases (OSCE; primary care, longitudinal) and provided an analysis of the influence of attachment-orientation on clinical communication with a sample of medical students (n = 37). Medical students were videoed in the OSCE and in several consultations each in primary care (n = 138) to code their responses to emotional cues (1); and to obtain medical students' communication ratings. Patients also completed questionnaires.

**Results:** Attachment-orientation influenced medical students' clinical communication. Attachment-avoidance was negatively associated with



communication ratings and responses to simulated patient and patient emotion in the OSCE and clinical setting (primary care). Stronger relationships between attachment-avoidance and clinical communication were found in the clinical setting compared with the OSCE. Outcomes were more influenced by medical students' attachment-orientation than by that of patients. Longitudinal analysis found a large, significant, and positive relationship between medical students' communication ratings in the simulated setting (OSCE) and the clinical setting (primary care), and between medical students' responsiveness to emotion in the simulated setting and the clinical setting.

**Discussion:** Attachment-orientation was more likely to be influential and activated in authentic clinical environments such as primary care. It is important that medical students develop an understanding of attachment theory in undergraduate medical education to foster understanding of individual differences in clinical communication. Longitudinal analysis indicated that medical students' clinical communication skills effectively transferred from the simulated OSCE setting to patient encounters in primary care.

**Conclusion:** This research supported the validity of the current training and assessment of clinical communication at the University of Liverpool.

**References:** Del Piccolo, L., de Haes, H., Heaven, C., Jansen, J., Verheul, W., Bensing, J., et al. (2011). Development of the Verona coding definitions of emotional sequences to code health providers' responses (VR-CoDES-P) to patient cues and concerns. *Patient Education and Counseling*, 82(2), 149-155.

#5F7 (128135)

#### The role of social-comparative feedback in novice medical trainees learning procedural skills

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Aaron D.C. Knox (Division of Plastic & Reconstructive Surgery, University of British Columbia, Vancouver, Canada) Faizal A. Haji (Division of Neurosurgery, University of Western Ontario, London, Canada)

Adam Dubrowski (Disciplines of Emergency Medicine and Pediatrics, Memorial University of Newfoundland, St. John's, Canada)

James Lyons (Department of Kinesiology, McMaster University, Hamilton, Canada)

**Introduction:** Social-comparative feedback has been shown to influence a learner's psychological and behavioural outcomes during skill acquisition. This feedback is provided to help the learner understand whether he/she is performing better or worse than the group average. Research indicates that motor skill acquisition is facilitated when learners believe they are performing better than the average, regardless of actual performance (1). However, since self-efficacy

and motivation are related in terms of their affective influence on learning (2), the goal of this dissertation was to examine the degree to which social-comparative feedback affects highly motivated learners (e.g., medical trainees) during procedural skill learning.

**Methods:** Regardless of actual performance, we provided manipulated feedback information to novice pre-clerkship medical trainees while they were learning basic suturing techniques to suggest that they were performing better or worse than the average. The first two studies explored the role of social-comparative feedback in medical trainees and tested whether features of the task were important (i.e., basic science task or technical skill task) during the interpretation of this feedback. The final study examined whether the credibility of the feedback provider (i.e., expert versus peer) played a role in how social-comparative feedback was being internalized by novice medical trainees.

**Results:** Our initial study demonstrated that, compared to those receiving positive or no social-comparative feedback, medical trainees receiving negative social-comparative feedback during technical skill acquisition experienced significant detriments to their performance, learning and self-efficacy. The second study replicated this pattern for technical skill acquisition and also revealed that medical trainees receiving below-average feedback on a basic science task had significant difficulties in learning that task. Our final study found that regardless of the source of the feedback (expert versus another peer), the experience of receiving negative social-comparative feedback impacted self-reported psychological measures and the immediate performance of a basic surgical technique.

**Discussion:** Regardless of actual task performance, novice medical trainees who were provided with feedback during the learning process, indicating that they were performing worse than the group average, experienced significant detriments to their psychological and behavioural outcomes. This effect was irrespective of task (i.e., key-pressing or suturing) or feedback provider (i.e., hypothetical 'expert' or 'peer' delivering this feedback). Together these studies suggest that the experience of receiving below-average feedback during the learning process can become detrimental for highly-motivated novice learners.

**Conclusion:** Our findings are important to consider in both the context of feedback delivery and remediation as they provide evidence that novice medical trainees, regardless of the task and feedback provider, experience difficulty in receiving information that they are performing relatively poorly compared to their peers. This dissertation provides the first demonstration that medical trainees interpret negative social-comparative feedback differently than other learners studied in the literature. Further evidence is needed to understand why medical trainees interpret negative social-comparative feedback in a manner that is both detrimental to

themselves and contrary to other learners receiving the same type of feedback.

**References:** (1) Lewthwaite, R., & Wulf, G. (2010).

Social-comparative feedback affects motor skill learning. *The Quarterly Journal of Experimental Psychology*, 63, 738-749.

(2) Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

## #5G Conference Workshop: AMEE MedEdPublish - An exciting new approach to publishing (136481)

Location: MR 113 – P1

**Richard Hays\*** (*Editor*) (*University of Tasmania, Australia*)

**John Dent\*** (*Theme Editor*) (*AMEE, Dundee, UK*)

**Kerrie McKay\*** (*Administrator*) (*AMEE, Dundee, UK*)

**Background:** AMEE MedEdPublish represents an exciting new approach to publishing in medical and health professions education. It addresses many of the problems associated with conventional publishing including delays in publishing, problems with peer review and reluctance to publish replication studies, studies with negative findings, case studies and opinion pieces. AMEE MedEdPublish covers important topical themes in medical and health professions education. It incorporates rapid publication, a transparent post-publication review process and a continuing dynamic dialogue with authors. Launched in June, AMEE MedEdPublish has been well received. Come to this workshop and meet the Editor and other staff involved. You will have an opportunity to find out more about the Journal, how to submit articles and how to review and rate articles published.

**Who Should Attend:** Anyone interested in publishing, reviewing or keeping up to date medical and health professions education.

**Workshop Level:** All levels

## 5H PechaKucha™ 2

Location: MR 114 – P1

#5H1 (134601)

**Different Perspectives - Physician Associate students with Disabilities Training in Clinical Environments**

*Janina Iwaszko\*, Worcester University, Worcester, UK*  
*Neil Howie ( Worcester University, Worcester, UK)*  
*Drew Garcia ( Worcester University, Worcester, UK)*

**Summary:** The Physician Associate is a newly emerging healthcare professional in the UK, and training Physician Associates is relatively new in medical education in the UK. The challenge when training Physician Associate students is to train safe and knowledgeable healthcare practitioners, within a limited timeframe. A Physician Associate is a generalist, dependent healthcare professional taught in the medical model. The PA student is required to attain a high level of clinical knowledge and skills within a two year timeframe. This is a demanding course and all PA students are already science graduates. Within the student cohort are several students with disabilities. Through the process of allowing all our students to have both an equivalent student experience, and reach the required standard, an inspiring and motivational journey emerged. Novel approaches have been developed to allow, for example, wheelchair using students to achieve full patient examinations, to safely observe and participate in theatre, to see, assess and design a management package for patients in Primary Care, to achieve life support qualifications and to deliver care in the community. These students are pioneering new techniques to achieve their learning and professional objectives. They are therefore pioneers on two fronts, pioneering a new profession, in the UK, and also pioneering new ways of working in clinical settings. Designing a programme for these students required working with two Occupational Health departments and other agencies such as wheelchair and medical instrument providers, and a throng of enthusiastic clinicians and educators. This series of slides shows a different perspective on clinical training and demonstrates what can be achieved when working in a multidisciplinary and inclusive team. It shows students in all types of clinical settings working as an integral part of clinical teams, alongside their able-bodied colleagues and professionals, to achieve the same aims.

#5H2 (134181)

**Engagement of Medical Students**

*Carmina Flores\*, Universidad Anahuac Mexico, Huixquilucan, Mexico*  
*Montserrat Urban Oropeza*  
*Fernando Azcoitia Moraila*  
*Maria Jose Diaz Huizar*  
*Jose Luis Arellano Nava*  
*Lydia Zeron Gutierrez*

**Summary:** Study engagement is a state of mind related to work which is positive and fulfilling. It is characterized by dedication, vigor absorption. We conducted a study on 399 medical students using the UWES-S test. In terms of vigor, most of them were in the average group (57.7%- female 59%); out of the 8 semesters, the highest scores were found on students in the second semester with 28%; we also found that the students who lived with their families (75% of students) had the highest vigor scores (55%). In terms of dedication, most of them qualified on high (55%- females 55%); out of the 8 semesters, the highest scores were found on students in the second semester with 28%; we also found that the students who lived with their families (79.4% of students) had the highest dedication scores (58.6%). In terms of absorption, most of them qualified on high (55%- females 55%); out of the 8 semesters, the highest scores were found on students in the second semester with 29%; we also found that the students who lived with their families (76% of students) had the highest dedication scores (48.1.6%). Students living with their parents and siblings, as well as female and second semester students have the highest study engagement scores in all the three categories.

#5H3 (136103)

**Using radiological imaging as a vector for critical thinking and integration in case and team-based learning exercises**

*Cristian Stefan\*, New York University College of Dentistry, New York, USA*

**Summary:** In addition to acquiring the necessary knowledge and skills in the field of its discipline, teaching radiological imaging represents a valuable platform to promote multidisciplinary integration and critical thinking starting with the early phases of health professions education. This presentation derives from the author's creative experience in designing, implementing and running a new curricular component for medical and medical illustration students by using radiological imaging in building case-based or team-based learning sessions across the first-year (system organized) curriculum as a vector for observation, problem-solving, application of knowledge within clinical context, empathy, and professionalism. As it seems that many students tend to recognize in principle the need for reasoning over memorization but favor being rewarded for

memorization instead of reasoning when it comes to their own grades, emphasis was placed on the alignment between the learning objectives, realism and relevance of the case, collaborative learning environment, and evidence-based take-home message in order to improve the students' ability to meaningfully navigate through the case, filter the information, process it from a multidisciplinary and multitask perspective (from microscopic to macroscopic, from physiological to pathological, and from static to dynamic), consider various implications and solutions, and recognize pitfalls. In addition to presenting and reinforcing content specific to various disciplines and integrating the material through practical applications and contextual learning, these sessions and exercises aimed to increase the students' awareness with respect to the best practical approaches available according to the particularities of a case, as well as their self-awareness in identifying their own areas of strength and weakness, factors which would ultimately and positively reflect on improving patient satisfaction and safety.

## #5H4 (135986)

### High fidelity simulation: the newest adventure sport?

**Thomas Bourke\***, *Royal Belfast Hospital for Sick Children, Belfast, UK*

Caroline Hart

Steven McVea

Tudor Oman

Christopher Flannigan

Andrew Thompson

**Summary:** Social media is awash with images of back-flipping boarders and down-hill bikers demonstrating adrenaline fuelled adventures. But is this more exciting than the thrill of managing an airway emergency or shockable rhythm in a critically ill child? In this highly visual presentation we demonstrate our use of wearable cameras and virtual reality glasses to enhance simulation based training in paediatric emergencies. We use GoPro® cameras to give a dynamic view of the participant's performance. Why did they miss the deterioration? Were they looking at a monitor rather than the patient? Were they focused on a procedure rather than taking a global perspective? We have found this first person perspective invaluable in enhancing debrief. Furthermore we are using this perspective to compare the practice of experienced clinicians to trainees to identify best practice in paediatric emergencies and generate pedagogical strategies for training. We use Google Glass® to rapidly deliver real time emergency algorithms to naïve trainees to try and improve key clinical indicators such as 'Sepsis 6'. We recommend the use of this widely available easy to use technology and demonstrate that the successful resuscitation of an ill child is more exciting than a down-hill slalom.

## #5H5 (134578)

### Medical Simulation Training in Fine Needle Aspiration Cytology Using Phantoms. University Teaching Experience

**Eduardo Alcaraz-Mateos\***, *Morales Meseguer University Hospital, Murcia, Spain*

Manuel José Párraga-Ramírez (Morales Meseguer University Hospital/Faculty of Medicine, Catholic University, Murcia, Spain)

Fuensanta Caballero-Alemán (Morales Meseguer University Hospital, Murcia, Spain)

Enrique Poblet-Martínez (Reina Sofia University Hospital/Faculty of Medicine University of Murcia, Murcia, Spain)

**Summary:** Fine needle aspiration cytology (FNAC) is a minimally invasive and extremely useful procedure. The characteristics of pathology practices and limited equipment make teaching in this technique difficult. We therefore have introduced phantoms designed to perform FNAC in the educational process in our hospital. **DESIGN** Phantoms are two life-sized hand-made adult reproductions of a head & neck (utility model ES1140059) and a trunk, respectively, coated by silicone simulating skin with inserted tumor areas. They allow performing the whole FNAC process (palpation, puncture, aspiration, expel material on slide, and smear preparation), and are reusable. The practice was running during three academic years (2013-2016) and consisted of obtaining FNAC samples in a clinical context by each student individually, with a subsequent cytological correlation. **RESULTS** 178 medical students, in their third year, from the University of Murcia, Spain, took part in the FNAC practice (28 groups: 105 women, 73 men). The success rate in the first attempt (puncture, aspiration of material, expelling and extending the obtained material on slides) was 97,2%. In Addition, 13 students from 10 other universities (national and international) conducted the same practice, referring to not having this opportunity in their places of origin. The practice was considered to be valuable in an anonymous survey. **DISCUSSION** FNAC practices are easily implementable in the undergraduate curricula and potentially attachable to the Objective Structured Clinical Examination (OSCE) evaluative format. There is no proper standardization in the practices among different universities. FNAC simulation provides students with greater knowledge and appreciation of our specialty.



#5H6 (131612)

**MOOCs -> SPOCs: Short Private Online Courses**

**Sabine Uijl\***, Julius Academy, UMC Utrecht, Utrecht, Netherlands

Renée Filius (Elevate Health, Utrecht, Netherlands)

Olle ten Cate (UMC Utrecht, Netherlands)

**Summary:** Online education is a growing form of education, ready to take over our traditional on-campus education. However, making all education online is not as easy as it may seem. Even in didactic courses, this involves more than just changing lectures into weblectures and distributing all material online. The social context is considered key in student learning. Collaboration, personal interaction and feedback are likely to enhance learning. We therefore sought to create an online learning social space that fosters trust, a sense of community, and interpersonal relationships. In large scale MOOCs this social learning is generally not accomplished. The reported mean MOOCs completion rate of 7% may be caused by a lack of social context. Online courses need to be scaled down and be more personal. Short Private Online Courses (SPOCs) give teachers the opportunity to know, interact with, and motivate the students. Everything a student does in online education can be logged and seen by teachers and by peers. This can be used to get the students involved. Passively following an online course is not an option. Students need to be active and interactive in order to be seen, to gain progress, and to pass. Small scale online courses have the advantages of MOOCs, i.e. flexibility to study at the time, place and pace convenient for them, and add the social component. They lead to better learning by stimulating self-regulation, providing the option to choose the moments students are most alert for studying, and by personal guidance. The SPOCs of UMC Utrecht have these advantages and create a social learning environment and high completion rates. We will show what happens in the learning environment during a SPOC, including the interaction patterns among different actors (staff and students), looking at functional/ technical, content specific and social interactions.

#5H7 (135562)

**PBL and MOOCs, a happy marriage? After the honeymoon...**

**Daniëlle Verstegen\***, Maastricht University, FHML, Dept. of Educational Research and Development, Maastricht, Netherlands

Geraldine Clarebout

Herco Fonteijn

Amber Dailey

Annemarie Spruijt

Jeroen van Merriënboer

**Summary:** Massive Open Online Courses (MOOCs) aim at large scale learning with relatively little teacher support. This is in contrast with established insights from educational research that stress the importance of active, contextual and collaborative learning. Maastricht University aims to contribute to the development of educationally sound MOOC designs by developing a MOOC about PBL following –as far as possible- the principles of PBL. In this MOOC participants have learned about PBL by studying authentic problems collaborating in a group, online and without tutor. The MOOC ran in autumn 2015 with 2989 participants. Just over a quarter (26%) filled in their profiles and became part one of the 111 teams. Most of these teams were formed by the participants themselves (98); the other teams were formed automatically at the end of the first week. Almost 10% of the total number of participants finished the course and received a certificate of participation. The self-formed teams performed better than the automatically formed teams. The design of the MOOC was executed as planned. The participants worked on PBL problems in virtual online teams. Survey data show that they were positive about the assignments and the resources that were provided. Both facilitators and participants indicated that the course was too long, however, and that providing three parallel tracks caused confusion. The quality of the assignments that were handed in by the teams varied quite a lot. The designers of the PBL problems were, however, positively surprised by the quality of the better ones. Working online in virtual teams does seem to require specific competencies and some teams struggled to find a good way to collaborate and communicate. It is clear that online team collaboration needs to be explicitly supported.

**#5H8 (134064)**

**Digital learning resources in healthcare: From the “class” to the “study guide”**

**Laura Esmeralda Magallan\***, Campus Virtual Hospital Italiano de Buenos Aires-Instituto Universitario, Ciudad Autonoma de Buenos Aires, Argentina

**Ayelen Anso** (Campus Virtual Hospital Italiano de Buenos Aires-Instituto Universitario, Buenos Aires, Argentina)

**Summary:** How can digital educational materials be made challenging and creative? Are we including chances for interaction and interactivity in order to foster learning? At the Campus Virtual del Hospital Italiano de Buenos Aires – Instituto Universitario, we advise professors on producing digital learning resources for healthcare training. The educational approach is constructivist and an interdisciplinary team comprised of healthcare professionals, educators and multimedia and technology designers is involved in production. In the first stage at the Campus Virtual, teachers were asked to develop each thematic unit into a “class,” which included up to twelve pages of text or a presentation of up to twenty-five slides. This “class” was accompanied by additional resources aimed at expanding on the topics, such as readings, videos, website links, etc. and integrative activities on applying the knowledge in one’s professional practice. As part of the evaluation done in the Campus’s academic area, the additional text material exceeded the recommended length but multimedia/interactive resources were scarce, in spite of the fact that students valued such resources and asked for more in opinion surveys. In addition, producing and later updating “classes” required a significant time investment on the part of both professors and the Campus team. As a result, a proposal was made to replace the “class” with an alternative resource, the “study guide.” This guide briefly presents the conceptual core of each unit, avoiding the content’s whole development, the multimedia and interactive learning resources to develop/expand the topics and the proposed activity for applying them. An evaluation of this implementation indicates that it fosters innovation, research and the professional development of those involved.

**#5H9 (131537)**

**Team-Based Learning in Chest Radiology Class: Teacher or Student Satisfaction?**

**Puripakorn Pakdiratna\***, Ratchaburi MEC, Ratchaburi Hospital, Ratchaburi, Thailand

**Bussaba Pakdirat**, Ratchaburi MEC, Ratchaburi Hospital, Ratchaburi, Thailand

**Summary:** Chest radiology for 4th-year medical students had been lecture-based for 14 years. Team-based approach was introduced in 2015 when number of students doubled. Summary of Work: Team-based learning has replaced lecture in chest radiology class, with at least improvement in learning outcome. Objective: Comparison of TBL with lecture-based learning in terms of learning outcome and satisfaction level of students and teacher. Methods: On orientation one day before beginning of course, 32 students were divided into 6 groups of 5 or 6 by mixing previous GPAs. Each group was assigned to make a 15-minute presentation on chest radiology topic. Lecture PowerPoint was given to students. iRAT of 10 questions was given at start of class. Teacher gave a talk on learning objectives (chest image quality, film interpretation and terminology). Each group presented its topic of common diseases (e.g. infection, tuberculosis, trauma, tumor) in 15 minutes (total 180 minutes). Teacher gives feedback at end of each presentation. iRAT-based gRAT on modified IF-AT forms was given. A questionnaire was used to assess student satisfaction. Final evaluation was by MCQs and OSCE at end of course. Summary of Results: gRAT score was higher than iRAT. MCQs and OSCE scores improved compared to earlier years, with all students above passing level. Students complained of increased work if all teachers employed TBL. Teacher was satisfied with student participation, teaching-learning experience and learning outcome. Discussion and Conclusion: Improved learning outcome is evidence for using TBL. Teacher needs to understand TBL process and planning has to be thorough. Modified IF-AT forms can be prepared at low cost. TBL format places more demand on the students and has high engagement value. The teacher will continue to use TBL approach in future classes.

## 51 Short Communication: Transition 1

Location: MR 115 – P1

#511 (135129)

**A Final year procedural skills learning package: Was it worth it?**

**Susan McKenzie\***, *The University of Sydney, Sydney Medical School, Sydney, Australia*

Annette Burgess

Craig Mellis

**Background:** New doctors enter internship with varied levels of practical experience in procedural skills. To address this problem, many medical schools have introduced intensive skills training courses immediately prior to graduation.

**Summary of Work:** This is a follow-up study using mixed methods to examine the impact of a pre-graduation educational package, and the performance confidence of the same cohort(s), in practical skills as new doctors (interns). We provided a three-day intensive educational package for our final year students during September of 2013, 2014, and 2015, just prior to graduation. The intensive course included: key situations that new interns were very likely to encounter such as attending to an emergency on the ward, identifying peripherally inserted cannulas (PIC lines) and naso-gastric (N/G) tube placement on X-ray and problems surrounding IDC insertion. Education was conducted as small group teaching sessions, and was designed to provide students with individualised practice, with real time feedback from experienced clinicians.

**Summary of Results:** During the following years, (2014, 2015, 2016) at three months into internship, interns completed an anonymous electronic survey. They reported confidence in most areas, with the exception of emergency skills. Focus groups: Interns reported the benefits of the course and e.g. had identified situations where they were able to use their recent skills as new interns.

**Discussion:** Results from our findings are important to patient safety and warrant further investigation. In particular, intern confidence in managing an emergency, as it is quite likely that the intern may be first on the scene, especially after hours.

**Conclusion:** Interns perceived substantial benefit from an educational package specifically aimed at improving their practical skills immediately prior to internship. Knowledge and confidence in Pharmacy skills and the Management of procedural skills particularly benefitted from this educational package.

**Take Home Messages:** We recommend that a short, intensive transition course be implemented in the curriculum prior to students, commencing their pre-Intern (Print clinical attachment).

#512 (135185)

**The Clinical Progression Year - to establish a structured introduction to professional nursing**

**Jim Kaarnavuo\***, *Clinical Skills Center, Uppsala University Hospital (Akademiska Sjukhuset), Uppsala, Sweden*

Veronica Granath (*Clinical Skills Center, Uppsala University Hospital, Sweden*)

Heléne Karlsson (*Clinical Skills Center, Uppsala University Hospital, Sweden*)

Marie Tollefsen Markström (*Clinical Skills Center, Uppsala University Hospital, Sweden*)

**Background:** Uppsala County Council provides both basic and specialized healthcare. Seriously ill patients who previously were extensively kept in intensive care can today be cared for on normal wards. The nursing education is a basic education, it's very broad and covers somatic / psychiatric care, open somatic / psychiatric care and municipal health care. The function of the clinical progression year (CPY) is primarily to establish a structured introduction to professional nursing that corresponding to the needs and wishes of both newly graduated nurses and the county council's healthcare provision.

**Summary of Work:** The CPY is developed to ease the transition between education and the professional role of newly graduated nurses. The CPY consist of two main paths Clinical skills and Profession. The courses are built up from the patient safety areas that SALAR have identified. Theoretical parts are complemented by practical sessions. Here they can train practical elements in a calm environment with experienced instructors and get access to senior nurse's inputs. The CPY is mandatory for newly graduated nurses who become employees of the County Council of Uppsala, Sweden. About 20% of employment is dedicated to the CPY.

**Summary of Results:** The CPY gives the participants the opportunity to meet other new nurses and the opportunity to practice practical elements in a calm environment with experienced instructors and get access to senior nurse's inputs.

**Discussion:** One challenge of the CPY has been to maintain the high quality of course content. To achieve this continuous feedback evaluations are performed in order to develop the courses and maintain high quality.

**Conclusion:** Our conclusion is that the CPY has been positively contributing to their professional development.

**Take Home Messages:** It's important that we give our new nurses time and opportunity to transit between education and the professional role.

#513 (133983)

**Multidisciplinary Entrustable Professional Activities in a dedicated transitional year from undergraduate to postgraduate education**

**Gersten Jonker\***, University Medical Center Utrecht, Utrecht, Netherlands

Reinier Hoff, University Medical Center Utrecht, Utrecht, the Netherlands

Stefan Max, University Medical Center Utrecht, Utrecht, the Netherlands

Cor Kalkman, University Medical Center Utrecht, Utrecht, the Netherlands

Olle ten Cate, University Medical Center Utrecht, Utrecht, the Netherlands

**Background:** Medical schools struggle to prepare students for a speciality of choice while maintaining the required breadth of the medical degree. On the one hand, the final year of medical school should optimally facilitate the transition from clerkships to residency. But, often, transitional years prepare for residency in a single specialty only. On the other hand, students may be uncertain of a career choice before their final year, feel forced to narrow their focus, but risk changing their minds during the year, or risk not being accepted for their residency of choice.

**Summary of Work:** With a domain-oriented dedicated transitional year we aim to overcome above issues. We developed a multidisciplinary dedicated transitional year with five specialties (anaesthesiology, cardiology, emergency medicine, intensive care medicine, pulmonary medicine). Clinical tasks that junior residents need to perform provide suitable learning objectives for a transitional year that prepares for residency. These objectives may be formulated as Entrustable Professional Activities (EPAs).

**Summary of Results:** We chose clinical tasks that pertain to the care for acutely compromised patients. This theme, common ground of the participating specialties, is covered by three EPAs. The EPAs are the focus of learning, teaching, and of multimodal assessment. The EPAs describe relevant activities for residents in each of the respective specialties, thereby transcending traditional barriers between disciplines.

**Discussion:** This multidisciplinary dedicated transitional year has enough breadth to graduate students from medical school as all-round junior physicians. At the same time, it offers enough depth to prepare for a scope of residencies by focusing on authentic tasks.

**Conclusion:** Such dedicated transitional years for broad domains allow students to attain specialty-specific expertise during their final year, while keeping options open for more than one specialty.

**Take Home Messages:** A dedicated transitional year was developed that prepares final year medical students for residency in more than one specialty by using specialty transcending Entrustable Professional Activities.

#514 (132487)

**Employer and Employee Opinions of New Graduates: What is missing?**

**W. David Carr\***, Missouri State University, Springfield, USA

W. David Carr PhD, ATC (Missouri State University, Springfield, MO, USA)

Jennifer Volberding PhD, ATC (Oklahoma State University, Stillwater, OK, USA)

**Background:** Anecdotal information has been shared for several years that employers do not feel that new Athletic Training (AT) graduates are ready for the workforce. Our purpose was to explore the opinions of employers and employees (recent graduates) about the level of preparation and readiness for the work force. Specifically, the purpose was to examine the themes emerging from interviews with employers and employees about the abilities demonstrated by the employees.

**Summary of Work:** A qualitative design involving in-depth focus group interviews. Eleven employers and five employees were available at scheduled times during the symposium. Focus group interviews were videotaped then transcribed verbatim and analyzed deductively. Peer debriefing and member checks were used to ensure trustworthiness.

**Summary of Results:** Several 'thematic' deficiencies, or abilities, that were lacking emerged from our analysis. Both groups cited; 1) interpersonal communication, 2) decision making/independence, 3) initiative, 4) confidence, and 5) humility/ability to learn from mistakes as abilities that were deficient in new graduates. Administrative Skills was the only thematic deficiency cited by the employees but not the employers.

**Discussion:** Both groups cited interpersonal communication as the most obvious deficiency of new graduates. This is similar to findings by Massie et al<sup>1</sup> who reported that employers felt interpersonal skills as opposed to technical skills were an area that could be enhanced in entry-level education. Employers cited decision making/independence and initiative more frequently than employees. Conversely, employees cited confidence more frequently than employers.

**Conclusion:** Limitations of current curriculum education models and employer-driven on-the-job-orientation and experiences were identified as areas of concern. Studies need to be conducted to determine model practices for curriculum models and employer orientation.

**Take Home Messages:** Successful transition to practice is an issue within all disciplines and is multifaceted. Many different perspectives need to be considered and no single intervention will ensure success. The deficiencies highlighted in this study should serve as a starting point for educators and employers to prepare their students and new employees.



#515 (126924)

**Prepared for Practice? Interns' experiences of undergraduate clinical skills training in Ireland**

*Marie Morris\*, Trinity College Dublin, Dublin, Ireland*

*Aisling o'Neill*

*Amy Gillis*

*Paul F Ridgway*

**Background:** Many previous studies on internship have reported a lack of preparedness for the role. More recently in Ireland most medical schools have introduced formal clinical skills training programmes. This study sought to evaluate the impact, if any, of formal skills training in the medical training on interns preparedness for practice.

**Summary of Work:** The study utilised a survey approach followed by focus group discussions. The aim was to identify what skills interns were taught in medical training and what skills were actually required in their intern year.

**Summary of Results:** The skills reported as being required most frequently were: IV cannulation, phlebotomy and urinary catheterisation. The skills reported as being least required were suturing and nasogastric tube insertion. Students partaking in an undergraduate entry course reported receiving more skills training than those on a post graduate programme

**Discussion:** Most interns had received skills training in designated skills laboratories. No intern had received training in all skills advised in the Tuning Projects Guidelines.

**Conclusion:** These findings suggest standardising clinical skills training to ensure all interns enter practice with equal competencies and improving communications with clinicians to ensure expectations are reflective of actual training.

**Take Home Messages:** There is no standardisation in undergraduate skills teaching. No School teaches all the recommended skills (Tuning Project). Senior Staff Under estimate Interns actual skills abilities.

#516 (133509)

**Taking STEPS in the right direction of medical education: Piloting a crash training course on how to become an effective senior internal medicine resident**

*Cameron Leafloor\*, The Ottawa Hospital, Ottawa, Canada*

*Heather Lochnan*

*Catherine Code*

*Allen Huang*

**Background:** The learning curve between junior and senior resident is steep. There is little education on how to make this transition. Our residents expressed many concerns about taking on these new role of managing a Clinical Teaching Unit (CTU) and wished for a formal training.

**Summary of Work:** The Senior Transition Education Program and Simulation (STEPS) was comprised of didactic lectures and small group case based sessions, targeted at specific duties of an SMR, as well as a full day of mock code blue training. A survey was given out pre and post intervention to determine confidence with certain skills using a Likert scale.

**Summary of Results:** 25 of the 26 first year residents completed the STEPS program After the STEPS program, significantly more residents described themselves as fully prepared for the following: assuming the role of an SMR (from 27.3% to 86.7%); managing a CTU team (from 46.7% to 86.7%); running a Code Blue (from 26.7% to 73.3%); discussing end of life decisions with patients and family (from 71.4% to 100%); assuming the teaching roles of an SMR (from 6.7% to 57.1%); knowledge about the ER algorithm (from 66.6% to 85.7%).

**Discussion:** Narrative feedback from the residents was unanimously positive indicating appreciation for the educational opportunity and for the support from their program. The variety of learning techniques was highly praised, while indicating a lower interest in the didactic sessions.

**Conclusion:** The STEPS program represents a successful strategy to prepare residents for their role as SMR. This innovative course will now be adopted as a mandatory component of training. A similar format could be adopted by other programs and health centers.

**Take Home Messages:** The transition from junior to senior resident is a steep learning curve and academic institutions can improve on helping residents ease this transition. STEPS proved to be an effective method to remedy such issue.

## 5J Short Communication: Education Environment / Curriculum Evaluation

Location: MR 116 – P1

#5J1 (134358)

### Residents' Learning Climate: From Continuous Measurement to Improvement

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*Onyebuchi A. Arah*

*Albert J.J.A. Scherpbier*

*Maas Jan Heineman*

*Kiki M.J.M.H. Lombarts*

**Background:** A healthy learning climate within postgraduate medical education contributes to residents' learning outcomes as well as the quality of patient care. The Dutch Residency Educational Climate Test (D-RECT) is a questionnaire used to evaluate the learning climate and, when used repeatedly, could lead to continuous improvement of the learning climate. Our aim was to investigate whether departments' D-RECT scores changed over time.

**Summary of Work:** Departments from Dutch hospitals that used the D-RECT at least once between January 2012 and December 2014 were included. Residents were asked to fill out the 35-item D-RECT using a web-based system. Generalized linear mixed (growth) models were used to assess D-RECT scores over time.

**Summary of Results:** We included 3982 resident evaluations, representing 223 training programs in 39 hospitals. Mean D-RECT scores showed modest but significant increases from 3.83 to 3.86 and 3.91 in 2012, 2013 and 2014 respectively ( $b = 0.03$ ; 95% CI = 0.01–0.06;  $p < 0.05$ ).

**Discussion:** Potential explanations for the observed results include (1) the use of a five-point Likert scale, which limits respondents' ability to discriminate between performance levels; (2) staffs' and residents' possible interpretation of the relatively high D-RECT scores to mean that no steps for further improvement were necessary. Since change in climate scores is difficult to demonstrate, we consider the small but positive trend towards improvement within the studied time span encouraging.

**Conclusion:** Our study suggests a small, but significant, improvement in the learning climate as perceived by residents.

**Take Home Messages:** Departments should aim to improve the learning climate continuously by frequently using feedback generating tools to support their monitoring activities.

#5J2 (134088)

### Better learning climates, better patient care?

*Alina Smirnova\*, Maastricht University, Amsterdam, Netherlands*

*Anita Ravelli*

*Renee Stalmeijer*

*Cees van der Vleuten*

*Joris van der Post*

*Kiki Lombarts*

**Background:** Clinical learning environments should ensure safe and effective patient care. A positive learning climate in residency supports residents' well-being and professional development. However, it is unknown whether patient safety benefits from better learning climates. This study investigated learning climate in relation to patient outcomes in the context of obstetrics and gynecology residency training.

**Summary of Work:** We retrospectively analyzed adverse perinatal and maternal outcomes of 23,629 births in 16 non-tertiary perinatal units in the Netherlands in 2013. In the same year, 103 residents (60%) evaluated their learning climate using the 35-item Dutch Residency Educational Climate Test (D-RECT) (5-point scale). Multilevel logistic regressions were used to test the associations of mean D-RECT scores grouped in tertiles with adverse perinatal and maternal outcomes, controlling for pregnancy and department characteristics.

**Summary of Results:** Less positive learning climates (D-RECT scores  $< 3.91$ ) were associated with 31% lower odds of adverse perinatal outcome (OR 0.69, 95% CI 0.51–0.93). No association was found between more positive learning climates (D-RECT scores  $\geq 4.17$ ) and adverse perinatal outcomes (OR 1.16, 95% CI 0.89–1.52). There was no association between learning climate scores and adverse maternal outcomes (low vs. average scores: OR 0.96, 95% CI 0.86 – 1.07; high vs. average scores: OR 0.95, 95% CI 0.85 – 1.05).

**Discussion:** We found that the relationship between the learning climate and patient outcomes varies depending on type of patient outcome. While we could not confirm that more positive learning climates lead to better patient outcomes; unexpectedly, better patient outcomes were found in less positive learning climates. Our findings suggest that competing interests exist between “learner-” and “patient-centeredness” in clinical learning environments.

**Conclusion:** More positive learning climates were not associated with better patient outcomes. In contrast, better patient outcomes were found in less positive learning climates.

**Take Home Messages:** More focus is needed on optimizing patient safety and learning climate at residency training sites.

#5J3 (136299)

**Comparing perception of learning climate of undergraduate students at various levels in a public sector Medical College**

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Musarrat ul Hasnain

**Background:** Self determination theory has important implications in learning and this importance is potentiated in medical education due to the complex learning demands of this profession. Of the three basic needs including autonomy support, competence and relatedness, autonomy support has been found be proportionally related with intrinsic motivation, self esteem, mastery goals and controllable dimension of attribution. Informal discussions among faculty of various colleges in Pakistan point towards general lack of motivation in medical students. Literature is almost absent about this domain in our context. This study was performed in a public sector medical college to evaluate the perceived autonomy support by students of first to fourth year.

**Summary of Work:** Study Design: Cross sectional. A validated questionnaire titled “ The learning climate questionnaire” was distributed among students of classes yr1 to 4 in public sector medical college. Only first time responses were included in the study. Data was analysed by using SPSS version 20 for mean, standard deviation, range and comparison of mean score between the classes.

**Summary of Results:** The mean score of all the classes ranged from 2.92(I feel able to share my feeling with my teachers) to 4.62 (I don't feel very good about the way my teachers talk to me). There was observable decline in perception of autonomy support from yr1 to yr4 having average mean from 4.32 in yr1; 3.56 in yr 2 ; 3.79 in yr3; and 3.30 in yr5.

**Discussion:** The perception of autonomy support as reflected by mean average is not encouraging in the context of a public sector medical college of Pakistan. This can be explained through the fact that there is teacher centered curriculum with rather prescriptive style of teaching. This is consistent with the literature support of strong correlation of autonomy support with intrinsic motivation of the students

**Conclusion:** The learning climate in a public sector medical college does not favour autonomy support eventually affecting intrinsic motivation adversely.

**Take Home Messages:** Faculty training programmes should be initiated to develop a learning culture which support autonomy on the part of students.

#5J4 (135438)

**Determinants of students' satisfaction during clinical clerkship**

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Jean-Christophe Richard (Faculté de Médecine Lyon-Est - Université de Lyon, Lyon, France)

**Background:** Medical students' satisfaction regarding their clerkship experience is a parameter of potential interest since it may affect their cognitive performance and interact with their learning potential.

**Summary of Work:** The aim of this study was to identify independent factors associated with student satisfaction regarding their clerkship experience. This study was performed in a French medical university over a 1-year period using a web-based clerkship evaluation survey. Student's global satisfaction during clerkship was rated from 0 to 10, as well as medical interest, pedagogical aspects and organizational aspects.

**Summary of Results:** 2881 students evaluations were analyzed, collected over 149 medical departments. Principal component analysis identified a strong correlation between the 4 evaluation grades; global satisfaction grade being more strongly correlated to pedagogical grade. Multivariate analysis identified 10 covariates independently related to student global satisfaction: 4 covariates related to pedagogical aspects, 4 covariates related to student or clerkship characteristics, one covariate describing student relation with medical staff, and one covariate describing student activity regarding medical records filing.

**Discussion:** The sample size of this study allowed identification of several independant covariates associated with student satisfaction during clerkship.

**Conclusion:** In the specific context of a French medical university, medical student satisfaction regarding their clerkship experience is mainly related to pedagogical criteria. Accounting for factors related to student or clerkship characteristics is nonetheless mandatory to interpret student satisfaction.

**Take Home Messages:** Pedagogical aspects are strongly associated with medical student's satisfaction regarding their clerkship experience. Factors related to student or clerkship characteristics must be accounted for when interpreting student's satisfaction surveys.

#5J5 (133285)

**A Student-Centered Participatory Program Evaluation for Curriculum Reform: An Inside Look at the Clerkship Experience**

**Austin Beason\***, Southern Illinois University School of Medicine, Springfield, USA

SIUSOM Student Socialization Working Group (AB, EC, MG, BK, JM, SM, EN, JK, HH), Southern Illinois University School of Medicine, Springfield, USA

**Background:** Medical education curriculum reform impacts students, however, program evaluation often excludes those directly affected: students. Our school is undergoing a major curriculum change for third-year clerkships. To better integrate students, we are using a student-centered, participatory program evaluation to explore medical student socialization in the third year.

**Summary of Work:** In 2015-2016, 7 third-year students are documenting their clerkship experiences through reflective journals and peer focus groups on clerkship experiences. In 2016-2017 when the new curriculum is implemented, these volunteers will observe third-year students in clinical settings and lead focus groups. Comparing and contrasting the prior year experiences with the new third year experiences will highlight, from a medical student perspective, the nuances, differences, and general themes of the new clerkship experience.

**Summary of Results:** Qualitative analysis of focus group data in 2015-2016 reveals multiple subtleties in the student clerkship experience. Student definition of teaching time and learning time are not synonymous. Clinical environments (i.e. bedside) are seen as beneficial learning moments by students and help students generate personal learning objectives. Conversely, didactics and scheduled discussions are considered teaching time and found to be less educational by students. Students define clinical activity differently than anticipated, as students link clinical activity to patient proximity rather than clinical action.

**Discussion:** Our goals with this student-centered program evaluation are (1) include the primary stakeholders (i.e. students) and empower them in participatory roles, (2) give students an appreciation for program evaluation (3) describe an effective, easily transferable process by which future curriculum reforms can be evaluated, and (4) generate questions and ideas that help guide curriculum reform efforts.

**Conclusion:** Medical students' active evaluation of the teaching and learning process in clinical setting is valuable and can be used to improve curriculum reform efforts.

**Take Home Messages:** Student-centered participatory program evaluation is rarely discussed, yet feasible and powerful practice in medical education.

#5J6 (136117)

**A Pragmatic Approach to Curriculum Review**

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Jodene Prior

**Background:** There were a number of drivers to carry out the curriculum review in the Peninsula College of Medicine and Dentistry. These included the requirements of Tomorrow's Doctors document by the General Medical Council, the changing face of healthcare delivery, the need to enhance student-engagement and the feedback from stakeholders.

**Summary of Work:** We set up a number of curriculum development events in all three localities of the medical school with detailed feedback from students, core staff, scientists, clinical teachers and administrative staff. A curriculum steering group was then set up with a number of curriculum working groups in areas such as patient safety, clinical pathways, tutorials and plenaries, professionalism, public health and student selected components. The ideas generated by the curriculum events were used as a basis for the work of the various groups. A project manager ensured timelines were adhered to.

**Summary of Results:** The recommendations of the review were formulated as immediate, intermediate and longterm action plans. Immediate action plans included enhancement of the patient safety curriculum, introduction of consolidation weeks in the fourth year of the BMBS programme with activities including prescription safety, situational judgment, specialty career days and biomedical science masterclasses and assessments. We also introduced an induction week for the final year of the programme. The evaluation of these changes over the last 2 year has been very positive with minor modifications to the curriculum in response to student and staff feedback. The Peninsula College of Medicine and Dentistry has since desegregated into 2 new medical schools. The intermediate and longterm action plans have been implemented following the disaggregation of PCMD by the new Peninsula School of Medicine to include student-led grand rounds and Foundation weeks in the third and fourth year of the programme.

**Discussion:** The overriding principles for development include providing students with authentic experiences, embracing evidence-based interventions either through findings of the literature or pilots as well as introducing changes that are patient-centred and responsive to innovations in healthcare delivery.

**Conclusion:** An inclusive and step-wise approach to curriculum review and development is essential for student engagement, staff development and identifying challenges to implementation. Ideas generated by students and staff are an important ingredient for successful implementation.

**Take Home Messages:** Curriculum reviews and development require careful planning, management and a considered implementation strategy.



#5J7 (133053)

**Systems Engineering in Health Professions Education:  
Using an Abstract Decomposition Space Tool to  
Conduct Emergent Theory Program Evaluation**

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*Lawrence Grierson*

*Maria Mylopoulos*

*Patricia Trbovitch*

*Darius Bagli*

*Ryan Brydges*

**Background:** Program evaluation helps ensure the ongoing success of any educational intervention. Traditional approaches to program evaluation in health profession education (HPE) have focused on intended outcomes or explanatory theories to evaluate the effectiveness of a program. An alternative framework for program evaluation, termed the emergent theory evaluation approach, has been proposed as a way to account for many factors concurrently, including outcomes, theoretical explanations, and other elements that emerge as a program unfolds. However, the authors of this framework did not provide guidelines for how to conduct this novel type of program evaluation.

**Summary of Work:** We identified the ‘prelude to surgery’ undergraduate medicine course as a program that has undergone several changes without a formal evaluation. We used a knowledge elicitation tool from cognitive systems engineering, called the Abstract Decomposition Space (ADS), to conduct an emergent theory program evaluation. The ADS is used to clarify the connections between a program’s resources and the explicit/implicit program goals. Data sources included course documents, structured observations, and semi-structured interviews. To create and refine the ADS we completed an initial exploratory cycle, followed by a focused cycle. We then used the refined ADS as a guide for multiple iterations of data collection.

**Summary of Results:** The ADS allowed us to identify many elements that emerged in the course by analyzing each stakeholder’s (i.e., students, instructors, and course directors) perspectives individually and comparing among them. Our results revealed a misalignment between the stakeholders’ goals for the course, the teaching and learning afforded by course resources, and the assessment tools used to measure success. Stakeholder comparisons yielded many key recommendations for course refinement.

**Conclusion:** Drawing on cognitive systems engineering, our project demonstrates how knowledge elicitation tools, like the ADS, can be used to conduct a meaningful emergent theory program evaluation.

## 5K Short Communication: Selection

Location: MR 118 – P1

#5K1 (132584)

**Exploring participation in selection and type of selection in relation to student motivation, engagement and achievement: a multi-site study**

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*Gerda Croiset (VUmc School of Medical Sciences, Amsterdam, the Netherlands)*

*Nienke Schripsema (Center for Research and Innovation in Medical Education UMC Groningen, Groningen, the Netherlands)*

*Gerard Spaai (Center for Evidence-Based Education (CEBE) AMC-UvA, Amsterdam, the Netherlands)*

*Robert Hulsman (Center for Evidence-Based Education (CEBE) AMC-UvA, Amsterdam, the Netherlands)*

*Rashmi Kusurkar (VUmc School of Medical Sciences, Amsterdam, the Netherlands)*

**Background:** Motivation originating from within an individual (autonomous motivation), and engagement are important for academic success. In the Netherlands, applicants rejected in selection can still be admitted through weighted lottery. We investigated if participation in selection and type of selection procedure were associated with autonomous motivation, strength of motivation, engagement, and study credits (European Credits-ECs).

**Summary of Work:** Year-1 and Year-4 students from three medical schools completed a digital questionnaire, including demographics and standard validated questionnaires measuring autonomous motivation (Academic Self-regulation Questionnaire), strength of motivation (Strength of Motivation for Medical School) and engagement (Utrecht Work Engagement Scale-Student). ECs were retrieved from student databases. The medical schools applied different selection procedures which were categorised as: A) CV + cognitive tests; B) CV + cognitive tests + interviews; C) CV + cognitive tests + non-cognitive tests + multiple mini interviews. Regression analyses were performed for testing if participation in selection and selection procedure were predictors of motivation, engagement and academic performance.

**Summary of Results:** The response rate was 35% (387 Year-1 and 257 Year-4 students). Year-4 students who had participated in selection reported higher engagement than students who had not participated ( $p=0.006$ ). Strength of motivation of Year-1 students selected via procedure B was higher than of those selected via A and C ( $p=0.002$ ). Students selected via procedure C obtained more ECs than those selected via A and B ( $p=0.003$ ). GPA outcomes will be presented during the conference.

**Discussion:** We found that type of selection was associated with strength of motivation, but not with autonomous motivation. Autonomous motivation is more important for learning and achievement. Curriculum remains a confounder in our analyses.

**Conclusion:** Participation in selection was associated with engagement of Year-4 students. Type of selection was associated with Year-1 students' strength of motivation and ECs.

**Take Home Messages:** Type of selection procedure seems more important than participation in selection for some student outcomes.

#5K2 (133573)

**Is what they say in medical student selection interviews what they really mean?**

**Louise Young\***, *James Cook University, Townsville, Australia*

*Daniel Lindsay*

*Robin Ray*

**Background:** Medical student selection, especially involving interviews, is a high stakes process. Students are selected into James Cook University based on performance in an interview and interest and preparedness for rural medical practice. This project evaluated beginning medical students' perceptions about rural medical practice and rural life after they were accepted into the course.

**Summary of Work:** Students completed a low stakes essay on the life and work of a rural doctor in week one of their six year medical degree as part of a routine literacy assessment. The 103 student essays were coded into three main themes: rural lifestyle, doctor role and rural practice. Sub-themes were elicited and quantified. Positive themes included rural lifestyle, doctor role, views of doctor, and impact on community. Negative themes included pressure on doctor, greater workload, isolation and limited resources.

**Summary of Results:** Z tests revealed no significant differences on the number of positive and negative responses for rural lifestyle and rural practice. The rural doctor role had significantly more positive than negative views. Significant differences were found for positive views of the rural doctor role and negative views of rural practice. Participants from an urban background reported a significantly higher percentage of negative views of rural practice. Urban students had significantly more negative views about the rural doctor role especially related to workload, limited resources and isolation than rural origin students.

**Discussion:** These students entering medical school already had both positive and negative views about the life and work of a rural doctor, with those students from capital city areas having significantly more negative views. During the selection interview however, many question responses indicated an interest in rural medicine which in a low stakes assignment were not replicated.

**Conclusion:** Medical student selection processes may need to consider the impact of "faking good" in selection interviews.

**Take Home Messages:** Evaluation of student perceptions is a useful way of assessing entry level

beliefs and identifying positive experiences required in a rural focused curriculum.

**#5K3 (134354)**

**Emotional Intelligence, Medical Selection and Academic Performance: Associations and Development**

*Chris Skinner\*, Medical School, University Notre Dame Fremantle, Swanbourne, Australia*

*Raoul Oehman*

**Background:** This written report explores the relationship between Emotional Intelligence (EI) and selection methods, as well as providing descriptive information on EI across specific years in medical school. Emotional intelligence is the ability to identify, assess and control the emotions of oneself, others and of age-groups; and research suggests that this ability may be important for medical professionals.

Nevertheless we are currently unaware of whether current selection practices select for those abilities, or whether the curriculum fosters its development.

**Summary of Work:** Data was analyzed which helped to examine the relationship between academic performance and EI abilities. This project presents what we believe to be the first longitudinal study of emotional intelligence as it relates to the training of medical students

**Summary of Results:** Specifically the study investigated:

- The association between EI and present Notre Dame Selection criteria scores: (Identified)
- Whether there are significant differences in Emotional Intelligence between first and fourth year medical students. (awaiting results)
- Whether there is any association between academic performance measured at two points (preclinical Med100 and clinical Med400) and Emotional Intelligence.

**Discussion:** We will report on three year's worth of data (cross-sectional). We importantly are now nearing our final data collection involving final year medical students. Four years ago, these students were the first cohort to participate in the project and their re-participation four years later represents the vitally important longitudinal component of the study.

**Conclusion:** Present analysis of results suggests an association between top academic performing students in final years and high levels of identified emotional intelligence.

**Take Home Messages:** 1. Clarification of emotional intelligence measures as a basis for supplementing medical selection procedures 2. Importance of identifying emotional intelligence development across the medical school professional journey 3. Implications for curriculum development at varying pre clinical and clinical stages.

**#5K4 (135461)**

**Supporting positive test impact for BMAT candidates: A case study of revising BMAT Section 2 and developing free online support materials**

*Sarah McElwee\*, Admissions Testing Service, Cambridge English Language Assessment, Cambridge, UK*

*Mark Shannon (Admissions Testing Service, Cambridge, UK)*

**Background:** Several UK and international universities use BMAT to select applicants to medicine and biomedical courses. Preparation for admissions tests such as BMAT should support development of knowledge and skills that benefit test-takers' wider education, and should not create excessive financial barriers on participation. A case study of a revision of BMAT's Section 2 content (based on scientific knowledge typically covered in non-specialist school science and mathematics courses) and the development of a free student guide to support preparation will be presented.

**Summary of Work:** Stakeholder universities and senior examiners worked with the Admissions Testing Service to revise and more precisely define the scope of Section 2 to ensure its relevance for biomedical study. The multi-stage process of developing this new specification and the companion online revision guide will be discussed. Stakeholder reactions to the guide were monitored and possible impacts on the measurement characteristics of the test investigated.

**Summary of Results:** The updated specification and revision guide clarified topics for candidates to revise, and made core preparation materials freely available to support equality of access. Reactions to the guide were positive but not all test-takers utilised it.

Statistical analysis indicated that there may have been a positive impact on test measurement characteristics.

**Discussion:** Provision of a revision guide may have reduced the impact of differences in subject knowledge, giving a better measure of students' ability to reason within a scientific context. The ways in which positive test impact is maximised are discussed. Evaluations and next steps will be presented.

**Conclusion:** The revision of BMAT Section 2 and the development of the student resource were guided by the principle that admissions test preparation should support development of skills beneficial for school and undergraduate study.

**Take Home Messages:** The revision of BMAT and provision of support materials can promote fair access and maximise positive impact for test takers.

#5K5 (134785)

**Exploring the Relationship between the UKCAT Situational Judgement Test and the Multiple Mini Interview**

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Jon Dowell, University of Dundee, UK  
Matthew Homer, University of Leeds, UK

**Background:** In 2013 The United Kingdom Clinical Aptitude Test (UKCAT) introduced a non-cognitive Situational Judgement Test (SJT) to be used by medical and dental schools. The overall aim of this research is to establish the concurrent validity of the SJTs using demonstrably reliable MMIs as the benchmark.

**Summary of Work:** A total of 5 UK medical schools (Dundee, Norwich, Nottingham, St. George's, Aberdeen) and 2 dental schools (Cardiff, Dundee) agreed to participate in this study and submitted data. Relationships between SJT, MMI scores and demographic variables (gender, age at application, ethnicity, nationality, and socioeconomic class) were analysed using descriptive, ANOVA and correlation techniques.

**Summary of Results:** SJT and MMI scores were matched for 2874 of 3021 (97.8%) 2013-2014 MMI candidates. A modest correlation of .12 ( $p < .05$ ) was observed between MMI and SJT overall, with 4 out of 7 institutions showing significant correlations of between .14 ( $p < .05$ ) and .30 ( $p < .01$ ). Relationships between SJT and MMI scores were stronger among the less affluent socioeconomic classes 4 and 5 (.45,  $p < .01$  and .28,  $p < .05$  respectively) compared to classes 1 to 3 (.07,  $p = .39$  to .10,  $p < .05$  respectively). MMI-SJT associations were also stronger for overseas domiciled compared to applicants from the UK (.29,  $p < .01$  and .10,  $p < .01$  respectively).

**Discussion:** Results suggest the SJT-MMI relationship is moderated by variation in MMI content and administration across institutions. Smaller MMI-SJT associations within social classes 1-3 and UK domiciled applicants may highlight the influence of coaching or sociocultural factors. Further analysis will investigate the influence of MMI station type, and the effect of variables on SJT-MMI relationships.

**Conclusion:** Relationships between MMI and SJT scores provide modest support for the concurrent validity of MMIs and SJTs as assessments of shared non-cognitive skills.

**Take Home Messages:** The emerging SJT-MMI concurrent validity evidence is positive.

#5K5 (135219)

**Selection of students on extracurricular activities predicts persistent activities during medical school and better clinical achievement**

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Louise C Urlings  
Axel PN Themmen

**Background:** Several medical schools include candidates' extracurricular activities in the selection procedure, with promising results regarding their predictive value for clinical achievement. This study aims to reveal whether this better achievement in clinical training of students selected on the basis of their extracurricular activities might be explained by persistent participation in extracurricular activities during medical school (msECAs).

**Summary of Work:** Lottery-admitted and selected student admission groups were compared on their participation in three types of msECAs: 1) research master, 2) important board positions or 3) additional degree program. Logistic regression was used to measure the effect of admission group on participation in any msECA, adjusted for pre-university GPA. Two-way ANCOVA was used to examine the inter-relationships between admission group, participation in msECAs and clerkship grade, with pre-university GPA as covariate.

**Summary of Results:** Significantly more selected students compared to lottery-admitted students participated in any msECA (23.7% versus 13.0%,  $\chi^2(1)=21.41$ ,  $p < 0.001$ ,  $ES=0.14$ ). For selected students this higher rate of participation in msECAs was not associated with their pu-GPA, while lottery-admitted students only participated if they had a high pu-GPA. Participation msECAs was associated with higher clerkship grades for selected students but not for lottery-admitted students.

**Discussion:** These results suggest that persistent participation in extracurricular activities of selected students favors better clinical achievement, supporting the inclusion of ECAs in the selection procedure. More insight in the rationale behind participation in extracurricular activities during medical school may explain differences found between lottery-admitted and selected students.

**Conclusion:** Participation in msECAs is associated with a higher pre-university GPA for lottery-admitted students only, whereas participation in msECAs is associated with higher clerkship grades for selected students only.

**Take Home Messages:** Including assessment of pre-university extracurricular activities in the selection procedure increases the chance of participation in msECAs which in turn leads to better clinical achievement.



#5K6 (135535)

**Shortlisting for interviews: Comparison of the Cambridge Personal Styles Questionnaire with personal statements in a case-study of nursing applicants**

**Lyn Dale\***, *Admissions Testing Service, Cambridge, UK*

**Kevin Cheung** (*Admissions Testing Service, Cambridge English Language Assessment, Cambridge, UK*)

**Background:** Selection for undergraduate healthcare study is competitive and courses tend to be oversubscribed. Selection tools available to admissions tutors vary in the resource and time commitment required to implement them; this is particularly important for methods used to screen out initial applications before interview. One way to reduce this burden would be to replace a resource intensive screening method, such as assessing personal statements (PSs), with one that is easier to implement, such as computer-based personality testing. A study examining these measures in nursing selection is presented to prompt discussion in the medical admissions context.

**Summary of Work:** An evaluation study was conducted with shortlisted applicants to adult nursing at a UK university (n=316), by administering a computer-based personality assessment alongside the normal selection process. PS ratings and interview scores were linked to personality scores and correlated with each other.

**Summary of Results:** PS scores did not correlate significantly with interview scores, or suggest a positive trend. On the other hand, a number of personality dimensions correlated significantly with performance at interview, including aspects of conscientiousness, emotional stability, agreeableness and extraversion.

**Discussion:** PS scores have been shown to have poor predictive validity using course performance as a criterion. It is arguably more important they predict interview performance, as PSs are used as screening tools before interviews. The findings of the present study suggest that scoring personal statements is unlikely to select candidates who will perform well at interview, whereas personality measures could potentially contribute to this task.

**Conclusion:** PSs do not support shortlisting processes in the context of the present study; however, CPSQ can help select applicants who are more likely to perform well at interview.

**Take Home Messages:** Whether PS ratings can predict interview performance needs re-evaluating in the medical admissions context, and trials with personality assessment should be conducted.

## 5L Short Communication: Lecture / Flipped Classroom

Location: Mr 119 – P1

#5L1 (135921)

**The Impact of Lecture Capture on Student Learning: Do Medical Students Actually Benefit from Embracing New Educational Technologies?**

*Nitsa Topale\*, St. Georges University, St. Georges, Grenada*

**Background:** Guidance on how to best integrate these technologies into the learning process rarely accompanies their launch into academic settings. In medical education, the volume of content and pace at which it must be mastered, along with pressures to excel on high-stakes examinations, require an informed approach to the use of learning technologies so as to enhance rather than to detract from the learning process.

**Summary of Work:** Research suggests that the availability of recorded lectures in medical education settings has had an impact on lecture participation, active learning, and academic performance. In order to explore the validity of earlier findings to medical students at an international university and to better understand how students were using the technology, year one and two students were surveyed via e-mail. The aim of the survey was to identify a) how this availability has affected students' choices regarding class participation, b) how recorded lectures were being built into the active learning process, and c) the perceived impact of the availability of recordings on student learning and performance.

**Summary of Results:** The availability of recorded lectures had little impact on students' choices to participate in live lectures. Most students were regularly and actively making use of the technology in a way that enhanced their learning experience although they were cognizant of the possible disadvantages of using the technology ineffectively. The majority did not feel their performance was affected by the technology.

**Discussion:** The study revealed that the quality of a lecture more heavily influenced participation than did the availability of a recorded option. Recorded lectures had little influence on students' choices to participate, and the perceived benefits of integrating recorded lectures into study practices were related to their facilitation of and impact on efficient, active, and adaptive learning. Perceived advantages and disadvantages were both related to time management and to control over the pace of learning.

**Conclusion:** The results of this study were consistent with findings in other settings. Responses and feedback provided by students on their "best practices" supported these findings and provided valuable guidance to new users of the technology.

**Take Home Messages:** Lecture capture technology can have a significant impact on how medical students

go about their learning. When students use recorded lectures in an active way to enhance learning processes, they experience benefits from using the lecture capture technology.

#5L2 (133900)

**Flipping the classroom: Effect on workload, motivation and retention**

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*Renske A.M. de Kleijn (UU, Utrecht, the Netherlands)  
Inge E.T. van den Berg (UMC, Utrecht, the Netherlands)  
Olle Th.J. ten Cate (UMC, Utrecht, the Netherlands)  
Hendrika E. Westerveld (UMC, Utrecht, the Netherlands)  
Harold V.M. van Rijen (UMC, Utrecht, the Netherlands)*

**Background:** A prerequisite for effective flipped classrooms is that students engage with the assigned pre-class preparation and in-class activities. Therefore students need to be motivated and must take responsibility for their own education. The literature suggests that workload for students in flipped classrooms is often increased. Furthermore, actively processing the material in-class is assumed to promote deeper understanding and improve knowledge retention. This study aims to compare student activity, motivation, self-efficacy and retention of knowledge between traditional and flipped classrooms.

**Summary of Work:** All 40 students of a course of a graduate-entry medical program were invited to participate in this study. In 2013 this course had a traditional design. In 2014 part of the course was taught as flipped classrooms, but the content was similar. In both cohorts self-reported study time (homework) was measured with a daily online questionnaire. In-class activities were observed using a locally developed instrument. Following self-determination theory, we measured perceived relatedness, (relative) autonomy and self-efficacy to investigate student motivation. The self-efficacy questionnaire was filled out again when students took a knowledge retention test after 10 months.

**Summary of Results:** On average, students spent the same amount of study time in both courses, but in flipped classroom this time seemed more evenly distributed throughout the course. In-class observations indicated that flipping the classroom increased peer-interaction and improved in-depth discussions. End-of-course exams showed comparable scores, but flipped classroom student reported higher self-efficacy scores. After ten months, self-efficacy scores and scores on an identical knowledge exam were similar in both groups.

**Discussion:** Flipping the classroom often provokes enlargement of the course content and increased workload for students. Preventing this enabled our students to engage with the assigned preparation. This probably contributed to improved in-class activity and deeper learning.

**Conclusion:** Students' workload seemed more equally distributed in flipped classrooms and their self-efficacy was higher at the end of the course. In-class observations showed increased interaction with peers and improved in-depth discussions. Retention of knowledge was similar to students in traditional education.

**Take Home Messages:** Carefully designing the flipped classroom enabled students to engage with pre- and in-class activities, resulting in improved in-class activity and deeper learning.

#5L3 (133662)

**"Flipping" Part A: What factors facilitate the use of a 'flipped classroom' model in preparation for postgraduate membership examinations in Public Health?**

**Kelly Mackenzie\***, *School of Health and Related Research, University of Sheffield, Sheffield, UK*  
*Amrita Jesurasa (School of Health and Related Research, University of Sheffield, Sheffield, UK)*  
*Hannah Jordan (School of Health and Related Research, University of Sheffield, Sheffield, UK)*  
*Elizabeth Goyder (School of Health and Related Research, University of Sheffield, Sheffield, UK)*

**Background:** The 'flipped classroom', a pedagogical model where typical lecture and homework elements are reversed, is being advocated in medical education to support teaching of large curricula. However, research into the model's use in postgraduate medical education, which requires the application of acquired knowledge, is limited. The aim of this study was to explore barriers and enablers to using the established 'flipped classroom' in the Membership of the Faculty of Public Health (MFPH) Part A preparation course at the University of Sheffield.

**Summary of Work:** A focus group (n=5) was held in February 2016. Participants were recruited from 18 public health registrars enrolled on the most recent MFPH Part A preparation course. Written consent and demographic information was obtained. The focus group was audio-recorded and transcribed verbatim. Transcripts were thematically analysed using pre-determined themes which addressed the study's objectives.

**Summary of Results:** A tutor's lack of experience or willingness to use a 'flipped' model, and students' lack of awareness regarding the aim of 'flipping' were perceived barriers to using this model. Perceived enablers included: tutor and student preferring this teaching/learning style; and tutor and student flexibility to switch between traditional and 'flipped' methods. No clear link between topic and suitability to flipping was reported.

**Discussion:** Effective use of the 'flipped classroom' appears dependent on individual tutors' experience and preferred style, and students' learning preference, but less so on the topic. Hence some flexibility in the model is needed for postgraduate learners. A mixed-methods approach combining traditional learning

methods with 'flipping' was advocated. This study's findings may have relevance to other postgraduate medical specialities.

**Conclusion:** There are key barriers and enablers to the use of the 'flipped classroom'. The adoption of a flexible, mixed-methods approach may help to overcome these barriers.

**Take Home Messages:** Combining a 'flipped classroom' with more traditional learning models may overcome some of the identified barriers to 'flipping'.

#5L4 (132793)

**A flipped classroom approach to a 'Diabetes Acute Care Day' improves final year medical students confidence and competence**

**James Boyle\***, *University of Glasgow, Glasgow, UK*  
*Aileen Linn*  
*Niall Barr*  
*Kerr Gardner*  
*Matthew Walters*

**Background:** Evaluate a novel pedagogical approach to a 'Diabetes Acute Care Day' for final year medical students.

**Summary of Work:** Flipped classroom approach' with four weeks online pre-access to nine micro-lectures and a quiz. On the day, active learning strategies with an interactive case-based quiz lecture using peer instruction with novel classroom response system (YACRS) developed at the University of Glasgow followed by prescribing skills workshops. Kirkpatrick's model of evaluation: Level one (learner reaction) measured by survey questionnaire, review of online usage statistics; Level two (learning) measured by confidence questionnaire, case-based and prescribing skills assessment. Ethical approval gained.

**Summary of Results:** 95% (161) students participated. 82% described overall satisfaction for the flipped classroom approach as very satisfied or satisfied. 69% viewed at least one micro-lecture with the total number of unique and cumulative views of the nine micro-lectures being 623 and 686 respectively; with 68 unique and 73 cumulative attempts at the online quiz. Paired analysis confirmed an improvement in mean confidence scores from 4.55 to 7.41 ( $p < 0.001$ ). Paired analysis confirmed that mean assessment scores increased from 34% to 59% before peer instruction ( $p < 0.001$ ) and to 73% after peer instruction ( $p < 0.001$ ).

**Discussion:** Participants that viewed the micro-lectures ( $p = 0.012$ ) and attempted the online quiz ( $p < 0.001$ ) had higher final assessment scores. Unpaired analysis confirmed higher final assessment scores (73% vs 47%,  $p < 0.001$ ) than the preceding academic year that did not use this pedagogical approach but was confirmed to have the same commitment of time.

**Conclusion:** Further development and evaluation of this educational intervention is required to assess both its potential to impact on the quality of patient care in hospital as well as the applicability and utility to other medical schools and disciplines.

**Take Home Messages:** The ‘flipped classroom approach’ to “Diabetes Acute Care Day” appears to be an effective way to teach acute diabetes care to medical students.

#5L5 (132972)

**Implementing flipped classroom session for students accustomed to traditional large group teaching session**

**Ciara Luscombe\*, Brighton and Sussex Medical School, Brighton, UK**

*Julia Montgomery (Brighton and Sussex Medical School, Brighton, UK)*

**Background:** At our institution lecturers are trialling innovative teaching methods in the large group teaching environment such as the flipped classroom model. It is noted that the flipped classroom model is a successful vehicle for encouraging active learning.

Despite this, our experience found that it was sometimes challenging to engage students in meaningful interaction in the context of this model. Integrating student and staff experience with existing literature and pedagogic theory has led to the formation of a series of recommendations for educators considering the flipped classroom as a model for their large group teaching sessions.

**Summary of Work:** This research employed a hermeneutic phenomenological approach, within a case study design. A second year teaching module was identified as a suitable case. Thematic analysis was carried out on data from three focus groups with students and 5 semi-structured interviews with lecturers.

**Summary of Results:** This study found there to be a well-established learning culture amongst students, and with it expectations as to the format of teaching sessions. Furthermore, there were set perceptions about the student role within the learning environment, with many implications including the way that innovative teaching methods were received. Student learning was perceived to take place outside the lecture theatre, with a large emphasis placed on creating resources that can be taken away to use in personal study time.

**Discussion:** As with many models that encourage active learning, part of the success of the flipped classroom model relies on andragogical learning principles. This makes assumptions regarding the study approach of students towards this style of teaching session.

**Conclusion:** Presented here are recommendations constructed with the view to aid educators in engaging students in large group teaching settings.

**Take Home Messages:** Short term, educators can implement strategies that monopolise on the established learning culture of students, to encourage engagement with active learning strategies. Long term, it would be beneficial for educators to consider ways to shift the current student learning culture to one that embraces an active learning curriculum.

#5L6 (135483)

**Flipped Classroom Model for Advanced Life Support Certification**

**Erich Maul\*, University of Kentucky, Lexington, USA**

*Kimberly D. Northrip*

*Seth Anderson*

**Background:** Medical providers and trainees are often required to maintain Advanced Life Support certification. Traditionally, a full day in the classroom is required to renew certification. A flipped classroom approach to recertification can reduce time away from clinical responsibilities and allow more flexibility for an interprofessional group of learners.

**Summary of Work:** In November of 2012 UKHealthcare CECentral partnered with the American Heart Association to provide didactic content online for University of Kentucky (UK) faculty and staff. Modules were either provided by the accrediting body or developed by our faculty. Participants complete these modules and pass a pretest prior to registering for the live simulation. In addition, we offer CME credit for the time spent on this activity.

**Summary of Results:** Since that time 558 providers have claimed credit for Adult and 99 for Pediatric recertification in this system. There is an increase in recertifications in the summer. Of those recertifying, 73% are physicians. Other participants include students, pharmacists, emergency medical technicians, nurses, dentists, and advanced care providers. Evaluations have been positive with both the faculty administering the simulations and the participants.

**Discussion:** The data demonstrates uptake of the new system. While the audience represents an interprofessional group of learners, uptake has been more pronounced with physicians. The spike in recertifications in the early summer is likely due to rising 3rd year residents needing to recertify. Limits include the retrospective analysis of data collected for accreditation and quality assurance purposes.

**Conclusion:** By providing the prerequisite content online, we have shortened the length of time participants are physically in the classroom while maintaining a high level of acceptability for the course and preserving the live simulation portion of the activity. We have been able to train large numbers of faculty from multiple disciplines.

**Take Home Messages:** Advanced Life Support recertification courses are a good fit for the “flipped classroom” model.



## 5M Short Communication: Clinical Reasoning

Location: MR 120 – P1

### #5M1 (Miriam Friedman Ben-David Award Winner)

**Collaboration improves diagnostic decision making of medical students in emergencies**

**Wolf Hautz\***, *Inselspital University Hospital, Bern, Switzerland*

*Juliane E Kämmer, Max Planck Institute for Human Development, Berlin, Germany*

*Olga Kunina-Habenicht, German Institute for International Educational Research, Frankfurt, Germany*

*Stefan K Schaubert, Institute for Educational Measurement, University of Oslo, Norway*

*Stefan M Herzog, Max Planck Institute for Human Development, Berlin, Germany*

*Ralf HJM Kurvers, Max Planck Institute for Human Development, Berlin, Germany*

*Wolfgang Gaissmaier, Department of Psychology, University of Konstanz, Germany*

**Background:** Wrong diagnoses contribute substantially to medical error. The effect of collaboration on clinical decision making is largely unknown. We investigated a) the effect of working in pairs on diagnostic accuracy and b) conducted a simulation study to assess whether decisions in larger teams should follow the most senior or the most confident physician or a majority vote.

**Summary of Work:** A total of 345 students diagnosed six clinical cases on a PC in isolation or in interactive pairs. Their diagnostic accuracy, type and number of ordered diagnostic tests and time to diagnosis were compared to the diagnostic processes of 20 medical experts. We additionally recorded students' prior knowledge, confidence in their diagnosis and year of study. Virtual teams of different sizes ( $n=2$  to 25) were simulated based on the more than 1,700 diagnoses made by the 285 students that worked in isolation.

**Summary of Results:** Interactive pairs correctly diagnosed one more case than individuals (4 vs. 3;  $p = .004$ ,  $d = .78$ ) despite acquiring a similar number of tests. Increasing the size of virtual teams significantly increased diagnostic accuracy. Only considering a second opinion and following the most confident student already increased diagnostic accuracy by 10 percentage points. Beyond a group size of four, following the relative majority is best.

**Conclusion:** Working in real pairs reduces the rate of diagnostic error without increasing diagnostic effort. Virtually combining independent decisions can substantially improve the quality of diagnostic decisions of students and may thus enhance patient safety and reduce unnecessary and erroneous treatments.

**Take Home Messages:** Working in groups reduces diagnostic error of medical students.

### #5M2 (132799)

**Optimizing clinical reasoning in virtual patients - a grounded theory approach**

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*Andrzej A Kononowicz (Department of Bioinformatics and Telemedicine, Faculty of Medicine, Jagiellonian University, Kraków, Poland)*

*Norman B Berman (Geisel School of Medicine at Dartmouth, USA)*

*Benedikt Lenzer (Institute for Medical Education, LMU Muenchen, Germany)*

*Katja Kuehlmeier (Institute for Ethics, History and Theory of Medicine, Ludwig-Maximilians-Universität München, Germany)*

*Jan Kiesewetter (Institute for Medical Education, LMU Muenchen, Germany)*

**Background:** Clinical reasoning is a complex set of skills healthcare students have to acquire during their education. Educators find it difficult to fully explain their clinical reasoning because of its dynamic and often unconscious components. Virtual Patients (VPs) support the teaching of clinical reasoning in healthcare education. However, it still remains unclear how VPs can optimally foster clinical reasoning skills.

**Summary of Work:** We chose a grounded theory (GT) approach to develop a framework of identified key concepts and interrelations of clinical reasoning. The GT was based on 122 data resources such as articles, interviews, workshops, websites, and videos. In a second step we applied the framework to VPs and elaborated potential implications for the teaching of clinical reasoning skills in VPs. We discussed the concepts, theoretical saturation, and our conclusions with an interdisciplinary panel of experts.

**Summary of Results:** Based on the data resources we identified the core category as "Learning clinical reasoning". The following five main categories, each encompassing 4-7 related concepts, reflect this core category: Psychological Theories, Patient-centeredness, Context, Learner-centeredness, and

**Conclusion:** Based on the framework we discussed potential implications on VPs. For example, we recommend to develop much more adaptable and dynamic VPs to reflect the non-linear nature of clinical reasoning. We also suggest to emphasize aspects such as illness scripts, metacognition, or uncertainty and allow or even provoke errors and pattern recognition approaches more explicitly.

**Take Home Messages:** VPs can be more specifically tailored to foster clinical reasoning skills. Our framework served as a basis to discuss implications and potential steps to further develop VPs beyond the current application.

#5M3 (127789)

**A module using think aloud to teach and assess clinical reasoning**

**Ralph Pinnock\***, *Women and Children's Health, Dunedin School of Medicine, Dunedin, New Zealand*  
*Tracy-lee Fisher, Department of Women and Children's Health, Dunedin School of Medicine Dunedin, New Zealand*  
*Jane Astley, Department of Women and Children's Health, Dunedin School of Medicine, Dunedin, New Zealand*

**Background:** Expert clinicians frequently use automatic unconscious thinking processes when reasoning; but their thinking is made explicit if they think aloud and say how they are thinking. Think aloud is considered the optimal method to capture thought processes.

**Summary of Work:** We made an online clinical reasoning module, with explanations and examples of think aloud. Videos show students presenting patients (without the patient present) on the ward round and in clinic. To teach clinical reasoning the students pause intermittently during their presentations so that the supervisor can explain how they are thinking. To assess clinical reasoning the students pause to tell the supervisor how they are thinking

**Summary of Results:** Evaluation with Ethics Committee approval showed that over 80% of the 48 students and all 31 consultants agreed or strongly agreed that the module increased their knowledge and explained how to use think aloud.

**Discussion:** Students valued think aloud for teaching because it enabled them to observe their teachers reasoning in a clinical setting and as an assessment because it occurred in a clinical context with immediate feedback. Teachers appreciated that it required minimal training, showed all stages of reasoning, demonstrated dual process theory and could be used for assessment.

**Conclusion:** Think aloud can be used to teach and assess clinical reasoning. Encouraged by these results, future versions will include student suggestions and compare think aloud to other methods of teaching and assessing clinical reasoning.

**Take Home Messages:** Think aloud is acceptable to students and teachers as a method to teach and assess clinical reasoning in clinical practice.

#5M4 (133063)

**Critical Clinical Competencies (CCC): An Online Video-Based Curriculum to Develop Clinical Reasoning**

**Anna Cianciolo\***, *Southern Illinois University School of Medicine, Springfield, USA*  
*Heeyoung Han*  
*Noelle LaVoie*  
*Debra L Klamen*

**Background:** Developing clinical reasoning requires practice and feedback, but the fast-paced clinical milieu is not able to provide it. Evidence suggests that the clinical reasoning of graduating physicians is highly case-specific and below standard on formal assessments.

**Summary of Work:** We are developing an online, interactive, multimedia curriculum that applies the principles of deliberate practice and the contrasting cases method to exercise reasoning through twelve chief complaints. The curriculum provides a learner-controlled environment where clinical reasoning is decelerated, allowing reflective practice of diagnostic strategy. When a student works through a case, patient information is incrementally provided in video format. At each step, the student is prompted to use the new information to revise her differential diagnosis and its justification. Video-recorded panel discussions among experienced physicians enable the student to compare his clinical reasoning to that of more advanced diagnosticians.

**Summary of Results:** This curriculum guarantees that over the course of three years students reason through 144 diagnoses they likely will encounter as general practitioners. The curriculum has been beta tested by our first- and second-year classes to improve the online system and explore learning processes. Students' verbal protocols and the incremental entry of diagnostic products has illuminated how reasoning evolves over the course of a case and how it functions differently at different years of instruction.

**Discussion:** When we evaluate outcomes, we expect to see improved clinical reasoning at the end of each academic year relative to historical controls. In addition, we expect a steady increase in reasoning development throughout all three years of the curriculum.

**Conclusion:** To explore these outcomes, we are instituting an annual 12-case standardized patient exam based on the twelve chief complaints.

**Take Home Messages:** Theory-based educational software is feasible to implement and evaluate, can be directly applied to clinical reasoning development, and may improve general understanding of how reasoning evolves with role-modeling and self-development.

#5M5 (133870)

**A functional neuroimaging study of medical students' clinical reasoning process**

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Korea*

*June Kang*

*Byung-Joo Ham*

*Young-Mee Lee*

**Background:** As clinical reasoning is a fundamental competence of physicians for good clinical practices, medical academics have endeavored to teach reasoning skills to undergraduate students. However, our current understanding of student-level clinical reasoning is limited, mainly because of the lack of evaluation tools for this internal cognitive process. This functional magnetic resonance imaging (fMRI) study aimed to examine the clinical reasoning processes of medical students in response to problem-solving questions.

**Summary of Work:** We recruited 24 2nd-year medical students who had completed their preclinical curriculum. They answered 40 clinical vignette-based multiple-choice questions during fMRI scanning. We compared the imaging data for 20 problem-solving questions (reasoning task) and 20 recall questions (recall task).

**Summary of Results:** Compared to the recall task, the reasoning task resulted in significantly greater activation in nine brain regions, including the dorsolateral prefrontal cortex and inferior parietal cortex, which are known to be associated with executive function and deductive reasoning. During the recall task, significant activation was observed in the brain regions that are related to memory and emotions, including the amygdala and ventromedial prefrontal cortex.

**Discussion:** The medical students solved clinical questions with deductive reasoning involving prior knowledge structures and executive functions. The problem-solving questions induced the students to utilize higher cognitive functions compared with the recall questions. Interestingly, the results suggested that the students experienced some emotional distress in response to the recall questions. In addition, these results suggest that fMRI is a promising research tool for investigating students' cognitive processes.

**Conclusion:** This fMRI study supports that medical students mainly activate deductive reasoning process in response to problem-solving questions.

**Take Home Messages:** 1. Medical students seem to activate deductive reasoning process to solve clinical problems. 2. Problem-solving questions can stimulate students' higher cognitive functions, whereas recall questions might cause emotional distress 3. fMRI seems to be a promising tool for evaluating medical students' learning processes and outcomes.

#5M6 (134692)

**Monitoring progression of professional skills in health sciences education**

*Kristina Orban\*, Health Sciences, Faculty of Medicine,  
Lund University, Lund, Sweden*

*Olof Sandgren*

*Pia Hovbrandt*

*Gudrun Edgren*

**Background:** Outcome and competency based education is well established in medical and health sciences education. Curricula are based on courses where students develop their competences and assessment is also usually course based. Unless progress tests are used it is difficult to know how the students develop their competence while passing courses. Clinical reasoning is an important competence and this study was undertaken to monitor students' progression in clinical reasoning in the curriculum.

**Summary of Work:** We observed students' discussion of clinical cases in occupational therapy (OT) and speech-language therapy (SLT). One case per program was developed as well as a common rubric for observations. Students in all years of study were invited to take part in the study. Discussions were structured according to a clinical reasoning model which students had used previously, and their case discussions were observed by three-four teachers.

**Summary of Results:** We observed progression in several aspects. The students' use of language developed from a simple vocabulary to use of a professional language. First year students had a narrow focus on the problems in the cases while final year students could identify the complexities. First year students were using theoretical knowledge while later cohorts included experience from clinical practice. An interesting finding was that the students developed from a narrow professional focus to an understanding of their role in a team of other professionals and also the patient and his/her family.

**Discussion:** The development of skills in clinical reasoning was similar in OT and SLT. The most interesting result was that students developed an understanding of their professional role in the team around the patient.

**Conclusion:** In conclusion the observation of students' discussion of clinical cases was an interesting way of monitoring progression in competence in clinical reasoning.

**Take Home Messages:** Observation of students' discussion of clinical cases can be used for formative evaluation of curricula.

## 5N Short Communication Student Stress / Wellbeing

Location: MR 121 – P1

#5N1 (134991)

### Digital Wellbeing in Medical Students

*Steve Gallagher\*, Dunedin School of Medicine, University of Otago, Dunedin, New Zealand  
David Perez, University of Otago, Dunedin, New Zealand*

**Background:** Medical students have access to a large set of online resources to support their learning, and the quantity and diversity of these resources is only increasing. In tandem, non-educational digital activities are increasingly popular and available. This is often characterised as positive for students' education and social interactions, however it is possible that the amount of digital activity could be detrimental to students wellbeing.

**Summary of Work:** 103 female and 84 male 5th year Medical Students at the University of Otago completed a wellbeing survey, which included measures of global wellbeing as well as five questions specifically targeting their digital wellbeing. Students were asked to rate their agreement on a 5-point likert-type scale in response to items relating to their use of digital technology for learning and non-educational purposes.

**Summary of Results:** More than 50% of respondents indicated that they found the amount of online material available for their studies to be overwhelming. Associations were found between concerns about online and digital activity, and perceived adverse effects on success at Medical School.

**Discussion:** Preliminary analysis suggests that although students reported that they feel well prepared by the Medical School to use online resources effectively, there are a number of students who need further support.

**Conclusion:** Digital wellbeing in medical students is an important area of investigation, especially as the amount of digital material increases in availability and quantity. Further investigations could more clearly identify the types of online activity that are causing concerns. Medical schools may need to provide more targeted advice for students to help them further develop digital literacies.

**Take Home Messages:** Increasing the amount of online material for students could be detrimental to their wellbeing if adequate guidance and support is not in place.

#5N2 (133403)

### More mindful medical students

*Ruth Sugden\*, King's College London, London, UK*

**Background:** Research has shown that being more mindful reduces recurrent depressive episodes, positively correlates with lower perceived stress scores, improves communication between colleagues, increases empathy and heightened self-confidence and helps with being more focussed. The Mindful All Party Parliamentary Group (MAPPG) recommended that the nation become more mindful particularly in health, education and the workplace so King's is working towards embedding mindfulness in the MBBS course.

**Summary of Work:** Five week Mindfulness courses are being offered as SSCs to students in Phase 3 (first clinical year) and are oversubscribed. Ethical approval was granted and students asked to complete the Mindful Attention Awareness Scale (MAAS) at the start and end of the course. They completed feedback on the value of the course, changes in their perceived levels of stress and wrote a 2500 word essay. The essays were analysed for emerging themes independent of the assessment process.

**Summary of Results:** Data collection is on going until but early findings suggest an overwhelming interest in this topic with demand currently outstripping capacity. The first cohort showed a statistically significant improvement in the MAAS and claimed to use mindful techniques in their daily lives.

**Discussion:** A working party has been established to share current best practice within the school, discuss how we can embed mindfulness in the MBBS course and collaborate with colleagues at neighbouring medical schools.

**Conclusion:** Students find it acceptable to introduce mindfulness into the curriculum as core but there might be better tools to use to test results for students.

**Take Home Messages:** Are we 'Preaching to the converted'? Students were quick to adopt mindful techniques And integrate them into their lives Their MAAS increased.



#5N3 (133601)

### Medical Student Motivation for Well Being and Self Determination Theory

*Iliana Makri\*, University of Liverpool, Liverpool, UK*

*Paula Byrne*

*Jayne Garner*

**Background:** Following the introduction of a new undergraduate medical curriculum at the University of Liverpool, increased focus has been placed upon student well being. As part of this change programme, first year undergraduate medical students attended a well being conference aimed to reduce stigma around mental health issues and promote well being.

**Summary of Work:** The wellbeing conference consisted of interactive workshops and included talks from the medical school staff. The conference was evaluated using online student feedback, session data produced on the day and ethnographic work. Using self determination theory as a theoretical lens, student understanding and their personal motivation for achieving well being was explored.

**Summary of Results:** Initially students demonstrated some apprehension towards the concept of well being and the conference. However, following talks by staff members about their personal and professional experiences, interactive workshops and activities, students learned to recognise their own well being, coping strategies and how they might require support in the future. They also demonstrated understanding that failure is a part of medicine, and how they can learn from this experience.

**Discussion:** Students' relatedness with the key staff's professional and personal stories shifted their perceptions about the importance of wellbeing. Staff provided students with a variety of ideas/feedback/coping strategies around wellbeing and students valued the informal, none controlling and none judgmental interaction with the staff. Motivation to maintain wellbeing varied among students.

**Conclusion:** The range of activities students were involved with tested their perceptions of themselves and each other, enabling them to extend their friendship groups and appreciation of trying new ways of working. The importance of positive motivation and experience for enhanced performance and wellbeing identified by Ryan and Deci (2000) offers valuable insight for medical educators.

**Take Home Messages:** Medical students are apprehensive about addressing well being and mental health issues. Learning about coping strategies and accessing support from staff can improve their motivation to maintain well being.

#5N4 (132569)

### Knowledge and Role Modelling Deficiencies in the Physical Activity Realm, Significant Intervention Required in Australian Medical Students; MEDx Update

*David Lipman\*, Deakin University, Geelong, Australia*

*Scott McCoombe*

*Colin Bell*

**Background:** The next generation of doctors' biggest challenge will be managing and treating non-communicable disease and they may be ill-prepared. The MEDx study explores the impact of medical education on student knowledge and attitudes towards exercise as medicine and associations with students own physical activity (PA) levels.

**Summary of Work:** Ongoing biannual online surveys (2014-2016) of postgraduate Deakin University (Australia) medical students exploring knowledge of, attitudes toward, and participation in exercise as medicine. Findings have led to new PA learning objectives in the medical curriculum.

**Summary of Results:** Repeat surveys of >500 students, across 4 years revealed that attitudes towards exercise as medicine were resoundingly positive, indicating significant support for curriculum inclusion. Even so, student PA levels are low, with less than one-third of students meeting Australian Physical Activity Guidelines (APAG). Drivers for engaging in PA tended to be mental or physical health related rather than voluntary students reported that university commitments took away time for PA. The introduction of Exercise as Medicine learning of objectives raised student awareness of APAG from 0.7 to 2.6% in 1 year but failed to change PA participation.

**Discussion:** Attitude to PA was resoundingly positive, participation was however low, mirrored in both the USA and UK. The introduction of learning objectives boosted student knowledge of APAG. Similar results have been shown when introducing brief curriculum additions in other areas such as nutrition.

Unfortunately the impact thus far has been small and thus a more significant, structured program is required. Staff role modelling and timetable modification to encourage student PA levels should also be addressed.

**Conclusion:** Teaching PA learning objectives improves student knowledge and possibly PA behaviour but the university environment itself hinders PA. A more scaffolded and expansive curriculum is likely to be needed to translate this knowledge and role-modelling behaviour to improved patient outcomes.

**Take Home Messages:** Learning objectives in a medical curriculum that target knowledge of and attitudes towards PA may improve the health of patients and doctors.

#5N5 (127356)

**Teaching Medical Students Wellness Coaching to Improve Lifestyle Habits**

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*Jill Huber MD (Mayo Clinic, USA)*

**Background:** Lifestyle modification can reduce the potential for major diseases, like cancer and diabetes. Wellness coaching can improve healthy lifestyle habits and is starting to become integrated into new models of care delivery as part of a comprehensive approach to improving population health.

**Summary of Work:** All first-year medical students completed a longitudinal wellness coaching curriculum that included classroom-based instruction and peer health coaching sessions. Students worked in triads, taking turns being the wellness coach, receiving health coaching, and providing feedback to the health coach. All students completed pre and post surveys assessing attitudes and behavior change.

**Summary of Results:** At the end of the course, 89% of students thought peer coaching was helpful and 89% reported making a positive change in their own behavior as a result of the peer coaching. Two-thirds considered themselves healthier after the activity. 95% endorsed the curriculum should remain. In comparison to baseline, students became more confident in their ability to make health behavior change ( $p=0.02$ ). Differences were also seen in readiness to make positive health behavior change changes ( $p=0.001$ ).

**Discussion:** Incorporating wellness coaching into the medical school curriculum leads to self-reported behavior change. Further work is needed to understand barriers and facilitating factors for health behavior change among medical students, if the experience leads to measurable improvements in well-being, and if students use their wellness coaching skills subsequently with patients.

**Conclusion:** Given the role of lifestyle in disease burden, a wellness coaching curriculum is a valuable addition to the curriculum as medical students learn wellness coaching skills, experience wellness coaching aimed at changing health behavior, and make positive health behavior change.

**Take Home Messages:** Teaching wellness coaching could equip medical students with strategies to promote their own health as well as that of their patients.

#5N6 (136241)

**Salivary Biometrics and Heart Rate Monitoring for Optimizing Medical Student Education**

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*Reginald Franciose (Vail Valley Medical Center, Colorado, USA)*

**Background:** Excessive amounts of stress can result in deleterious effects on performance. The U shaped curve of stress on education has demonstrated that education is stifled by too much or too little stress. The goal of this study is to demonstrate how these objective metrics of stress can be utilized to improve proficiency of individual student training.

**Summary of Work:** 24 medical students who had recently completed their 2nd year of medical school participated in a 5 day intensive surgical skills simulation training program. The students were responsible for a 5 bed ER and 2 bed OR suite. The curriculum included designated time periods for didactic lectures, procedural skills practice, formal ground rounds presentations and debriefing after simulations. Salivary biochemical samples were obtained at specific time frames and heart rate data was monitored continuously throughout the event 24/7.

**Summary of Results:** Salivary Biometrics: Average sAA levels of all students increased throughout the training, but the high spike noted during the initial event was absent. R-R Microvariability - Average stress level during events decreased each day - The noted inconsistencies in hormone evaluation of stress level observed between ER and OR groups involved on switching roles during the day was not seen on R-R as the evaluations were continuous in R-R.

**Discussion:** Results indicate the possibility to utilize these new objective markers to individualize training. Hormonal daily evaluation during any significant event tells us the level of stress the curriculum/scenario itself produces. Consistently higher than baseline sAA levels gives a strong indication of individual habituation. The R-R microvariability provides insight into individual stress levels over time, and average R-R stress level correlates well with average sAA level across the group.

**Conclusion:** The R-R microvariability allowed us to evaluate the individual student as to when that individual is too stressed to learn and when they are ready to learn.

**Take Home Messages:** Stress can be objectively measured in high stress simulations to individualize and improve learning of medical students.

#5N7 (135392)

**Responding to study stress: The prevalence of dysfunctional eating patterns among medical students in Norway (STUDMED 2015)**

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**Background:** Previous reports indicate more dysfunctional eating patterns (EDS) and eating disorders among medical students in Norway compared with other university students. We lack studies that investigate whether disturbed eating patterns can be related to study stress similar to mental health problems, burnout, anxiety and depression. The purpose of the current study is to assess the prevalence of EDS among medical students at different levels of education, gender and study curriculum, and the association between EDS, study stress and symptoms of mental health.

**Summary of Work:** Baseline survey data from all participants in STUDMED 2015: A new project about the effects of study curriculum and study conditions on contentment and mental health among Norwegian medical students. Main outcome is the Eating Dissatisfaction scale (EDS-5).

**Summary of Results:** Response rate 63.9% (N= 1044/1634). Preliminary analyses indicate that 17% of the students displayed EDS. There were differences according to faculty ( $p=.023$ ), but no difference according to semester. There were higher prevalence of EDS among female students than male ( $X^2 = 40.647$ ,  $N= p < .001$ ).

**Discussion:** There seems to be a relatively high prevalence of EDS, especially women, that is associated with, or a risk for development of, eating disorders among medical students.

**Conclusion:** The relatively high occurrence of EDS warrants further examination of possible study conditions or curriculum factors, in addition to mental distress, that may be related to such symptoms and eating disorder among medical students

**Take Home Messages:** The relatively high levels of dysfunctional eating patterns among medical students at two Norwegian universities may be related to school stress and their mental health problems, but this should be further studied.

## 50 Short Communication: Online Learning

Location: MR 122 – P1

#501 (132356)

### Internet Use and its Effect on Academic Performance among Medical Students

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Ibrahim A. Ibrahim

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**Background:** The internet is an easily accessible – even by smartphone – way to access information. Preliminary research indicates students' academic performance and their social lives are compromised by increasing time online. The rate of internet use begs the question of whether there is an effect of internet use on academic performance.

**Summary of Work:** This study examined the relationship between internet use and academic performance. The study was conducted in Al-Baha University's Faculty of Medicine using questionnaires addressing time spent online, purpose of internet use, and health-related factors. GPAs were collected to assess academic performance. A total of 103 male medical students in their clinical years were invited to participate, and 90 students (87%) took part.

**Summary of Results:** There was no significant correlation between time spent online and GPA. However, 43% of the students ( $n = 39$ ) stated they believed internet use had a negative impact on academic performance. The majority ( $n = 77$ , or 85.6%) reported using the internet for academic activities.

**Discussion:** Although no relationship between time online and GPAs emerged, it is concerning that 43% of students stated they believe their internet use is harmful to academic performance. Internet overuse (whereby internet use interferes with other aspects of life) should be considered as relevant to both academic performance and general well-being.

**Conclusion:** Students' academic performance was not related to time spent online. Some students reported that internet use was detrimental to their academic performance, but this was not supported by examination of students' GPAs and self-reported time on the internet.

**Take Home Messages:** Non-academic use of the internet must be carefully designed to avoid harm to academic performance and even general well-being.

#502 (133153)

### The evolution of medical education: medical students prefer question banks

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Lucinda Wynter (University of Sydney, Sydney, Australia)

Jack Heron (University of Sydney, Sydney, Australia)

Mark Bonnichsen (University of Sydney, Sydney, Australia)

**Background:** The number of resources available for studying medicine is growing exponentially. In addition to traditional resources like lectures, textbooks and tutors, students are increasingly using online tools such as commercially available question banks. What resources students predominantly use, and for what purpose, is essential information for medical educators and is not well described.

**Summary of Work:** We invited 1083 undergraduate and postgraduate medical students from two major Australian universities, to complete an online survey regarding what resources they use for learning new material and revision. 350 completed the survey (32.3%). Results are reported with 95% confidence and 5% margin of error.

**Summary of Results:** Respondents were postgraduates (64.2%) and undergraduates (35.7%). 96% of students use online question banks and they were ranked as the most frequently used resource for revision. Most also use online teaching videos (92%), medical apps (75%), and other online resources (81%). For learning new knowledge, students ranked lecture attendance followed by making written notes as the most used resources. Most students agree or strongly agree that there is a lack of online tools for revision (85.7%) and learning new material (74.3%).

**Discussion:** Question banks have emerged as a popular but yet to be evaluated learning tool with the advantages of exam technique practice, time efficiency and multiplatform availability. Students still report a demand for more online educational tools. Despite the trend towards elearning, traditional resources remain the most popular for learning new material.

**Conclusion:** Evaluation of question banks is required. Universities should then consider incorporating high quality, popular new resources into the formal teaching curriculum. The importance of face-to-face lectures should not be forgotten as they still play a key role in medical student learning.

**Take Home Messages:** Evaluation of online question banks is required as almost all students are using them. Universities should consider incorporating or developing their own online question banks for revision purposes.



#503 (133252)

**Virtual campus in the quality and safety capacitation of patient care in hospital workers**

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*Cesar Athié (HGM, Ciudad de México, México)*

*Jaime Camacho (HGM, Ciudad de México, México)*

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*Cynthia Roque (HGM, Ciudad de México, México)*

**Background:** The Hospital General de México "Dr. Eduardo Liceaga", school-hospital par excellence, committed to constantly improve the quality of care of their patients, has implemented the use of Virtual Campus as a strategy to train their medical, paramedical and related, in patients care.

**Summary of Work:** The virtual campus was conducted in moodle platform. The online course consisted of seven modules in video lessons, which were recorded in hospital channel; subjects were taught by experts with clear and understandable language. This campus was available from May to October 2015. Each module included a final evaluation, composed of five multiple-choice questions and two opportunities to answer them, requiring a minimum score of 6/10. Subsequently they underwent a survey to determine the impact of the virtual campus.

**Summary of Results:** We evaluated 129 workers. The topics covered were: obstetric emergencies, Conciliation and Suitability; immunocompromised, treatment and isolation of infecto-contagious, dialysis, neonatal care and comatose patient. There was 97.52% approval on the first try, getting an average score of 91/100. In the opinion poll (n=100) of virtual campus, 81.4% agree that access to the virtual campus was easy; 76%, that the content is displayed in a clear way, and finally 93.79% think it worked in everyday life.

**Discussion:** The use of TICs in the training of personnel is an accessible, user-friendly tool, which produces satisfactory approval ratings in evaluations.

**Conclusion:** The low cost of the virtual campus allows the entire hospital staff to have access to it. It is also an easy-to-use tool, and helped improving health conditions and patient care with greater user participation.

**Take Home Messages:** The virtual campus is a good training system for a large population, so we can continue using it in different hospital fields.

#504 (132335)

**Online courses for healthcare professionals: is there a role for social learning?**

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*Emily Player*

**Background:** All UK postgraduate medical trainees receive supervision from trained supervisors. Training has traditionally been delivered via face to face courses, but with increasing time pressures and complex shift patterns, access to these is difficult. To meet this challenge, we developed a two-week massive open online course (MOOC) for faculty development of clinical supervisors.

**Summary of Work:** The MOOC was developed by a group of experienced medical educators and delivered via the FutureLearn (FL) platform which promotes social learning through interaction. This facilitates building of communities of practice, learner interaction and collaboration. We explored learner perceptions of the course, in particular the value of social learning in the context of busy healthcare professionals. We analysed responses to pre- and post-course surveys for each run of the MOOC in 2015, FL course statistics, and learner discussion board comments.

**Summary of Results:** Over 2015, 7,225 learners registered for the course, though 6% left the course without starting. Of the 3,055 learners who began the course, 35% (1073/3055) were social learners who interacted with other participants. Around 31% (960/3055) learners participated fully in the course; this is significantly higher than the FL average of 22%. Survey responses suggest that 68% learners worked full-time, with over 75% accessing the course at home or while commuting, using laptops, smart phones and tablet devices.

**Discussion:** Learners found the course very accessible due to the bite-sized videos, animations, etc which were manageable at the end of a busy working day. Inter-professional discussions and social learning made the learning environment more engaging. Discussion were rated as high quality as they facilitated sharing of narratives and personal reflections, as well as relevant resources.

**Conclusion:** Social learning added value to the course by promoting sharing of resources and improved interaction between learners within the online environment.

**Take Home Messages:** 1) MOOCs can provide faculty development efficiently with a few caveats. 2) Social learning added a new dimension to the online environment.

#505 (135718)

**Professional recognition using MOOCs in Health Education: Have MOOCs come of age?**

**Luke Woodham\***, *St George's, University of London, London, UK*

*Kate Tatton-Brown (St George's, University of London, London, UK)*

*Katie Snape (St George's, University of London, London, UK)*

*Fiona Howat (St George's, University of London, London, UK)*

*Terry Poulton (St George's, University of London, London, UK)*

**Background:** MOOCs (Massive Open Online Courses) provide a means for educators to reach large numbers of global learners with high quality training resources. However, limited provision for assessment and the absence of face-to-face interaction has led many to question their value in healthcare disciplines.

**Summary of Work:** St George's, University of London have collaborated on the development of several MOOC courses using FutureLearn, a UK-based platform which promotes learning through storytelling and discussion. Using a mixture of video, animation and text articles, combined with focused discussions and talking points throughout, more than 25,000 learners have enrolled in these courses.

**Summary of Results:** The first MOOC developed at St George's, "The Genomics Era: the Future of Genetics in Medicine" has gained accreditation for CPD (Continuing Professional Development) from the Royal Colleges of Physicians, General Practitioners, and Paediatrics and Child Health in the UK, a unique achievement amongst courses on the platform. Analysis of learner data indicates that this recognition has had a positive impact upon learner retention and activity on the course.

**Discussion:** To date, the usefulness of MOOCs to both learners and educators has been unclear, despite their support for a sophisticated educational approach. Developments towards improved recognition of such learning activities increases their value significantly, although assessment challenges remain.

**Conclusion:** By combining high-quality educational resources and well-targeted, engaging activities, along with recognition and accreditation from respected institutions, MOOCs can prove extremely valuable in medicine and healthcare, for learners both pre and post registration.

**Take Home Messages:** The ability to gain recognition for MOOC activities provides added educational value to learners.

## 5P Short Communication: Clinical / Workplace-Based Assessment

Location: Mr 123 – P1

#5P1 (136364)

**Video based peer assessment of team collaboration in a large scale Interprofessional learning activity**

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Gilliam Nisbet (University of Sydney, Sydney, Australia)

Chris Gordon (University of Sydney, Sydney, Australia)

Timothy Chen (University of Sydney, Sydney, Australia)

Jim Crossley (University of Sheffield, Sheffield, UK)

**Background:** Peer assessment of team professional behaviours in large-scale interprofessional education (IPE) activities has largely been unreported despite a growing need to evidence achievement of graduate learning outcomes. We investigated whether a video based peer assessment of team collaboration in an IPE event is sufficiently valid for decision-making about student team performance.

**Summary of Work:** Data were available for a large scale case based learning IPE event where a cohort of students (n=1222), from eight disciplines was divided in to teams (n=5-6). Each team produced a short video as an assessment task to communicate their team based management of one of 12 patient cases. Each student team's video was rated by students of two other teams, who had worked on the same case using a validated peer assessment scale. A generalisability study was undertaken to calculate the students' teams performance on the video task and the sources of error that impacted the reliability of the assessment.

**Summary of Results:** A peer assessment of team collaboration where each teams video was rated by students (n=12) from two other teams was modestly reliable (G = 0.71). This was because the stringency and subjectivity of fellow students as assessors was so variable.

**Discussion:** The implications of this innovation for medical and health science educators interested in team based healthcare will be discussed

**Conclusion:** A peer assessment of team collaboration is reliable for the purposes of a formative and summative assessment of team collaboration within an IPE activity. The professional discipline of the student appears to be a minor factor, but individual assessor subjectivity could be modified by attention to marking rubrics and assessor training.

**Take Home Messages:** Video based peer assessment is an innovative and reliable method of assessing large scale interprofessional learning events.

#5P2 (134528)

**Development of a Procedure Specific Assessment Tool for Diagnostic Flexible Pharyngo-Laryngoscopy Using a Delphi Methodology**

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Mikael Johannes V. Henriksen

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Christian von Buchwald

**Background:** The flexible pharyngo-laryngoscopy (FPL) is essential in the otolaryngology examination. The sensitivity of the FPL as a diagnostic tool is increasing, but advances in training and accreditation/certification have lacked behind. No international consensus exists on what is considered essential and desirable when performing FPL. The aims of this study: 1. Identify the essential technical elements of the FPL. 2. Develop an assessment tool based on these elements.

**Summary of Work:** An international Delphi panel was established via collaboration with ten international key opinion leaders. Each leader recruited six clinicians assembling a Delphi panel consisting of 70 otorhinolaryngologists from 10 countries on five different continents. The panelists defined key technical elements of the procedure during four rounds of communication. The elements were expressed in the form of a global rating scale and its items and anchors for assessment reviewed and ultimately approved by the Delphi panel.

**Summary of Results:** We present a novel assessment tool for FPL in the form of a global rating scale as well as the Delphi process which illuminates its content validity. Sixty-one panelists completed the Delphi study (87%). Forty-four males and 17 females. Thirty-one were subspecialized in laryngology, 23 were head and neck surgeons, and seven were general otorhinolaryngologist. The panel created a Global Rating Scale with 15 items with consensus as indicators of performance in FPL.

**Discussion:** An assessment tool with evidence of validity is essential in the design, execution and continuous quality control of training programs for technical skills. The Delphi-methodology enabled us to develop the rating scale as well as ensuring content validity with minimal bias from the authors. Although it is necessary to gather further evidence of validity from other sources in the framework of Messick this was an important first step

**Conclusion:** We created a global rating scale for assessing performance of the flexible pharyngo-laryngoscopy. The Delphi methodology proved successful in creating a novel assessment tools for this technical skill. The input from clinicians from different cultures, countries, and institutions ensured a strong generalizability of the results.

**Take Home Messages:** It is paramount that clinicians as content experts partake in the design of assessment programs.

#5P3 (135405)

**Implementation of a two-step simulation based examination of professional competence in nursing education**

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**Background:** There is an on-going debate if final year nursing students meet the formal requirements regarding professional competences and qualifications required of a registered nurse. A well-conducted examination at the end of nursing education, where students' knowledge and clinical skills are assured, has been proposed as a way to get a better overall picture of students' competences.

**Summary of Work:** We have developed and implemented a two-step examination of professional competence for final year nursing students. The clinical part consists of a patient simulation with a computerized mannequin, where students in pairs take care of a patient with complex caring needs. The written examination is computerized and consists of three different patient cases including one virtual patient.

**Summary of Results:** Up to date, 600 students have completed the examination. From the perspective of students, their professional identity and confidence is increased by this examination where they are challenged and examined on defined competencies needed for their future work as nurses. From the perspective of faculty, this examination provides an overall picture of the students' level of knowledge, and ability to convert knowledge into evidence-based and patient-related nursing care.

**Discussion:** From the perspectives of both students and faculty we conclude that this model for integrated examination of professional nursing competence reflects the national requirements for nursing education, offers similar and equitable examination conditions for all students, is cost- and resource effective, offers opportunity for students to identify further learning needs, and combines examination with learning.

**Conclusion:** The findings indicate that this examination is beneficial in assessing nursing students' skills, knowledge and ability to clinical reasoning in nursing. The examination also entails logistic advantages, where students can be examined in a fair, unbiased and efficient way.

**Take Home Messages:** This format of examination addresses academic, clinical and logistic goals for nursing education.

#5P4 (135521)

**Simulation-based assessment of surgical skills in graduate technical-medical education**

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*Frank R Halfwerk*

*Erik Groot Jebbink*

**Background:** International reports on surgical safety revealed major deficiencies in worldwide surgical skills training. Training is moving towards outcome-based performance assessment and simulation is increasingly used for that goal. At the University of Twente's Experimental Centre for Technical Medicine, we revised our graduate Surgical Skills course. The aim is a reliable and valid state-of-the-art simulation-based assessment of surgical skills.

**Summary of Work:** Guidelines for educational assessment were applied and evaluated. An expert panel determined performance objectives for pre-, per- and post-operative surgical skills. Procedure-specific rating scales were developed and a cut-off score was set. Experienced assessors were selected and trained independently by assessing video recordings from a previous cohort. Differences in ratings were discussed among assessors. Inter-rater reliability (IRR) was determined for assessor training. Assessment results, a combination of a test measuring knowledge and application and procedural performance, were analysed to examine validity.

**Summary of Results:** Rating scales were reviewed by the assessors and judged to reflect acceptable practice in the Technical Medicine training program (n = 57 students). Three out of four assessors were able to assess videos to determine IRR. Overall IRR was low (ICC = .185; 95% CI = -.032 - .445; range = -.385 - .609). Converting ratings on each item into a pass/fail score markedly increased IRR: overall proportion agreement was .71 (SE = 0.05; range = .33 - 1.0). The knowledge test and performance scores correlated significantly (r = .34, p = .010).

**Discussion:** Adherence to the assessment guidelines proved to be a challenge.

**Conclusion:** We noticed that sufficient time and resources for assessor training is paramount to reliable assessment. Also, adequate design of simulation-based assessment should take psychometric principles into account.

**Take Home Messages:** Reliable and valid performance-based assessment requires adequate assessor training. Procedural proficiency has to be demonstrated before practice on patients.



#5P5 (128818)

**Multisource feedback narrative comments: An examination of formats and alignment with CanMEDS**

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University of Calgary, Calgary, Canada  
Joan Sargeant*

**Background:** Alberta family physicians have not received narrative data from a multisource feedback (MSF) program in which physician colleagues, co-workers (e.g., nurses) and patients answer questions about observable behaviors. This study added two different formats of open-ended questions to assess the numbers of comments generated by format, question, and CanMEDS competency.

**Summary of Work:** Physician colleagues and co-workers provided narrative comments enabling an examination of question format, respondent numbers by source and alignment with CanMEDS competencies. 532 comments were analyzed for 67 physicians. More precise questions had higher response rates; co-workers were more likely to respond, and data were provided about all CanMEDS competencies.

**Summary of Results:** A mean of 7.9 responses to two questions were received for 67 physicians. More precise questions (e.g., what is one thing the physician does well) generated more responses. Co-workers had a higher response rate than physicians. Aspects of professionalism, collaboration and leadership behaviors were more likely to be mentioned.

**Discussion:** Physicians and researchers have asked for narrative comments in MSF programs. This study suggests that an examination of the responses from different formats and from different sources may provide variable data. Additional testing of formats and input from recipients is warranted to assess the utility of the comments.

**Conclusion:** Requests for narrative comments can provide data aligned to CanMEDS roles with co-workers more likely to provide data than physician colleagues and to provide feedback about what the physician does well than about what the physician could do to improve practice. Further testing of question formats across specialties is warranted.

**Take Home Messages:** Designers of MSF programs should include opportunities for respondents to provide narrative comments to guide physician practice improvement. Attention should be paid to testing formats for questions that yield the greatest numbers of responses, to sources most likely to provide data and to the behaviors addressed in responses.

#5P6 (133976)

**What difficulties do faculty members face when conducting workplace-based assessments in undergraduate clerkships?**

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**Background:** Workplace-based assessments (WBAs) are based on the principle of providing feedback to medical students on clinical performance in authentic settings. In practice, however, the assessment often overshadows the feedback. We aimed to determine what difficulties faculty perceived when performing WBAs and what solutions they suggested to overcome these difficulties.

**Summary of Work:** Discussion meetings were conducted with education coordinators and faculty (n=55) from 11 peripheral hospitals. Both difficulties encountered when conducting WBAs as possible solutions were discussed. We analysed the reports from these discussion meetings using an integrated approach guided by our research questions to code the data.

**Summary of Results:** Problems included short clerkships, students choosing the assessment moments, using grades for WBA, combining teacher and assessor roles and giving fail judgements. Suggestions for improvement included longer clerkship duration, faculty choosing assessment moments, using pass-fail system for WBA and forward feeding of performance from earlier clerkships following a fail judgement.

**Discussion:** We found that faculty experienced a conflict of interest between the roles of teacher and assessor. They found it difficult to be objective in the assessment as they felt that they were evaluating their own teaching. This finding has not been reported earlier in the literature.

**Conclusion:** Our study indicates that faculty perceive difficulties when conducting WBAs. These assessments need periodical review to ensure their proper and effective use.

**Take Home Messages:** Discussion meetings with faculty are useful to understand the difficulties they encounter during WBAs and gathering their input on possible solutions.

## 5Q Short Communication: Trainee in Difficulty

Location: MR 124 – P1

#5Q1 (134024)

**Using the In-Training Assessment Profiler (i-TAP) for early identification and intervention of trainees likely to experience difficulties**

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*Sathya Naidoo*

*Safiatsu Lopes*

*Sheona MacLeod*

*Helen Mead*

*Jo Jones*

**Background:** Health Education East Midlands wanted to identify trainees at higher risk of experiencing difficulties in training, and to establish why this is happening. The aim was to identify those at risk of experiencing difficulty before they do so, and to understand their support requirements, using the In-Training Assessment Profiler (i-TAP).

**Summary of Work:** The i-TAP uses existing assessment data to create profiles that accurately identify trainees at risk of falling into difficulty before it occurs. Identified trainees complete a self-assessment questionnaire to evaluate and identify factors which may impede successful/timely training completion. A structured interview directs trainees to appropriate resources for early support.

**Summary of Results:** Selection scores (Clinical Problem Solving test, Situational Judgement Test, and Selection Centre scores), and ratings achieved in workplace based assessments, are good predictors of trainees' likelihood of requiring additional training. Through completion of a self-assessment questionnaire, trainees and trainers gain a better understanding of the precise support requirements.

**Discussion:** Benefits of the i-TAP include: an administrator can run the data analyses to identify trainee's likelihood of risk (providing increased efficiency); significantly earlier identification of trainees likely to struggle to optimise support interventions; reduced costs of additional training time; and reduced delays getting appropriately trained doctors into independent practice.

**Conclusion:** Results show that existing selection data allows the identification of trainees with profiles which indicate that they are likely to experience difficulty (i.e. failing examinations and requiring additional training). These individuals are then identified to further examine these factors and access targeted early support.

**Take Home Messages:** The i-TAP provides an evidence-based, clear pathway which allows targeted support to be given to trainees at risk, much earlier than would otherwise be possible, in order to significantly reduce the likelihood of them requiring additional training time, and make more efficient use of training support and resources.

#5Q2 (135047)

**Professional Socialisation of Trainees (Medical Interns) tracking their Health and Welfare with particular focus on trainees who are in difficulty**

**Susie Stewart\***, *University of Notre Dame Australia, Perth, Australia*

**Summary of Work:** The quantitative data for this research was collected from 2012-2015 and has focused on critical events that interns are exposed to in the first 3 months of their training. Students have also been asked, through an on-line survey to comment on their preparedness for internship.

**Summary of Results:** This research has brought to light some of the areas where students felt that more information and training could be built into their preparation, such as: • acute patient transfers • discharge planning • handover • General hospital procedures and administration. This research is on-going and will survey interns each year with the idea that feedback will help inform the curriculum.

**Conclusion:** Research with interns is an important way to make sure that new graduates are well prepared for traineeship and that feedback about their preparedness will continue to inform future curriculum development. Knew knowledge and understanding in the area of Professional Socialisation and development of professional identity in trainees. The opportunity to explore professional dilemmas generated by exposure to critical events. How to use the narratives generated by Critical Incident Technique as an effective research tool to give feedback to inform future curriculum development.

**Take Home Messages:** That helpful feedback about preparedness for traineeship can come from intern's narratives based around their exposure to critical events. This narrative can generate valuable data for medical schools about that can inform their future curriculum development.

#5Q3 (136287)

**Assessing level of need satisfaction and frustration of residents in public sector hospital**

*Musarrat ul Hasnain Shah\*, Punjab Medical College  
Faisalabad, Jhang, Pakistan  
Sumera Badar Ehsan  
Tanzeela Khalid*

**Background:** Empathy and intrinsic motivation are essential components in healthy relationship between physicians and patients. Selfdetermination theory has two dimensions. While need satisfaction leads to resilience, need frustration causes maladaptive functioning. Medical residents on one side require need satisfaction to generate proactivity, integration and well being and on the other side absence of feeling of need frustration. Thus both these sides work in unifying way and are important consideration to assess the levels in work-loaded trainees of specialties in medicine. This topic has never been researched in the context of Pakistan. This objective was to assess the levels of need satisfaction and need frustration of residents in two wards of a public sector hospital

**Summary of Work:** Study design: Descriptive Subjects included all of the residents working in two major discipline units including Internal Medicine and Gynaecology. A survey questionnaire with 24 questions having equal number of questions on need satisfaction and frustration about three components of Self Determination Theory. Data were analysed using SPSS version 20 and separate average means were calculated

**Summary of Results:** Age of the subjects ranged from 25 to 29 years. Average means of satisfaction about autonomy, relatedness and competence were 3.91, 4.25 and 4.18 while average means for frustration side of these components were 2.83, 2.42 and 2.24 respectively. There was no difference between male and female response.

**Discussion:** It is an established fact the public sector hospitals in developing countries have suboptimal work conditions so the need satisfaction average mean is in contrast to the common sense impression. However, work on great number of patients can give a sense of autonomy support and competence, which may compensate the feeling of frustration. The relationship needs further exploration.

**Conclusion:** The residents in public sector hospital have feeling of need satisfaction more than need frustration

**Take Home Messages:** The fulfillment of basic needs of health professionals must be considered for an efficient healthcare system.

#5Q4 (135559)

**Increasing self-efficacy and reducing burnout through a post-graduate medical education intervention**

*Michael Williams\*, Wales Behavioral Assessment,  
Lawrence, USA  
Nathaniel V. Williams, Professional Renewal Center,  
Lawrence, KS, USA  
Betsy White Williams, University of Kansas, Kansas City,  
MO, USA*

**Background:** Burnout has become an epidemic among physicians across the educational continuum. Self-efficacy is an individual's sense they can undertake a certain task. Self-efficacy like resilience can be taught. We were interested in studying whether increasing self efficacy would decrease burnout.

**Summary of Work:** A post-graduate educational activity focusing on interpersonal and communications skills, professionalism, and systems-based practice served as the intervention. The activity consisted of an initial 3-day session, one, three, and six month follow up. Data on burnout and self efficacy were collected at each time point.

**Summary of Results:** Burnout (9 items) and self-efficacy (4 items) were factored to abstract underlying structure. The self-efficacy variables yielded two factors, one related to historic success (P-efficacy), one a sense of self-characteristics (S-efficacy). The burnout analysis yielded three factors, long-term burnout (LTB), immediate burnout (IB) and physical symptoms of burnout (PSB). The relationship between IB and the activity across time was significant, ( $p < .001$ ). The other two burnout variables were not significant. The relationship between self-efficacy and the activity across time was significant for historic success not personal characteristics, ( $p < .001$ ). The relationship between burnout and self-efficacy was significant. LTB was related to S-efficacy, ( $p < .001$ ). IB was related to P-efficacy ( $p < .0001$ ) and S-efficacy ( $p < .001$ ).

**Discussion:** These data suggest that burnout has both long-term and more immediate elements with both related to sense of self-efficacy. IB is more related to P-efficacy and driven by more near-term experience, whereas LTB is more related to sense of self (S-efficacy).

**Conclusion:** Self-efficacy appears to be a highly related and active element in burnout. An instructional activity that addresses self-efficacy through personal achievement is more effective at addressing the aspects of burnout related to current experience.

**Take Home Messages:** Instructional approaches designed to enhance self efficacy can be effective in decreasing burnout.

#5Q5 (135263)

**Impact of negative emotions on complex learning: an experimental study**

**Telma Kremer\***, Erasmus University Rotterdam, Amstelveen, Netherlands

Silvia Mamede (Erasmus University, Rotterdam, The Netherlands)

Walter Vandenbroek (Erasmus University, Rotterdam, The Netherlands)

Maria do Patrocínio Tenório Nunes (University of Sao Paulo, Sao Paulo, Brazil)

Milton de Arruda Martins (University of Sao Paulo, Sao Paulo, Brazil)

Henk Schmidt (Erasmus University, Rotterdam, The Netherlands)

**Background:** Medical training has been described as emotionally demanding. The influence of trainee's emotional reactions to these demands on their learning is not clear but psychological research suggests that emotions influence cognition and behavior in a complex manner

**Summary of Work:** This study experimentally investigated the effects of negative emotions, triggered by a priming task, on learning processes and outcomes in a subsequent task. Sixty new residents at the residency program at the Medical School at São Paulo University, Brazil, participated in the study. Data were analyzed using Chi-square and independent t-tests

**Summary of Results:** Participants found our priming task (videoclip) realistic and reported being familiar with the situation. Those who watched the emotion-triggering version of the video spent significantly less time studying the text and performed significantly worse in the free recall test when compared with control group

**Discussion:** Different levels of emotions were triggered by the two experimental conditions and lead to different levels of performance. Negative emotions might have activated automatic attitudes and avoidance of learning material. Decrease in subsequent performance can be expected when less time is dedicated to learning, and also as a consequence of reduction in resource capacity to dedicate to the recalling process

**Conclusion:** We assumed negative emotions influence learning of new material and that residents under their influence would perform differently than those in the control condition. Our assumptions showed to be correct as emotions showed to negatively affect subsequent learning process and performance. Further exploration of how that kind of effect can be diminished could be an interesting venue of further research

**Take Home Messages:** The study of the influence of emotions on complex learning is an important and yet complex field of research that can help educators to understand and find ways to support medical trainees manage their emotions in a productive and positive way.

#5Q6 (132607)

**Understanding residents' responses to autonomy and participation tensions in the workplace: A constructivist grounded theory study**

**Francisco Olmos-Vega\***, Pontificia Universidad Javeriana, Bogotá, Colombia

Diana Dolmans

Nicolas Vargas-Castro

Renée Stalmeijer

**Background:** Residents feel tensions at the workplace. On the one hand, the workplace offers many possibilities to learn; on the other hand, residents find it difficult to deal with their responsibilities. But what tensions do residents experience during clinical supervision and how do they handle these pressures to maximize their learning opportunities?

**Summary of Work:** We conducted three focus groups (n=19) and ten semi-structured interviews (n=10) to residents of different levels of training and disciplines. We recruited residents using purposive and convenience sampling. We transcribed all audio recordings verbatim and analysed the data using constructivist grounded theory methodology.

**Summary of Results:** According to residents, supervisors provided either too much autonomy/participation or too less. Residents engaged on such tensions depending on how safe the learning environment was perceived: Calling for help from their supervisor or their peers when facing too much autonomy/participation, and negotiating autonomy/participation with their supervisor or becoming passive observers when facing an autonomy/participation restriction.

**Discussion:** Striking the right amount of autonomy/participation could be difficult, but residents' responses to such imbalance seemed to help them maximize their learning opportunities, as long as they were able to achieve a high level of intersubjectivity with their supervisors or peers.

**Conclusion:** Clinical supervision tensions revolved around the degree of autonomy and participation that supervisors afforded to the residents. Residents responded in various ways, trying to maximize their learning opportunities. Achieving a shared understanding between resident and supervisor seems to be the key to understanding how different engagement responses improve workplace learning in residency.

**Take Home Messages:** Residents use diverse strategies to cope with autonomy/participation tensions. Having a safe learning environment allows residents to negotiate and have a dialogue with their supervisor or their peers to enhance their learning opportunities. Creating an unsafe learning environment while restricting autonomy/participation seems to be the least desirable situation for workplace learning.



#5Q7 (135600)

**Developing insight among physicians in a post-graduate learning activity**

**Betsy White Williams\***, *University of Kansas Medical School, Kansas City, USA*

*Philip Flanders, Professional Renewal Center, Lawrence, USA*

*Michael V. Williams, Wales Behavioral Assessment, Lawrence, USA*

**Background:** Understanding causes of underperformance and how to best remediate difficulties is an ongoing challenge. Hays et. al. (2002) hypothesize that underperforming practitioners lack recognition of a need to improve. They suggest that lack of insight affects remediability in a negative way. Whether insight is a teachable mental attribute or a more fixed personal trait is important in determining the prognosis for improvement.

**Summary of Work:** A post-graduate educational activity that focuses on interpersonal and communication skills, professionalism, and systems-based practice served as the intervention. The activity was conducted over an initial weekend, with follow-ups at one, three, and six months. Each participant was assessed for insight, employing a 6-item scale that was developed for this application.

**Summary of Results:** Data were analyzed using JMP 9.03, SAS Institute, Cary, NC. The 6-item scale was analyzed for structure yielding 3 factors: a factor related to doubt of behavioral efficacy (Doubt), a factor related to confidence in the correctness of behaviors (Confidence), and a factor related to superiority of personal actions (Certainty). The broad measure of insight was significantly related to the time of assessment demonstrating that insight improved over time. In assessing the univariates, Doubt and Certainty were individually significantly related to time of measurement. Confidence did not reach a traditional level of significance.

**Discussion:** These data suggest that performance-related insight can improve over time as overall, insight significantly improved over the period of the educational activities. In addition, two of three of the component elements of insight: Doubt and Certainty improved (changed in the correct direction).

**Conclusion:** Insight, thought to be a critical element in effectively acquiring or improving clinical skills, can be changed through a targeted educational activity.

**Take Home Messages:** Insight is teachable.

## 5R Short Communication: International Medical Education

Location: MR 125 – P1

#5R1 (135896)

**Improving global health education in the refreshed curriculum**

*Birgit Fruhstorfer\*, Warwick Medical School, Coventry, UK*

W Robertson

**Background:** As a result of globalisation new challenges in health have emerged requiring a new set of knowledge, skills and attitudes for the effective delivery of health care. Medical schools have increased the content of global health in curricula, but learning opportunities remain limited or lack integration with other themes of the curriculum.

**Summary of Work:** At Warwick Medical School the structure of the 4-year graduate entry MB ChB programme was substantially revised offering new opportunities to enhance global health education for medical students. Global health topics were integrated into the core curriculum and offered as an option for more in-depth study in the student-selected component (SSC).

**Summary of Results:** The refreshed curriculum was implemented in 2013. In the first two years a series of lectures familiarizes students with the wider determinants of health and the burden of disease from a local and global perspective. Prior to the elective, two academic days are devoted to the global health theme, which is aligned with pre-departure training for the elective. The SSC programme comprises 3 blocks. In SSC 1 first year students can select a 10-session taught module in global health. In SSC 2 third year students undertake an 8-week research project, which may be related to a global health topic involving data collection in an international location. For the Elective (year 4) most students plan a placement outside the UK.

**Discussion:** All medical students are exposed to global health learning during the 4-year course, with the SSC programme offering students the option to study global health in some more depth.

**Conclusion:** Global health learning has been integrated with the core curriculum, SSC programme and pre-departure training for the elective.

**Take Home Messages:** Global health is an important part of medical education, which needs to be considered in the design of the curriculum.

#5R2 (135855) (**Postgraduate Travel Award Winner**)  
**Global Health competencies for postgraduate health professionals: What does a doctor need to be able to do?**

*Sarah Walpole\*, Hull York Medical School, UK*

Clare Shortall, Doctors of the World, UK

Global Health Curriculum group, UK

**Background:** In our increasingly interdependent world, global health is of relevance to all health professionals. Globalisation has significant and wide-reaching effects on health and healthcare. A recent Lancet Commission identified a “mismatch between present professional competencies and the requirements of an increasingly interdependent world”.

**Summary of Work:** We aimed to develop core global health competencies for UK doctors. We solicited views of wide-ranging stakeholders during a three-stage modified policy Delphi. Published literature and existing curricula informed writing of seven competencies, which were revised following each stage of consultation. The first stage solicited responses to an online questionnaire, the second stage involved telephone and face-to-face interviews, and the final round was by email. Responses were analysed thematically after each round by two independent researchers. Committee consensus on revisions was reached through discussion, reference to published literature, and re-consultation with stakeholders. The committee was a group of twelve doctors, all UK-trained and the majority working in the UK.

**Summary of Results:** Over 300 stakeholders participated, including doctors, other health professionals, policymakers and members of public from all continents of the world. The final document presents five interrelated competencies, each with example knowledge and practice areas: • Diversity, human rights and ethics • Environmental, social and economic determinants of health • Global epidemiology • Global health governance • Health systems and health professionals

**Discussion:** This consultation consulted wide-ranging stakeholders, albeit with lack of interaction between participants. Participants indicated that global health competence is essential for postgraduate health professionals. Conflicting perspectives emerged about importance and relevance of different global health topics. Concerns were expressed about overburdening curricula and identifying what is ‘essential’ for whom.

**Conclusion:** These global health competencies require tailoring to different trainees’ needs. They were developed for UK doctors, but may have transferability to other health professionals and other countries.

**Take Home Messages:** Healthcare and global health are ever-changing; therefore competencies will require dynamic delivery and regular review and update.

#5R3 (134487)

**Physician emigration from Africa to the United States of America – a 10-year cross-sectional profile**

**Robbert Duvivier\***, University of Newcastle, Australia / FAIMER, Philadelphia USA, Newcastle, Australia  
Vanessa Burch (University of Cape Town, South Africa)  
John R Boulet (FAIMER, Philadelphia, USA)

**Background:** Migration of physicians has been cause for global concern. Nearly ¼ of the US physician workforce attended medical school outside the United States or Canada. Lack of good data makes it difficult to determine the real extent of migration from African countries to the US, and thus develop meaningful policies. This study quantifies where these migrant physicians come from, where they were educated, and how this has changed over time.

**Summary of Work:** We combined data from ECFMG with 2005 and 2015 AMA Physician Masterfiles. Using a cross-sectional time series approach, we reviewed available data (medical school attended, country of medical school, citizenship upon enrolment).

**Summary of Results:** In 2015, 5.9% of active physicians in the US workforce had been educated in Africa (n=13,584); 26.7% increase from 2005. Eighty-six percent of African-educated physicians were trained in four countries (Egypt, Ghana, Nigeria and South-Africa). Six schools provided half of all African-educated physicians. Based on 2015 data, 11.4% of African-educated physicians held citizenship from a non-African country at entry to medical school. Over 60% (n=7,313) were citizens of Sub-Saharan countries; the majority from Ghana, Ethiopia, Nigeria, South Africa and Sudan.

**Discussion:** Many African-educated IMGs are citizens from countries other than their medical school's location. Many are non-African citizens. The potentially negative impact on local workforce and provision of medical care in country of education raises important ethical questions.

**Conclusion:** Although the number of African-educated IMGs has increased in the past 10 years, many were not African citizens upon medical school enrolment. The majority attended medical school in a limited number of countries. One third originated from one of three medical schools. These findings have implications for workforce policy, both in US and abroad.

**Take Home Messages:** The majority of African graduates migrating to the US come from few countries, and from limited number of medical schools. Many were not citizens of African countries.

#5R4 (134898)

**Serving Globally in Resource Limited Countries and Emotional Intelligence: An exploratory study**

**Teri Turner\***, Baylor College of Medicine, Houston, USA  
Rachelle Weinstein (Baylor College of Medicine, USA)  
Stephanie Marton (Baylor College of Medicine, USA)  
B. Lee Ligon (Baylor College of Medicine, USA)  
Gordon Schutze (Baylor College of Medicine, USA)

**Background:** Emotional Intelligence (EI) is defined as is the capability of individuals to recognize their own, and other people's emotions, to discriminate between different feelings and label them appropriately, and to use emotional information to guide thinking and behavior. We sought to determine if differences exist between pediatric trainees who remain in the US for 3 years training (traditional curriculum=TC) versus those who spend a 4th year training globally in a resource limited country (traditional + underserved=TC+U).

**Summary of Work:** All 2012-2015 incoming pediatric trainees (both TC and TC+U) completed the Emotional and Social Competency Inventory-University of Emotional Intelligence by the HayGroup. Trainees rated themselves on seventy questions (5 questions for 14 areas) pertaining to four clusters (Self Awareness, Social Awareness, Self-Management, and Relationship Management) Range was 5-25 for each of the 14 areas. Trainees self-assessed on how often they behaved in a manner consistent with each question (1=never and 5=consistently).

**Summary of Results:** 238 residents participated (n=212 TC and n=26 TC+U). Mean scores varied on each of the 14 areas from 17.1 to 20.8. All trainees rated themselves highest on the competencies of Teamwork (mean=20.9) and Achievement Orientation (mean=20.2). Self-assessment was lowest on Inspirational Leadership (mean=17.3). There were statistically significant differences in EI between TC and TC+U in Positive Outlook (19.0 vs 20.2, p=<0.05 respectively) and Empathy (19.8 vs. 20.8, p=0.05 respectively).

**Discussion:** Further research is necessary to determine if EI increases disproportionately over time among TC vs TC+U and if these differences impact professional success.

**Conclusion:** Trainees who choose to work in resource scarce countries feel they are more empathetic and have a more positive outlook on life.

**Take Home Messages:** Differences exist between individuals who seek training exposure in resource scarce areas and may be a helpful tool for screening candidates for limited positions abroad and/or in developing curriculum to support resiliency during these learning activities.

#5R5 (133494)

**Cross-border partnerships in medical education**

**Sarah Williams Leng\***, FAIMER, Philadelphia, USA

**Background:** The internationalization of medical education has expanded in response to factors including the globalization of health care delivery and improved communications channels (Harden 2006). The cross-border partnerships created within this context have allowed schools to leverage resources in a competitive global market, while meeting challenges such as maintaining both uniformity and local relevance.

**Summary of Work:** We provide a description of the cross-border partnerships that exist between medical schools located outside the U.S. and Canada.

**Summary of Results:** Of the 227 medical schools surveyed, 116 (51.1%) responded. Of these, 15 schools reported participating in a joint international educational program. Fifty-nine schools participated in a cross-border exchange of students; 36 participated in a cross-border exchange of faculty. Fifty-seven reported participating in research partnerships.

**Discussion:** Most medical schools reported having one or more cross-border partnerships. More schools indicated that they participate in cross-border partnerships in research, faculty-, or student-exchanges, while fewer report having a joint medical education program.

**Conclusion:** These findings contribute to the research on internationalization of medical education by providing a description of the cross-border partnerships in medical schools. Future research should focus on the context in which cross-border medical education partnerships occur between these schools, and the multidimensional and increasingly integrated nature of transnational and multinational partnerships within medical education.

**Take Home Messages:** Cross-border partnerships exist between many medical schools outside the US and Canada.

#5R6 (135518)

**The role of strategic partnerships in the development of medical universities: the experience of Kazakhstan**

**Vitaliy Koikov\***, Republican Centre for Health Development, Astana, Kazakhstan

Gulmira Derbissalina, Astana Medical University, Astana, Kazakhstan

**Background:** One of the main conditions for the development of the health system in the Republic of Kazakhstan is the creation of a competitive system of medical education. The strategic partnership of national medical university with leading international academic centers will provide an opportunity to strengthen the position of medical schools in the domestic and foreign markets, to improve the quality of the educational process, to reduce the risks.

**Summary of Work:** Improving the quality of training of health workers and the competitiveness of graduates of medical universities of Kazakhstan is ensured through the introduction of international best practices, the strategic partnership of Kazakhstan medical universities and leading international medical schools. The strategic partnership includes 4 main cooperation frameworks, consulting, mentoring, co-management, trust management in the following areas: 1) Improvement of management and financing in the medical schools of Kazakhstan 2) Increase the capacity of faculty and staff of medical universities of Kazakhstan 3) Improving the educational programs in medical universities of Kazakhstan 4) Development of the scientific activities of medical universities of Kazakhstan.

**Summary of Results:** The medical education system of Kazakhstan has the task to ensure the quality of training of health professionals according to international standards. MoH of the RK implemented a number of measures for transfer of best international practices in the framework of the project "Technology transfer and institutional reform in the health sector of the Republic of Kazakhstan" from 2010 to 2015. Kazakhstan has created the foundations for the introduction of international standards in the field of management of medical education. Further development need to establish and develop strategic partnerships of medical schools with the leading medical schools in the world. It is expected that with the help of strategic partnerships domestic universities will significantly improve their marketing educational products, will have the opportunity to expand into new foreign markets, to enhance the prestige of their programs.

**Discussion:** The strategic partnership aimed at achieving the following outcomes: 1) Implementation of international standards in medical education; 2) Creating a brand of Kazakhstan medical universities; 3) The entry of medical schools in the world ranking; 4) Positioning of the medical school's faculty in the international medical and scientific community; 5) Growth of quality of the human resources training on the basis of integration of education, science and practice.

**Conclusion:** For the development of the system of medical education Kazakhstan has chosen a course of strategic partnership of national medical schools and leading foreign medical schools.

**Take Home Messages:** Achieving the quality of training of the human resources for health is provided by the introduction of international best practices and strategic partnership of Kazakhstan's medical universities with leading foreign medical schools.



## #5S BarCamp: Informal Learning and Technology (continued from 4S)

Location: MR 127 – P1

*Sebastian Dennerlein\** (Austria)

*John Bibby\** (UK)

*Raymond Elferink\** (Netherlands)

*Micky Kerr\** (UK)

*Natalie Lafferty\** (UK)

*David Topps\** (Canada)

*Tamsin Treasure-Jones\** (UK)

**Summary:** BarCamps (<http://barcamp.org>) have an exciting, informal format, with the overall theme and BarCamp rules set in advance, but the agenda and activities democratically decided on the day. Participants propose activities, discussion topics & questions. Our theme for this session will be informal learning and technology. Together we will explore and share innovative approaches to using technology to support such learning. Join us in sharing your knowledge/experiences at the BarCamp – we could even continue over dinner if desired!

## #5T Conference Workshop: Tips for Demonstrating Methodological Rigour when using Consensus Group Methods (Delphi and Nominal Group) in Medical Education Research (132124)

Location: MR 128 – P1

*Susan Humphrey-Murto\**, University of Ottawa, Ottawa, Canada

*Lara Varpio\**, Uniformed Services University of the Health Sciences, Bethesda, USA

*Timothy J. Wood\**, University of Ottawa, Ottawa, Canada

**Background:** In medical education there is often limited data to support decision making. Consensus group methods such as Delphi and nominal group technique (NGT) are widely used to enhance decision making, synthesize expert opinions and measure areas where there is uncertainty. Consensus methods therefore appear to have a role in medical education research. Unfortunately, little guidance exists to help researchers apply these methods which are poorly standardized, inconsistently used and described in health sciences and medical education literature. (Boulkedid 2011; Humphrey-Murto 2014) We believe it is important to move away from the use of labels and move toward a comprehensive description of the steps taken. The purpose of this workshop is to provide best-practice guidance to researchers considering the use of consensus group methods and to provide a series of tips to improve the quality of reporting.

**Structure of Workshop:** 1) Overview of the definition of consensus group methods and of important features such as anonymity, iteration, controlled feedback, statistical group response and structured interaction will be discussed. 2) Participants will identify what types of medical education research questions are suited to the use of consensus group methods. 3) Participants will describe their use, or planned use of consensus group methods and identify challenges. 4) Participants will work in small groups to develop a protocol for the use of these methods for a particular project. 5) The protocols will be reviewed in the larger group.

**Intended Outcome:** At the end of the workshop participants will be able to:

- Describe consensus group methods and their important methodological features
- Identify the types of medical education studies that would be served by using these methods
- Apply these principles to the participants' own research project.

**Who Should Attend:** Medical educators using or planning to use consensus group methods. R Boulkedid et al. 2011. PLoS ONE 6(6):e20476 S Humphrey-Murto et al. The Ottawa Conference, 2014.

**Workshop Level:** Intermediate

**#5V Conference Workshop: Sequential testing methodologies – a practical guide to implementation and measuring benefits (133264)**

Location: MR 130 – P1

**Richard Fuller\***, Leeds Institute of Medical Education, University of Leeds, Leeds, UK  
**Matthew Homer\***, Leeds Institute of Medical Education, University of Leeds, Leeds, UK

**Background:** Sequential testing methodologies are relatively new assessment formats that help us deal with the challenges of feasibility, quality and cost whilst undertaking and delivering high stakes assessment. This typically takes the form of a two stage assessment process where all candidates are subject to a main 'screening' test, with lower performing candidates subject to an additional (sequential) test of similar magnitude. These candidates therefore undergo a longer test involving a broader spread of items, delivering a highly reliable assessment than would be provided in a traditional single test format, whilst providing an assessment that is 'fair' for candidates

**Structure of Workshop:** This highly interactive workshop will be delivered by facilitators with extensive assessment and sequential testing experience. Using models and materials from the University of Leeds' development and implementation of sequential testing, a mixture of round table discussion and practical exercises will allow participants to apply lessons to their own assessment process. Models for sequentially testing OSCE and knowledge test formats will be used to illustrate techniques for implementation and measurement of impact.

**Intended Outcome:** Participants will gain theoretical and practical experience in the implementation of sequential testing, and explore the measurement of a range of markers of impact (e.g. quality metrics, student progression and cost-benefit analyses)

**Who Should Attend:** This workshop has particular significance for those responsible for the design, delivery and analysis of performance based assessment

**Workshop Level:** Intermediate

**#5W Conference Workshop: Global Health and Medical and Dental Education: understanding the role of the social determinants of health under difficult circumstances (126774)**

Location: MR 131 – P1

**Rui Amaral Mendes\***, Case Western Reserve University, Cleveland, Ohio, USA  
**Keren Mazuz\***, Hadassah College, Jerusalem, Israel  
**Seema Biswas\***, British Medical Journal Case Reports, London, USA

**Background:** Incorporation of Global Health, social accountability and social determinants of health into undergraduate medical and dental curricula present new challenges to medical and dental faculty. A practical course for Global Health and Medical Anthropology has been developed, validated and successfully adapted across a range of learning environments to encourage students to engage directly with local communities and explore in depth the social, political, economic and cultural determinants of health.

**Structure of Workshop:** Fully interactive from the outset, including a brief introduction about what is known about Global Health teaching across the world, followed by an introduction to the Global Health and Medical Anthropology course and Global Health case report tool. Strategies for student engagement, faculty development and the mitigation of challenges in teaching and learning in difficult circumstances are addressed through real-life examples from under-resourced inner-cities, from rural and isolated areas, and from conflict and disaster zones.

**Intended Outcome:** 1. Teachers from all disciplines anywhere in the world are able to recognise and make the most of all learning environments 2. Adapt the Global Health and Medical Anthropology course to local undergraduate courses 3. Identify tangible learning and assessment outcomes 4. Demonstrate the delivery of a Global Health course that comprehensively covers internationally accepted medical and dental competencies in a practical, feasible and inexpensive way in both well-resourced and under-resourced environments.

**Who Should Attend:** All teachers and students interested in Global Health, the humanities, and social accountability.

**Workshop Level:** Intermediate

## #5X Conference Workshop: Tips on preparing ASPIRE award applications in student engagement (136026)

Location: MR 132 – P1

**Marko Zdravkovic\***, University Medical Centre Maribor, Maribor, Slovenia

**Shelley Parr\***, University of Southampton, Southampton, UK

**Debra Klamen\***, Southern Illinois University School of Medicine, Springfield, USA

**Martin Wohlin\***, Uppsala University, Uppsala, Sweden

**Gillian Swan\***, University of Leeds, Leeds, UK

**Antonio Celenza\***, Faculty of Medicine, Dentistry and Health Sciences, University of Western Australia, Perth, Australia

**Background:** In 2013, AMEE launched an incentive to recognise and award educational excellence of medical schools in three different areas. Based on our experiences as ASPIRE award winners, we will provide a hands-on workshop to help prepare a submission for the student engagement area. This workshop provides a unique opportunity to reflect on gathering quality evidence of excellence in different settings with insights and guidance provided by an international group of facilitators.

**Structure of Workshop:** Following an introduction, we will have a short presentation of the ASPIRE incentive with the focus on facilitating the application writing process. Small working group (SWG) discussions will form the backbone of the workshop with two cycles of SWG brainstorming sessions covering selected criteria of the application, followed by group presentations and discussion. Supporting claims of excellence with convincing evidence will be emphasised and evidence taken from the ASPIRE award documents will be discussed.

**Intended Outcome:** At the end of the workshop participants will be able to: 1) better prepare for the ASPIRE application writing process, 2) understand the requirements of selected criteria, and 3) identify appropriate supporting evidence.

**Who Should Attend:** The workshop is targeted to those interested in improving student engagement in their medical schools and preparing submissions for the ASPIRE award in student engagement. Students are also welcome to contribute and share their perspectives. Interested participants can become familiar with the ASPIRE via [www.aspire-to-excellence.org](http://www.aspire-to-excellence.org).

**Workshop Level:** Intermediate

## #5Y Conference Workshop: Young Medical Educator's Workshop: Speed Mentoring, Adaptive Action to Refine Mentoring for Young Medical Educators (134506)

Location: MR 133 – P1

**J.M.Monica van de Ridder\***, College of Human Medicine Michigan State University, Grand Rapids, USA

**Stewart Mennin\***, Mennin Consulting and Associates Inc., Albuquerque, USA

**Charlotte Ringsted\***, Centre for Health Sciences Education Aarhus University, Aarhus, Denmark

**Zubair Amin\***, Medical Education Unit Yong Loo Lin School of Medicine National University of Singapore, Singapore, Singapore

**Soeren Huwendiek\***, Department of Assessment and Evaluation Institute of Medical Education University of Bern, Bern, Switzerland

**Background:** Finding effective mentors in medical education is challenging, especially when you are relatively new to the field. This workshop is a follow-up on last year's Young Medical Educator's (YME)-workshop. It will offer an opportunity to meet with experienced medical educators and refine individual plans to find a mentor using three essential questions. What? So What? Now What?

**Structure of Workshop:** At the end of the workshop participants will: have refined and focused their practical strategies for successfully finding an effective mentor in medical education; join an electronic network for continued dialogue and support within an asynchronous online platform (MedEdWorld).

**Intended Outcome:** Following a brief (5 min) introduction and demonstration of adaptive action: what? so what? now what? participants are invited to reflect on their adaptive action approach to mentoring (10 min). A number of experienced medical educators are invited to the YME-workshop. Workshop participants will work through 3 ten-minute adaptive action cycles. Participants will work on a personal plan to finding a mentor (what), formulating mentoring questions relevant to them and their department (so what?), and outline next steps to be taken (now what?) (30'). The workshop will conclude with sharing take-home messages (30').

**Who Should Attend:** Young medical educators interested in finding effective mentors and participating in adaptive action.

**Workshop Level:** Introductory

**#5Z Conference Workshop:  
Continuing Professional Development:  
the art of feedback and reflection  
(133602)**

**Location:** MR 134 – P1

**Taruna Bindal\***, Worcestershire Acute Hospitals NHS  
Trust, Redditch, UK

**Helen Goodyear\***, Health Education England in the West  
Midlands, Birmingham, UK

**Background:** Reflection is an important part of the learning cycle. Medical students and doctors in training are encouraged and are required to make reflective notes in their portfolios as are fully qualified practitioners. Feedback forms an essential part of being a lifelong learner. However, from our experience and research both reflection and feedback are often poorly done. Educational and clinical supervisors need to develop these skills so as to be able to help students and doctors.

**Structure of Workshop:** A highly interactive workshop which will consist of an introductory talk about reflective practice and feedback, followed by small group work in which participants will carry out a learning event. Group members will make reflective notes on the learning experience using a simple structured template. Participants will practice giving constructive feedback to enhance each others reflective skills. In addition, potential pitfalls in current reflective logs and challenges regarding giving feedback will be discussed.

**Intended Outcome:** By the end of this workshop participants will 1) be able to give feedback and support students and doctors 2) understand the importance of reflective practice 3) be able to enhance their reflective practice through use of a simple template

**Who Should Attend:** Healthcare professionals who would like to look in more depth at development of reflective and feedback skills for their own benefit and to help students, trainees and colleagues

**Workshop Level:** All levels

**#5AA Conference Workshop: A Gentle  
Introduction to Psychometrics for the  
Medical Educator: Key Concepts and  
How to Apply Them to your  
Assessment. (127942)**

**Location:** M 215 + 216 – M2

**Andre De Champlain\***, Medical Council of Canada,  
Ottawa, Canada

**Background:** The routine use of psychometrics to enhance the quality of examinations attests to its importance both for the development of assessments as well as the analysis of test data in medical education. Psychometric models can be used to analyze the quality of test items and stations, to assess how reliably we are measuring our candidates' competence in a number of prescribed domains, as well as to support valid interpretations of scores and/or pass/fail decision.

**Structure of Workshop:** The primary outcome of this workshop is to demystify psychometrics and provide the attendee with a better understanding of the issues that need to be considered with all assessments, whether MCQs, OSCEs or workplace-based assessments.

**Intended Outcome:** (1) Overview of key vocabulary in assessment. (2) A summary of reliability and what it means for your test scores and decisions. (3) Validity: How do I gather evidence to support the use of my test scores and decisions? All sections of the workshop will entail practical exercises to further improve understanding.

**Who Should Attend:** Those medical educators with little to no background in psychometrics who may be involved in examination programs at their home institution and who may wish to improve their knowledge of the science underlying assessment.

**Workshop Level:** Introductory



## **#5BB Conference Workshop: Getting strategic with research through priority setting exercises (135022)**

**Location:** M 211 + 212 – M2

**Rola Ajjawi\***, Deakin University, Melbourne, Australia

**Lynn Monrouxe\***, Chang Gung Memorial Hospital, Linkou, Taiwan

**Chia Ming Yen\***, Chang Gung Memorial Hospital, Linkou, Taiwan

**Garrett Ren-Jie Liu\***, Chang Gung Memorial Hospital, Linkou, Taiwan

**Background:** Setting research priorities has become important within healthcare systems over the past 20 years. It is estimated that up to 85% of research investment is wasted because of low-priority research questions that do not meet stakeholders' needs. In order to reduce waste there is a call for improving the transparency of processes by which priorities are set, making clear how they take account of the needs of potential users of research. Recently, national priority setting exercises (PSEs) for medical and dental education research have been performed using different methods across New Zealand, Canada and Scotland. A variation of these methods is also presently being used across Taiwan for healthcare professionals (including physicians and nurses). This is because priorities are context specific and stakeholder dependent. This workshop therefore provides the opportunity for individuals to consider the purposes and processes of developing a PSE within their own context (e.g. healthcare professional group, country).

**Structure of Workshop:** The workshop will be delivered in English and Mandarin. Participant groups will work together to identify how they might conduct a PSE within their own context. First, facilitators and participants will introduce themselves before the facilitators share experiences of PSEs they have conducted. Next, groups will develop a plan for a context-relevant PSE, which they will present to the large group for discussion. We will conclude the workshop with any outstanding questions and a workshop evaluation.

**Intended Outcome:** By the end of this workshop participants should be able to: 1) Identify purpose, key stakeholders and a recruitment strategy for a PSE; 2) Develop robust data collection and analysis approaches; 3) Determine criteria to inform final priorities and inform strategy.

**Who Should Attend:** Individuals who may want to conduct a PSE within their own context. We particularly welcome participants who represent healthcare professions and/or countries where no PSEs have so far been conducted.

**Workshop Level:** Introductory

## 5CC Posters: Interprofessional Education 1

Location:

#5CC01 (132962)

**Design and evaluation of an inter-professional module to introduce medical students to the clinical environment**

**Ann Chu\***, Imperial College London, London, UK  
Elizabeth Muir (Imperial College London, London, UK)  
Abdul-Majeed Salmasi (Imperial College London, London, UK)  
Amir H Sam (Imperial College London, London, UK)  
Mary J Morrell (Imperial College London, London, UK)  
Joanne Harris (Imperial College London, London, UK)

**Background:** 'Foundations for Care' is a module designed for second year medical students at our institution, integrating holistic patient care and multidisciplinary team learning into early clinical attachments. These areas are priorities identified by the UK National Care Certificate framework and correlates to GMC domains and the HEE mandate.

**Summary of Work:** The module was integrated into a three-week clinical attachment for 270 students across nine hospital teaching sites. Students attended two days of campus-based teaching delivered by nurses and allied health professionals, shadowed a healthcare assistant/nurse for two shifts and attended a semi-structured debrief session. A sample of five debriefing sessions were observed and field notes recorded. Facilitators asked students to record their key take-home messages at the end of the debrief sessions - these free-text responses (n=129) were collated and coded.

**Summary of Results:** Students appreciated the role of the nursing team better and had increased awareness of the patient experience. Facilitators addressed challenges, in particular preparation of ward staff and students' confidence. 67% of student learning was directly aligned to module objectives (multidisciplinary team-working n=41, holistic patient care n=30, clinical skills n=16). Other responses corresponded to overall aims of the clinical attachment (understanding of clinical environment, learning strategy). Only six responses were not directly relevant.

**Discussion:** The debrief sessions were important in exploring student perceptions of the learning gained from shadowing shifts. In particular, challenging experiences could be discussed and put into context. As healthcare professionals, some facilitators were observed to use their experience to 'frame' student attitudes towards the value of inter-professional learning and holistic patient care.

**Conclusion:** Evaluation methods demonstrate the module design delivered good constructive alignment.

**Take Home Messages:** • Inter-professional learning and holistic patient care are important learning concepts for medical students • Learning from multi-professional ward staff is desirable and feasible •

Supporting experiential learning with a preparation and debrief phase can assist constructive alignment

#5CC02 (132170)

**Does Continuous Contacts Using Interprofessional Education Device (iPED) Have Educational Effects on Medical, Nursing, and Pharmacy Students?**

**Masato Kokaji\***, Nagoya University School of Medicine, Nagoya, Japan

Takeshi Hida (Department of Education for Community-Oriented Medicine, Nagoya University Graduate School of Medicine, Nagoya, Japan)  
Takahiko Norose (Hokkaido Pharmaceutical University School of Pharmacy, Sapporo, Japan)  
Hiroki Yasui (Department of Education for Community-Oriented Medicine, Nagoya University Graduate School of Medicine, Nagoya, Japan)  
Kazumasa Uemura (Center for Medical Education, Nagoya University School of Medicine, Nagoya, Japan)

**Background:** International attention has been paid to Interprofessional Education (IPE) and relevant outcomes have been reported. However, its diffusion to fields of education is limited due to space, temporal, and psychological barriers. Therefore our aim is to use the iPED, and report its educational effects on healthcare students. iPED is a tablet which is installed the original SNS App to overcome these barriers.

**Summary of Work:** We made two groups, each consisted of one medical, nursing, and pharmacy student, and also one type II diabetic patient. They communicated with one another on iPED. Students supported their patients' recuperation through iPED communication for a year. After that, we had semi-structured interview to students, and analyzed their transcript qualitatively.

**Summary of Results:** Following four effects were revealed. First, Acquisition of developmental guide; students broadened their view to studying. Second, Ricochet effect; nursing students' emic remark to patients evoked disease-only viewpoint of medical and pharmacy students. Third, Mirror effect; because of communication style's propagation to students in other faculties, they re-confirmed own major role reflectively. Last, Removing psychological barrier; students perceived that there was less of a psychological barrier using the iPED compared to previous experiences.

**Discussion:** Addition to previously reported effects of IPE, we revealed following two suggestions. First, Ricochet effect reflected communication (Awareness of difference in professionals' language) affects understanding patients and improvement of ethics and attitudes. Second, Mirror effect reflected propagation of communication style to the students in other faculties affects roles and responsibilities recursively. These imply importance of communication on IPE.

**Conclusion:** In IPE design, how to make chance to deepen relationship between interprofessional

students becomes the key and the means that doesn't make relationship finish like iPED can be said one of effective way. The use of iPED had four educational effects, including Ricochet effect and Mirror effect.

**Take Home Messages:** Continuity deepens relationship, and iPED can contribute to that.

#### #5CCo3 (135777)

##### Small group of Interprofessional education in home care

**Keiko Abe\***, Nagoya University, Nagoya, Japan

Hiroki Yasui (Nagoya University, Department of Education for Community-Oriented Medicine, Nagoya, Japan)

Yasushi Uchiyama (Nagoya University, Department of Physical and Occupational Therapy, Nagoya, Japan)

Mina Suematsu (Nagoya University, Department of Education for Community-Oriented Medicine, Nagoya, Japan)

Kazumasa Uemura (Nagoya University, Clinical Training and Career Development Center, Nagoya, Japan)

**Background:** In the coming "Super-aging society", collaboration between medical professionals and health workers in home-care setting will be critical. Thus, undergraduate interprofessional education is important for the improvement of a collaborative mind and attitude. The purpose of this preliminary study is to investigate the effect of 2 professionals IPE for patients.

**Summary of Work:** We ran a 2 days IPE program for a 6th year medical student (Med) and a 2nd year rehabilitation student (PT) focused on collaboration for patients. We chose patients who have chronic diseases and problems in Activity in Daily Life (ADL). Two women aged 89 and 90 were recruited. Four times of groups discussion and 2 times of patient visits were occurred. They shared information and made the patient-centered care plan with recommendations. A month later, patients and families were interviewed and house condition was assessed. Then students home care plan was assessed.

**Summary of Results:** Students listened to patient and her families respectively with warm attitudes. Med student conducted physical examination and checked medicine adherence. PT student assessed housing condition and patient's movements to make their ADL better. They realized the differences among other professional roles and perceptions. For patient A, students lead patient to walk supportively and finally she could walked again. On the other hand, patient B's daughter considered for better patient care so that students' suggestion were not accepted.

**Discussion:** As a result, patient A showed marked improvement in ADL with listening attitude and empathy. However patient B did not. Students learned not only roles and perceptions of other professionals but also a sense of worth and an appreciation of the difficulty of patient-centered home-care.

**Conclusion:** Patient-need based IPE is very effective on patients, even though participants are 2 students.

**Take Home Messages:** IPE with small group can increase patients ADL remarkably.

#### #5CCo4 (135256)

##### The Educational Effect of an One Day Interprofessional Workshop Course "Mie-IPE": Final Reports of 7 Departments at 7 Universities.

**Michiko Goto\***, Mie University Graduate School of Medicine, Tsu, Japan

Hisashi Yoshimoto

Miwa Izuhara

Kazue Yoshida

Mayumi Tsujikawa

Yousuke Takemura

**Background:** We conducted a one day workshop (WS) course "Mie-Interprofessional Education (IPE)". The WS used an interdisciplinary team approach where student were given the opportunity to interact with health care students for making patient's care plan. As we only have two health care departments at Mie University, we collaborated with six universities to include seven kinds of health care students.

**Summary of Work:** WS were performed five times from 2013 to 2015, using three kinds of scenarios. Students were surveyed using two types of questionnaires: the Trait Emotional Intelligence (TEIQue) and the Readiness for Interprofessional Learning Scale (RIPLS) before the WS, immediately after the WS and six months post WS. Survey responses were analyzed using paired-t-tests.

Students were further interviewed about what they had learnt in these WS and their responses were analyzed qualitatively.

**Summary of Results:** The TEIQue showed significant differences in nursing students before and immediately after the WS ( $P=0.03$ ) and in medical students before and 6 months post the WS ( $P=0.05$ ). The RIPLS showed significant differences in nursing students ( $P=0.00$ ), pharmacy ( $P=0.00$ ), social work ( $P=0.05$ ), psychology ( $P=0.02$ ) students before and immediately after the WS. The effects of the WS continued for at least 6 month for them. We divided the interviews into eight categories: "Leadership styles", "Attitude toward team members", and others.

**Discussion:** These WS had a long term effect on nursing, pharmacy and social work students as preparatory education, and could be used to maintain the empathy of medical students. These students were able to learn a lot of skills necessary to collaboration. We showed that it is possible to implement IPE in collaboration with other universities, even if your university does not have many health care departments.

**Conclusion:** "Mie-IPE" was appropriate as preparatory education for IPE.

**Take Home Messages:** It is possible to make an one day WS course to improve IPE-related attitudes.

#5CC05 (133859)

**Learning about Delirium in a Simulated Clinical Environment: An Interprofessional Learning Intervention for Final Year Medical & Nursing Students**

*Debra Kiegaldie\*, Holmesglen Institute & Healthscope Hospitals, Melbourne, Australia*

**Background:** Delirium is a common, poorly recognised clinical problem. Effective management of delirium is contingent upon an interprofessional approach necessitating among other things, clear communication, effective teamwork, an understanding of the respective health care team members' roles and content that addresses practice-related gaps

**Summary of Work:** To address these objectives a Delirium Knowledge Test, an Interprofessional Learning Rating Scale (IPLRS) and a modified Reading for Interprofessional Learning Scale (M-RIPLS) were used. Post-test questionnaires determined the perceptions of the students about the intervention. Individual interviews were used to further explore students' perceptions of the experience.

**Summary of Results:** Results indicated that the IPL approach increased students' knowledge of delirium ( $p < 0.01$ ), increased students' ratings of how IPL influences effective interprofessional collaborative practice ( $p < 0.01$ ); improved nursing and medical students' knowledge and appreciation of each other's roles; developed attitudes of appreciation, trust and respect amongst the two professions; and increased students' confidence and perceptions of their personal development in interprofessional collaborative competencies.

**Discussion:** Five themes emerged; 1) development of interprofessional collaborative competencies, 2) improved clarity about the profile of an effective interprofessional learner 3) the equal value students place in learning about a clinical topic and learning about teamwork, 4) an authentic blended learning approach works best, and 5) large group IPL is possible but it takes a lot of work.

**Conclusion:** An IPL approach enhances learning about the collaborative management of delirium, where clear communication, effective teamwork and a mutual understanding of the respective health care team members' roles can enhance knowledge and practice gaps.

**Take Home Messages:** A change in attitude toward interprofessional collaborative practices prior to graduation is a good step towards improving the safety and quality of patient care.

#5CC06 (135107)

**Clinical IPE: Interprofessional education in a point-of-care setting**

*Mayumi Asahina\*, Chiba University School of Medicine, Chiba, Japan*

*Mariko Otsuka (Chiba University School of Nursing, Chiba, Japan)*

*Tomoko Majima (Chiba University School of Nursing, Chiba, Japan)*

*Yuko Sekine (Chiba University Faculty of Pharmaceutical Sciences, Chiba, Japan)*

*Schoichi Ito (Chiba University School of Medicine, Chiba, Japan)*

*Ikuko Sakai (Chiba University School of Nursing, Chiba, Japan)*

**Background:** Since 2007, the medical, pharmaceutical and nursing departments of Chiba University have conducted a compulsory four-step, structured interprofessional education (IPE) program delivered throughout 4 years of preclinical education. In 2013, we reported that the preclinical IPE program promotes students' interprofessional readiness and performance during clinical clerkships. To promote further interprofessional competence, we initiated an advanced IPE program in a point-of-care setting, Clinical IPE, aimed towards students who completed the preclinical IPE program.

**Summary of Work:** IPE teams ( $n=4$ ) consisting of a medical, a pharmaceutical and a nursing student, were assigned to the intensive care unit ( $n=2$ ) and the pediatric ward ( $n=2$ ). Interviews were conducted to evaluate students' perceptions of team collaboration and professional competence. Teachers and instructors were interviewed to evaluate the effects of the clinical IPE implementation.

**Summary of Results:** Initially, students noticed deficiencies in their professional knowledge and skills, which lead them to actively engage instructors and increased their overall effort to learn. Teachers and instructors expressed concern for students failing to achieve the traditional goals of the clerkship, but found that students collaborated well and had a positive impact on patient care.

**Discussion:** An important factor to facilitate point-of-care IPE was previous preclinical simulation-based IPE experience, yet the preparation and implementation a clinical IPE program in a traditional clinical clerkship system is complex and challenging.

**Conclusion:** Clinical IPE had a larger positive impact on students' contributions to patient care and professional role expectations than in non-interprofessional clerkships. Teachers and instructors felt increased student engagement in patient care and more active self-directed learning.

**Take Home Messages:** Clinical IPE promotes professional identity formation and more active involvement in patient care among students of the health professions students.



#5CC07 (134834)

# **An interprofessional Virtual Patient model for students in primary health care**

*Helena Salminen\*, Karolinska Institutet, Stockholm, Sweden*

*Tran Carrie*

*Kaila Päivi*

*Fors Uno*

**Background:** How can students learn with, from and about each other by working with interprofessional virtual patients (VPs)? Learning in diverse structures as primary health care (PHC) may be facilitated by e-learning. The aim of the project was to create an interprofessional VP model for students in PHC.

**Summary of Work:** Our interprofessional VP case was placed in an authentic setting, based on a real patient who needs care in his home. Health care students from five different programmes contribute with their competences and skills in a safe environment. The system used for construction of the Vp cases was BSAsim. The system gave the students possibility to formulate their own learning goals in free text. They could go backwards and forwards in the system. Short films where different care providers visited the patient at home were produced.

**Summary of Results:** The interprofessional VP model had repeated learning cycles with inventories of students' own learning needs, concrete experiences such as films, teachers' comments and students' reflections and clinical reasoning. In every part of the learning cycle, the students interacted with students from the other professions. The students received as feedback pre-formulated comments from teachers. At the end, the students planned together for the future care of the patient.

**Discussion:** This interprofessional VP model was based on a VP model for PHC by Salminen et al. The iterated learning cycles were easy to adapt to an interprofessional VP model where students can interact with each other interprofessionally and learn from a complex patient case in PHC.

**Conclusion:** Interprofessional VPs seem to be a promising way to support students' learning from with and about each other in diverse structures such as PHC.

**Take Home Messages:** Interprofessional VPs may contribute to solve some of the logistic problems with IPE in PHC.

#5CC08 (134072)

# **Promoting interprofessional education with health-care matrix curriculum through accurate problem list of electronic health records**

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*Niann-Tzzy Dai, Division of Plastic Surgery, Tri-Service General Hospital, Taiwan, ROC*

*Chia-Cheng Lee, Division of Colonic Surgery, Tri-Service General Hospital, Taiwan, ROC*

*Mei-Chuen Wang, Tri-Service General Hospital, Department of Medical Record, Taiwan, ROC*

*Shyi-Gen Chen, Division of Plastic Surgery, Tri-Service General Hospital, Taiwan, ROC*

**Background:** Interprofessional collaborative patient-centered care is naturally important for optical healthcare outcomes under a digital uprising. To assess the utility of electronic health records (EHR) carrying active problem list in health-care matrix (HCM), these provide a frame for clinicians and teams to improve care of patients and core competencies for interprofessional education (IPE).

**Summary of Work:** HCM conference is held monthly as part of interprofessional education. Residents choose cases and develop a flow matrix under faculty supervision and multidisciplinary group discussion. The matrix is presented after reviewing accurate problem list specially designed by Mr Hsu (Microsoft Certified Professional Developer), and consensus action proposal is produced after discussion. Approximately two years after initiation of the program, 148 participants completed an identified survey of efficient and effective primary care.

**Summary of Results:** Among the 148 participant students in IPE during HCM curriculum, 20 of them (15%) were graduate students; 51 of them (34%) are clinical doctors; 77 of them (49%) are clinical nurses. Mean score of satisfaction ( $P < 0.005$ ) and intention to applying accurate problem list ( $P < 0.001$ ) in graduate students were significantly higher than clinical doctors and nurses. The majority of graduate students were very satisfied (56.2%) and willing to use active problem list (79%) with an overall mean of 4.47/5.0 and 4.79/5.0 respectively. Most participants declared that using the problem list in HCM curriculum through IPE could improve participant performance ( $P < 0.001$ ).

**Discussion:** This report highlights the importance of EHRs, which provides easier problem list maintenance and accessible online medical records to gain a updated information of diagnosis and treatment strategies in HCM for IPE.

**Conclusion:** We propose that accurate problem list form the natural continuation of learning, teaching and service with a hope to stimulate the development of IPE as part of HCM.

**Take Home Messages:** Our results show that integration of IPE with online accurate problem list can be an effective innovation in HCM curriculum including the best clinical decision making available and

guarantees that our patients receive the best level of care.

#### #5CC09 (133003)

**An inter-professional e-learning tool preparing students for the operating room ward**

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Charlotta Olivecrona, Department of Clinical Science and Education, Karolinska Institutet, and Department of Orthopedics, Södersjukhuset, Stockholm, Sweden  
Anders Sonden, Department of Clinical Science and Education, Karolinska Institutet and Department of Surgery, Södersjukhuset, Stockholm, Sweden

**Background:** Every semester the Operating room (OR) ward receives several students from different medical education programs (nurse-, OR nurses-, anesthetic nurses- and medical students). The OR is different from other hospital wards and often students have no OR experience before their clinical training at the OR. Our aim was to develop an inter-professional learning artifact that can be used to improve student preparedness for clinical practices at the OR.

**Summary of Work:** Faculty members from the specialist nurse- and the medical programs were set to identify which learning objectives (knowledge and skills) that were needed to prepare students for the OR and common for the different programs. An e-learning tool was developed using Articulate Storyline® software.

**Summary of Results:** An inter-professional interactive e-learning course was created. All essential learning objectives, for the different student categories, could be covered by the course. Most objectives were concluded to be general why only a few were specified for a specific student category within the program. The course, given through the learning platform Ping-Pong, consisted of both theoretical and practical learning elements; recorded lectures of how the OR is organized and knowledge about the different professions represented at the OR, and movies aiming to prepare the students how they should perform practical skills e.g. preoperative hand hygiene.

**Discussion:** Although preparedness for clinical practice at the OR is considered an important factor for student learning ways to enhance preparedness is poorly described. Student categories are commonly prepared separately, due to tradition and logistics. Our inter-professional e-learning program may be an effective way to increase preparedness to the OR, at the same time enlarging student awareness about the professionals responsibilities at the ward.

**Conclusion:** Inter-professional interactive e-learning tools preparing students for the clinical training at the OR can be created.

**Take Home Messages:** An inter-professional approach should be considered when developing learning tools for clinical practice.

#### #5CC10 (135195)

**Lasting impact of final-year interprofessional education (IPE) on medical students after two years of clinical experience**

**Kumiko Yamaguchi\***, Tokyo Medical and Dental University (TMDU), Tokyo, Japan

Chiharu Kawakami

Yuko Segawa

Mina Nakagawa

Jun Tsuruta

Kazuki Takada

**Background:** Interprofessional education (IPE) is essential for providing good health care service to patients.

**Summary of Work:** Using a case with systemic, oral, and social issues, 241 final year students from schools of medicine, nursing science, medical technology, dentistry and oral health care, 73 of them medical students, participated in a two-day-long case-based IPE program. This multifaceted case was prepared to promote and require active participation of all students during the mixed-small-group discussions, and lectures that were included in the program. Questionnaires were administered pre- and post-program to analyze students' impressions, and a focus group interview was performed with five students after completion of two years of clinical experience. The results were analyzed quantitatively and qualitatively.

**Summary of Results:** According to questionnaire results, students felt that going into the program they already had an understanding of the importance of inter-professional collaboration, but did not fully comprehend the roles or views of other professionals. From the post-course interview, it became obvious their impressions concerning this were strong enough to persist over two years. Some doctors mentioned learning the importance of discussing a patient case with several different kinds of health care professional to achieve a broader understanding of patient care from a social and well as medical viewpoint.

**Discussion:** Through this program they were able to learn about the roles or views of other professionals, and were impressed by the differences among the professions. In addition, through such a discussion they experienced how to combine information from each field, and use this during clinical practice.

**Conclusion:** A two-day-long IPE program affected the views and attitudes of medical doctors. Case based discussion is thought to be the most useful program in order to understand the differences between professions.

**Take Home Messages:** An IPE case based discussion is useful to broaden the attitudes and views of medical doctors.

#5CC11 (135798)

## Interprofessional Learning in the Clinical Setting

**Cecilia Wredberg\***, CLINTEC, Stockholm, Sweden

Tina Pettersson

Ann Kjellin

**Background:** Interprofessional Learning in the Clinical Setting Interprofessional learning (IPL) activities are often logistically time and resource consuming. In the Swedish medical education system with short (in general 1 week/ward) clinical rotations it is difficult to provide an optimum setting for IPL in clinical settings. This creates a gap in opportunities for a more imperative competency-based training. As the educational learning environment at our surgical ward was unsatisfying a new concept was necessary.

**Summary of Work:** In order to provide an IPL learning environment, medical students during their seventh semester (surgical) were placed in a student team together with student nurses, working with junior and senior consultants and nurses in the ordinary ward-team constellation. The students were to function as junior doctors under supervision. This includes preparing for and leading the rounds, being responsible for all contacts with other consultants, referrals etc. The weekly schedule also included preparing for clinical seminars.

**Summary of Results:** The students perceived the learning environment as highly interactive and provided a sense of medical care professional ownership that facilitated medical education.

**Discussion:** The benefit of this project is that the students are naturally included and are important participants in a community of practice which facilitates professional development and clinical skills training.

**Conclusion:** The change of structure was generated at a very low cost – in comparison with traditional student run clinics. The concept is planned for implementation at other wards and is continuously evaluated.

**Take Home Messages:** Integration and participation in community of practice facilitates interprofessional learning and professional development in authentic clinical settings at a low cost.

#5CC12 (133205)

## Innovating curricula with interprofessional teamwork in medical education- Interprofessional Summerschool 2014

**Ann-Katrin Brockert\***, AIXTRA, Aachen, Germany

Hanna Schröder (AIXTRA/ UK, Aachen, Germany)

Andrea Rietfort (AIXTRA, Aachen, Germany)

Lina Stieger (AIXTRA, Aachen, Germany)

Sasa Sopka (AIXTRA/ UK, Aachen, Germany)

**Background:** Interprofessional teamwork is one of the most important whereas most difficult challenges in our daily clinical routine. A good working interprofessional faculty reduces medical errors throughout communication, support and complementation and therefore improves health care. At our Interdisciplinary Training Center for Medical Education (AIXTRA) we initiated an interprofessional summerschool as pilot project for interprofessional teamwork right at the beginning of their medical careers.

**Summary of Work:** The interprofessional summerschool took one week and was provided for 23 students from different health professions including students from the departments of medicine, nursery, logopedics and physical therapy. The curriculum was focused on communication, teamwork and skill training, likewise giving an understanding for the various professional roles. We set our project into the clinical scenario of an intensive care unit where all health professionals encounter each other and supported the scenery with simulating, standardized patients and video feedback.

**Summary of Results:** To evaluate our project we conducted a demand analysis pre and post evaluation. The results indicated great interest in interprofessional education (91.9%) and only sparse contact to other health professions in prior academic education: 56.1% had at least one experience in working with another profession. The students graded our project with high impact for their future carriers (see figure I.) and interest in continued projects (100%). Subjectively they profited from our sessions (see figure II.).

**Discussion:** We need to solve problems like addressing a larger audience and coordinating their schedules which was already a problem in our small cohort. Also we should think about different types of evaluation for our modules.

**Conclusion:** Our Summerschool has been a first step to implement interprofessional teamwork and education into the academic curricula and has to be extended.

**Take Home Messages:** Interprofessional teamwork improves health care and patient security and creates a higher satisfaction in each team member. Therefore it should be implemented into the different medical curricula.

#5CC13 (134701)

**Nurse shadowing program for 6th year medical students in a training ward**

**Wen-Lin Lo\***, *Buddhist Tzuchi General Hospital, Hualien, Taiwan*

*Yan-Guang Lin (Buddhist Tzuchi General Hospital, Hualien, Taiwan)*

*Yu-Jen Pan (Buddhist Tzuchi General Hospital, Hualien, Taiwan)*

*Ming-Chen Hsieh (Buddhist Tzuchi General Hospital, Hualien, Taiwan)*

**Background:** Collaboration between various healthcare professionals (HCP) is important for better patient outcomes. Among all, physicians and nurses are the central members of the healthcare provider team. However, studies have shown that the interaction between medical students and nurses to be suboptimal. Most interprofessional education for medical students is implemented during the early years of undergraduate curricula. In order to address this gap in medical education, our department initiated a nurse shadowing program for 6th year medical students in a training ward in Taiwan.

**Summary of Work:** During the four weeks rotation in a training ward in internal general medicine, 6th year medical students were assigned to nurse facilitators where they were required to shadow assigned nurses for one day. They were exempted from their clinical rotation for one day. While the medical students joined the nursing routine, they were also instructed to actively observe clinical interaction with patients, physicians and other HCPs. Pre and postprogram survey on medical students' attitudes, knowledge and reaction were collected. In addition, a semi-structured interview was conducted followed by thematic content analysis.

**Summary of Results:** Students rated highly of the program and recommended implementation of the program at different wards such as surgery and intensive care unit. Themes emerged from the interviews included roles of the nurses, teamwork, and empathy.

**Discussion:** Although medical students were aware of the roles and responsibility of the nurses during interaction in the ward, their view on the perception of the roles of nurses changed after the program. They witnessed the contribution of nursing in patient care. Students' empathy towards nurses and patients also increased after having more time and exposure for interaction.

**Conclusion:** Implementation of the nurse shadowing program for medical students has received positive feedback when delivered in the clinical setting

**Take Home Messages:** Nurse shadowing program could be a start in implementation of interprofessional education in the clinical setting.

#5CC14 (135198)

**Exploring medical students' early experiences with the multidisciplinary team (MDT) at Barts and the London Medical School**

**James Ainsworth\***, *Barts and the London School of Medicine and Dentistry, London, UK*

*Celia Woolf (Barts, London, UK)*

*Maria Hayfron-Benjamin (Barts, London, UK)*

**Background:** Part of a doctor's professional role requires an understanding and respect for the multiple professions involved in patient care (1, 2, 3). Interprofessional collaboration is an essential aspect of a doctor's role, and medical schools seek to prepare students for this (4). At Barts and the London year 2 MBBS students shadow a number of healthcare professionals on their Medicine in Society (MedSoc) clinical attachment, they write a brief reflective report on three of these encounters.

**Summary of Work:** The initial phase of this project involved a thematic analysis of 50 reflective reports. Key themes were identified and these themes were explored further in focus groups. The focus group data was transcribed and analysed using Nvivo software to code and organise.

**Summary of Results:** Students interacted with a wide variety of health professionals, developing awareness of interprofessional teamwork, and of the different roles involved in patient care. They lacked confidence in approaching other members of the team.

**Discussion:** Year 2 students gain more benefit when they are given some help in organising/setting up shadowing experiences. Where students see the MDT working closely together they feel more comfortable approaching and learning from other members within the team.

**Conclusion:** Students feel more comfortable approaching and learning from those who are actively involved in working and communicating with them and their team throughout their placement. It is important that opportunities for the students to shadow other professions are encouraged and supported as students find it challenging approaching and initiating these encounters themselves.

**Take Home Messages:** Students can find it challenging to set up meetings with members within the MDT and learning is enhanced when it is organised for them. Doctors need to role model good interprofessional communication and collaboration within the workplace, good interprofessional team-working enhances students learning.



#5CC15 (135286)

**Interdisciplinary team based learning for medical students**

*Ittichai Sakarunchai\*, Faculty of Medicine, Prince of Songkla University, Hatyai, Songkhla, Thailand  
Sanguansin Ratanalert  
Anukoon Krewborisutsakul.*

**Background:** Interdisciplinary team approach to patient care improves safety and outcomes for patient. The World Health Organization emphasized the need for medical student to learn how to deliver safe care. Meaningful method is learning by “doing” in clinical care supported by health care team.

**Summary of Work:** The curriculum was integrated into routine interdisciplinary round which takes place every Tuesday noon at trauma ward. The interdisciplinary team includes neurosurgeons, trauma surgeons, ward nurses, rehabilitation team and social workers. After orientation, medical students play an active role by 1. Studying one designed multiple injuries patient, 2. Students presented patient’s problems and lead team to discuss. 3. Team members discussed and responded the problems. 4. Students reflect on their learning and implications for their future practice 5. Team and student summarize their learning.

**Summary of Results:** During July 2015 to January 2016, 11 groups of 65 students joined the activities. Students learnt how team responded to patients’ needs, how to prevent risks and how collaboration the team did for the benefit of patients. Other students’ perspectives on team activity were : 1. Team understand patient need 81% 2. Good collaboration among team member 89% 3. Each discipline understand their role 88% 4. Team concerns patient safety 89% 5. Patients and relatives are part of the team 88%.

**Discussion:** Medical students will get insight the role of interdisciplinary team in providing quality and safety in patient care.

**Conclusion:** Effective interdisciplinary team will help students learn how to collaboratively approach for quality and safe care.

**Take Home Messages:** Future doctors can be “collaboration practice ready” by interdisciplinary team based learning.

#5CC16 (132473)

**The use of an educational model for structured demonstration of interprofessional practice in outpatients clinics**

*Jorge Las Heras\*, Universidad Autonoma de Chile, Santiago, Chile*

*Jaime Torrealba, Universidad Autonoma de Chile, Santiago, Chile*

*Monica Urzua, Universidad Autonoma de Chile, Santiago Chile*

**Background:** The lack of formal clinical roles and relatively peripheral involvement of clinical students in outpatients centers have lead to insufficient opportunities for learning of interprofessional interaction. We developed a student centered educational model based on transversal teaching, continuing education and social responsibility to help in the developing of interprofessional skills.

**Summary of Work:** Experiential learning within the presented model allows students to experience diversity of health care demands, and promote a model of interprofessional service delivery in communities where health care professions are underrepresented. Person centered care, health promotion, principles of collaboration and teamwork were our frame work.

**Summary of Results:** A range of evaluation strategies seek to investigate outcomes and refine the model exploring perspectives from the student, educators and in-country partners. An analysis of outcomes with respect to interprofessional learning, cultural competence and impact in local communities will be presented.

**Discussion:** This study forms part of an ongoing multi-phase pilot project. Results on appropriateness of the interprofessional interaction will be included in the poster presentation.

**Conclusion:** Experiential learning within the presented model allows students to experience diversity of health care demands, and promote a model of interprofessional service.

**Take Home Messages:** Interprofessional learning can be challenging. Success requires students and educators preparation an ongoing facilitation.

#5CC17 (133713)

**Evaluation of multidisciplinary InterProfessional Education (IPE) workshop for final-year students - Lack of self-affirmation could be a limiting factor for IPE**

**Chiharu Kawakami\***, *St. Luke's International University, Tokyo, Japan*

*Kumiko Yamaguchi (Tokyo Medical and Dental University, Tokyo, Japan)*

*Mina Nakagawa (Tokyo Medical and Dental University, Tokyo, JAPAN)*

*Yuko Segawa (Tokyo Medical and Dental University, Tokyo, Japan)*

*Jun Tsuruta (Tokyo Medical and Dental University, Tokyo, Japan)*

*Kazuki Takada (Tokyo Medical and Dental University, Tokyo, Japan)*

**Background:** An aging society requires coordinated and collaborative care between nurses, doctors, dentists and other health care professionals. Consequently, undergraduate curricula of those professions should provide opportunities for students to acquire the competencies necessary for provision of such care. In 2012, we started a multidisciplinary IPE workshop for final-year students across health professions. The present study was undertaken to investigate factors, which influence student satisfaction of IPE workshops.

**Summary of Work:** A total of 315 final-year students from seven schools for health professions participated in a two-day-long case-based IPE workshop. A case that had systemic, oral, and social issues was prepared in order to promote and require active participation of all students in mixed-small-group discussions. All students answered the post-participation questionnaires. The results were analyzed quantitatively and qualitatively.

**Summary of Results:** Two hundred ninety six students (93.9%) answered that the learning content was appropriate and useful. However, 18 students answered in the negative. The ratio varied among the professionals. Fourteen students of medicine (17.3%), two students of medical technology (5%), and two students of health engineering (14.3%) rated this workshop negatively. Analysis of their comments revealed a main theme of "lack of self-affirmation".

**Discussion:** Some student felt a shortage of knowledge in their profession, other students felt a shortage of leadership to be able to advance the discussion. In addition, a few students thought their profession could not make a contribution to the patients' care.

**Conclusion:** Final-year case-based multidisciplinary IPE workshops may effectively help students acquire the IPE competencies. Cultivating self-affirmation within a profession prior to the IPE workshop would be necessary for better learning.

**Take Home Messages:** Self-affirmation as a professional would be necessary for better learning at IPE workshops.

## 5DD Posters: Professionalism and Professional Identity

Location:

#5DD01 (133104)

**Encouraging Medical Student Professionalism Discipline by feedback from Standardized Patient as Long Case Assessor**

*Kalyanee Asanasak\*, Medical education center Songkhla hospital, Muang, Thailand  
Anyamanee Silprasit*

**Background:** Assessing medical student professionalism is one of difficult task in medical education. Even though a lot of effort have been used in establish teaching and learning professionalism , but evaluation seems to be neglected. Since long case examination give a precious opportunity for any medical teacher to be able to provide direct and individualize observation and evaluataion thoroughly towards medical student performance. Standardized Patients also encountered the medical students during the long case examination. And their opinion towards the students might be worth taken as scores in order to complete performance evaluation.

**Summary of Work:** During Pediatric long case examination , a pilot study using standardized patients' opinion towards the medical student's professionalism were performed and their opinion and scoring were observed and determined. 30% of standardized patients scoring about their appreciation towards the students were included in 2 of 5 aspects of scoring assessment. Each of 10 standardized patients scoring was compared with the scoring given from the medical teacher. And standardized patients were interviewed about their opinion afterward.

**Summary of Results:** The result in scoring of long case examination showed that the scoring from SP showed no difference in each student and cannot distinguish each students performance. But the SP indepth opinion towards medical student were more worth taken for professionalism feedback for each students.

**Discussion:** SP have shown their capability as an professionalism assessor for OSCE. But in long case examination, the SP tend to face difficulty in scoring. They could not make definite judge as scores to medical student behaviour because of their empathy towards the medical student. However their opinion towards each student from indepth-interview is worth taken for the professionalism discipline.

**Conclusion:** Long case assessment form should have some footnote for SP opinion. Or SP should provide feedback to medical student either directly or indirectly after examination finished,

**Take Home Messages:** SP opinion during long case examination is worth to be taken as professionalism discipline.

#5DD02 (134507)

**Parents' assessment of 6th year medical students' professionalism**

*Nipaporn Hanpitakpong\*, Buddhachinaraj medical education center, Phitsanuloke, Thailand  
Kosa Sudhorm*

**Background:** One important problem in the assessment of teaching medical professionalism is that the parents of pediatric patients do not involve in evaluating the medical students. The objective of this study was to assess medical professionalism of the 6th year medical students while taking a long case examination.

**Summary of Work:** This research is a descriptive study. The subjects were 45 6th year medical students. The data were collected from five-points Likert scale assessment form in 2015. The 6th year medical students were assessed by the parents of pediatric patients. The data were analyzed by using mean, median, and standard deviation.

**Summary of Results:** The parents thought that all aspects in the assessment form are very good. The aspect regarding the way the students act to the parents with respect and dignity was rated at the highest score ( $4.67 \pm 0.52$ ). However, the empathy and understanding of the feelings of the parents was rated at the lowest score ( $4.34 \pm 0.62$ ). Overall satisfaction level was 86.4%.

**Discussion:** The way the students act to the parents with respect and dignity shows the highest score. This is because these students already took the course on dignity and autonomy. The empathy and understanding of the feelings of the parents shows the lowest score. This is because the time for physical examination was very limited. Therefore, some students might rush to diagnose the disease and pay less attention to this aspect.

**Conclusion:** Generally, parents rated the 6th year medical students' professionalism at a good level.

**Take Home Messages:** Medical professionalism should be done in every situation, even in the examination, not only in classroom.

#5DD03 (135369)

**Attitudes to Professionalism and Academic Integrity among Medical Students – is the landscape changing?**

*Suleman Patel\*, Barts and the London School of Medicine and Dentistry, London, UK*

*Maralyn Druce*

*Kathryn Livingston*

**Background:** The Dundee Polyprofessionalism Inventory I: Academic integrity is a tool that can be used to understand how cohorts of medical professionals view particular lapses in professionalism. This tool has been used in international settings and has also been administered to a previous cohort of staff and students at Barts and the London School of Medicine and Dentistry. This study aims to repeat the Dundee Polyprofessionalism Inventory I: Academic integrity at this school with some modifications to gather additional demographic data. Items from a professionalism survey used by the GMC have also been added for comparison against the national response.

**Summary of Work:** The Dundee Polyprofessionalism Inventory I: Academic integrity requires the user to recommend appropriate sanctions for a first time offence with no mitigating circumstances. The items in the inventory address professionalism in the domain of academic integrity e.g. cheating in exams. Additional items from a GMC survey have been added to include scenarios in a clinical setting. The survey was administered to all dental and medical students at the school.

**Summary of Results:** The data from this study provided a snapshot of the current attitudes of medical and dental students towards professionalism. As well as comparing the results with that of the previous cohort the data also allowed for comparisons between different years of study (e.g. clinical vs. non-clinical) and between dental students and medical students of the same school.

**Discussion:** Although there are areas of congruence between the different groups of comparison in the study when considering the acceptability of lapses in academic professionalism, there are slight differences in the severity of sanctions recommended.

**Conclusion:** The data from the study maps professional 'norms' of students within a single medical school and identifies areas of poor understanding of appropriate professional behaviour.

**Take Home Messages:** The conclusions drawn from the study can help further develop education around issues of professionalism in medical school.

#5DD04 (133411)

**A Comprehensive and Compulsory Educational Program that Develops Professionalism for Medical Students Prior to Clinical Training in Japan**

*Michito Hirakata\*, Keio University School of Medicine, Tokyo, Japan*

*Toshiaki Monkawa*

*Hidekazu Suzuki*

*Rika Nakajima*

*Kuniaki Mukai*

*James C. Thomas*

**Background:** Professionalism is an essential core competency for medical students and physicians, but a valid curriculum for teaching this important proficiency has not been established due to its subjective nature. To bring a humanistic focus to medicine and emphasize the professional behavior of our medical students, White Coat Ceremonies (WCC) have been performed in our school since 2006.

**Summary of Work:** To enhance medical professionalism and introduce our 4th year students to their responsibilities to patients, we have developed a comprehensive and compulsory curriculum called the "Medical Professionalism (MeP) IV." This program consists of five main components; (1) principles of medical ethics, (2) perception of "Good Doctors," (3) medical communication, (4) inter-professional education, (5) clinical research ethics. Students are encouraged to examine charters, principles of medical ethics & professionalism, and discuss key issues regarding "What is a Good Doctor?" in groups, linked to creating a student-authored-oath which is declared at their own WCC.

**Summary of Results:** Through the MeP IV curriculum, our students shared their experiences and ideas on the principle attributes, and society's needs for good physicians, and listed the important attributes of good doctors as: clinical competence, communication skills, and compassion.

**Discussion:** Students are encouraged to develop competencies of professionalism and humanism by building on their dedication to the fundamental ethical principles of medicine; beneficence, respect for patient autonomy, and justice.

**Conclusion:** The MeP IV curriculum, linked to the WCC, is a valuable opportunity for medical students to reaffirm their dedication to the compassionate and ethical care of patients and encourages professionalism and humanism in clinical medicine.

**Take Home Messages:** Through the MeP IV, our students were highly motivated and developed their aspirations and commitment to Medical Professionalism.



#5DD05 (134626)

**Medical Professionalism: Enduring but Evolving**

*Naveed Khan\*, King's College London, London, UK*  
*Katherine Stambolliouian (King's College London, London, UK)*  
*Samir Zaman (King's College London, London, UK)*

**Background:** The doctor-patient relationship is unique, and with many expectations. Doctors are to be trustworthy, competent, and respectful, patients expected to synthesise information and use it to make life decisions. The consultation involves a negotiation between both, though this was not always the case. The role of the doctor continues to evolve, with additions from health reforms, advances in clinical research, and societal changes. These changes have implications for what medical professionalism involves. As medical students, professionalism in practice appears to be disparate and not always obviously responsive to advances in medical science or policies, such as public participation.

**Summary of Work:** To better understand medical professionalism, how to recognise it, and how it might be taught, we undertook a literature review through the Web of Science journal. We used key terms including “professional identity” and “medical education”, we examined high-impact academic and regulatory publications, then identified and analysed key themes.

**Summary of Results:** Swick (2000) argues that the concept incorporates too many complexities - resisting a simple definition. We identified commonly held descriptions of medical professionals and some less frequently used descriptors. Different definitions appeared to reflect the perspectives of particular stakeholders e.g. regulatory bodies.

**Discussion:** Medical professionalism is dynamic, entailing a wide range of responsibilities. Which definition should medical students and physicians adopt?

**Conclusion:** We suggest a broad, but comprehensive definition of medical professionalism. Characteristics are framed under three headings: • Attributes such as altruism, caring, respectful. • Disposition such as trustworthy, reflector, patient-centred approach, moral, fair. • Skills such as teamwork, leader, scholar, patient rapport.

**Take Home Messages:** Defining professionalism is not simple. The overlap of common themes helps put together a “model” of medical professionalism. Medical education curricula have to date not kept up with the advances in professionalism to provide relevant teaching. The literature and our experience suggests improvement and that more teaching in this area is needed.

#5DD06 (132467)

**Physicians' HEART: A comprehensive program for developing professionalism in medicine for medical students at Shantou University Medical College, China**

*Zhanqin Huang\*, Shantou University Medical College, Shantou, China*  
*Mianhua Yang*  
*Changmin Lin*  
*Guanhua Fan*  
*Frieda Law*  
*Junhui Bian*

**Background:** The crisis of trust between doctors and patients in China grows more apparent. We believe that this crisis is due to ineffectiveness of medical professionalism education in China.

**Summary of Work:** We developed a comprehensive program including formal and informal curriculum for developing professionalism for students based on the theme of Physicians' HEART, in which the values of humanity(H), empathy(E), art of medicine(A), respect(R) and teamwork(T). Multiple methods for assessment of professionalism and formative evaluations were used in the program.

**Summary of Results:** Results of post-service learning surveys 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.

**Discussion:** In the formal curriculum, students learned to understand the values of physicians' HEART and how to deal with dilemma in professionalism. In the informal curriculum, the students learned to apply those lessons in their clinical encounters with their patients and explore strategies for how to have end-of-life discussions.

**Conclusion:** The Physicians' HEART program did not only help medical students develop medical professionalism at SUMC, but also could serve as a model for effectively developing professionalism in medicine for medical students in China.

**Take Home Messages:** 1. Physicians' HEART, in which the values of humanity(H), empathy(E), art of medicine(A), respect(R) and teamwork(T) is the theme of professionalism in medicine. 2. Comprehensive educational program including formal and informal curriculum help to educating medical professionalism. 3. Developing a valid and reliable assessment of medical professionalism is very important. Evaluations should be as formative as possible; that is, they should all provide specific feedback so that learners and faculty can improve.

#5DD07 (134198)

**Medical Students' Interpretations of Derogatory Comments about Patients and Other Professionals**

**Sara Tariq\***, University of Arkansas for Medical Sciences, Little Rock, USA

Carol Thrush, UAMS, Little Rock, USA

Molly Gathright, UAMS, Little Rock, USA

John Spollen, UAMS, Little Rock, USA

James Graham, UAMS, Little Rock, USA

Jeannette Shorey, UAMS, Little Rock, USA

**Background:** To assess the learning environment at our medical school, third-year medical students complete an 11-item survey called the Learning Environment for Professionalism (LEP) at the end of each clerkship. The LEP survey asks about the frequency of faculty and resident professional and unprofessional behaviors that students observed; two of the items specifically address derogatory comments. This study used focus group methodology to explore how medical students interpret the derogatory comments they reported on the LEP survey.

**Summary of Work:** Seven focus groups were conducted with 82 medical students after they completed the LEP survey. Analysis of focus group transcripts was performed to better understand the nature and meaning that students ascribe to derogatory comments.

**Summary of Results:** The study results provide insights into the types of derogatory comments that medical students heard during their clerkship rotations, why the comments were made and how they were interpreted. Emergent themes, labeled by the authors as: 1) "onstage-offstage" 2) "one bad apple" and 3) "pressure cooker environment" highlight the contextual aspects and understandings ascribed by students to the derogatory comments. Incidentally, students felt that the comments were not associated with fatigue, but more associated with cumulative stress and burn-out.

**Discussion:** The results suggest students have a clear understanding of the nature of unprofessional comments made by role models during clerkships and point to important systems-related issues that could be leveraged to improve clinical learning

**Conclusion:** Students have an accurate perception of unprofessional comments and understand the nuances that define the learning environment.

**Take Home Messages:** Academic institutions who are striving to improve the learning environment should seek student input as they try to improve institutional culture.

#5DD08 (133296)

**A study of Professional Identity formation in Clinical Debrief sessions**

Rebecca Farrington\* (University of Manchester, UK)

Daisy Walters (University of Manchester, UK)

**Background:** At the end of their training we expect medical students to feel and act like a doctor, but the often complex and emotional process of self-reflection required to assume this role is not always explicit to them. We have developed Clinical Debrief (CD) small group sessions in our undergraduate course totaling 16 hours. Students reflect upon their own recent clinical learning experiences and dilemmas. Communication and behaviour is described in terms that reference professionalism. Trained GP tutors facilitate the sessions. They provide continuity of supervision and encourage self-awareness and respectful challenge. A doctor's role and their social contract [1] are debated using lay perceptions and coverage from the media of hot topics. A holistic view of the patient journey is undertaken whilst exploring the emotional challenges for the patient, medical professional and student.

**Summary of Work:** A questionnaire was completed at a single point when half of the sample had undertaken CD. Results between those who had and had not yet experienced this group work were compared.

**Summary of Results:** This study measures the professional identity formation of medical students, using a validated questionnaire. Results of the study will be presented and discussed on the poster with reference to contemporary literature.

**Discussion:** This work will be used to inform the content of sessions for the planned future expansion of the model.

**Conclusion:** This project explores professional identity formation using clinical supervision in an undergraduate medical course. It evaluates the impact of facilitated sessions where the wellbeing of clinical students is considered in parallel with their understanding of real clinical experiences and demonstration of professionalism.

**Take Home Messages:** Clinical supervision early in a medical students career can stimulate discussion with peers and supervisors and support professional identity formation.

#5DD09 (134297)

**Diagnosis of the level of moral and ethical responsibility of the interns**

*Liudmila Kovalenko\*, Surgut State University Medical Institute, Surgut, Russia*  
*Elena Kovalenko*

**Background:** One of the most actual issues of medical education is professional, personal and social development of interns. Diagnosis of the level of moral and ethical responsibility of interns allows us to analyze the formation of moral responsibility on the cognitive level of social responsibility.

**Summary of Work:** The purpose of research is the analysis of the components of the moral and ethical responsibility of the medical school interns. These include: a reflection on the moral and ethical situation, intuition in moral and ethical sphere, the existential aspect of responsibility, altruistic emotions, moral and ethical values. The diagnosis is based on a methodology for subjective difficulties by D.A.Leonteva, Marlowe-Crown technique and the scale of social responsibility by K.K.Muzdybaeva. The study involved 197 interns. The group consisted of 44 male respondents (22%) and 153 (78%) female respondents. The interns of 25 specialties took part in the research.

**Summary of Results:** Analysis and interpretation of the data showed levels of formation of moral and ethical responsibility among first year interns: high - 10%; medium - 33%; low - 57%. Second year interns showed the following levels of moral and ethical responsibility: high - 15%; medium - 40%; low - 45%.

**Discussion:** Making a comparative analysis we can conclude that the level of moral and ethical responsibility of the second year interns increased during the educational process in comparison with the first year interns' level. 12.5% of the first and second year interns showed the high level.

**Conclusion:** The results revealed a problem area in the formation of moral and ethical responsibility.

**Take Home Messages:** As a part of the solution of identified problem the discipline program "Social and psychological bases of professional work" was created.

#5DD10 (132480)

**The study of Person-organization fit on medical professionalism among attending physicians**

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*Chung-jen Wei*

**Background:** Medical students begin their socialization process since they start their clinical training. Students' evaluation on empathy seem declining because of their personal and environmental reasons, even though medical educators manage to shape medical students' medical professionalism through building up students' professional identity before clinical training. At the setting, students might suffer themselves from their true identity (super ego) and organizational norms. What is the untold organizational value? This study is therefore aimed to discover the content of medical professionalism and the gap of it between physicians and hospitals.

**Summary of Work:** Study target is set as attending physicians in three major hospitals in northern Taiwan. This study utilizes self-devised instrument to measure respondents' personal evaluation (ideal) on medical professionalism and how they perceive their hospitals emphasis (real) on these items. Polynomial regression is adapted to analyze three-dimension association among ideal value, real value, and intention to stay.

**Summary of Results:** Two hundred physicians complete questionnaires. Results show respondents report high in their evaluation on ideal medical professionalism rather than on how hospitals emphasis on those items. There are minor gap between ideal and real evaluation on medical professionalism among senior physicians. Polynomial regression analysis reveals that the bigger gap between ideal and real evaluation the more likely to quit from their current working hospitals.

**Discussion:** The hidden curriculum is one of the most important lessons to medical students. We are eager to know the content of organizational value so that we could teach our students how to choose appropriate clinical setting and adapt well in the future.

**Conclusion:** This study suggests the poor person-organization fit could lead to lower intention to stay, especially for younger physicians.

**Take Home Messages:** In order to enhance the value congruence between physicians and hospitals, medical educators could emphasize on the minimizing the gap between personal and organizational value disagreement.

#5DD11 (134858)

## Hospital residents facing medical professionalism

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Guillermo Cairo

M<sup>a</sup> Jesús González-García

**Background:** Nowadays, the need to integrate medical professionalism in the undergraduate and postgraduate medical education is emphasized as one of its axes. In the year 2015, three workshops were held for 121 residents in their 3<sup>rd</sup> and 4<sup>th</sup> year of their residency programme in our hospital. We have explored the residents' perception about professionalism.

**Summary of Work:** Methodology of the workshops:

a) Behaviour self-assessment through two tools: checklist and Critical Incident analysis based on interpersonal relationships and personal attitude; b) Focus-groups to analyze real scenarios based on professionalism's 10 principles (Medical professionalism in the new millennium); c) Post-workshop individual reflexive work answering the following 6 questions: how do you perceive professionalism?, how do you put it into practice?, is good medical practice in danger?, what are its major threats?, what barriers does it face?, and improvement proposals. The reflexions were grouped into meaning units in order to identify the most frequent opinions.

**Summary of Results:** Post-workshop individual reflexive work (96 answers): 78% knew some professionalism's aspects. 90% considered the workshop useful for their practice. 90% or more saw limitations to put professionalism into practice for these reasons: low knowledge among medical staff about new professionalism; assistance burden; few opportunities for debate; economical crisis; defensive medicine; technology and deshumanization; conflicts of interest and paternalistic medicine. Improvement proposals (≥90%): health team assessment about their own professionalism practice; promoting workshops/courses/sessions about professionalism among health professionals.

**Discussion:** When residents face professionalism, they emphasize the importance of training and discussion about it among health professionals teams, especially in a world in crisis concerning ethical values.

**Conclusion:** In order to implement professionalism, residents propose: changes in labour organization, training for health professionals and health team evaluation along with self-assessment.

**Take Home Messages:** The residents highlight the importance of professionalism, claiming spaces for team reflection and debate.

#5DD12 (133217)

## Education as Identity Construction: Training for Continuity of Care in Family Medicine Residents

**Rebecca Stoller\***, *University of Toronto, Toronto, Canada*

Allyson Merbaum (University of Toronto, Toronto, Canada)

Kulamakan Kulasegaram (University of Toronto, Toronto, Canada)

Risa Freeman (University of Toronto, Toronto, Canada)

**Background:** The College of Family Physicians of Canada identified "Continuity of Education and Patient Care" as a key component of the 2011 Triple Competency curriculum for residency training. However, the most effective method of teaching continuity of care (CoC) in training programs is still debated.

**Summary of Work:** In previous work, we developed the SRP (System, Resident, Preceptor) model to explore factors influencing residents' perception regarding CoC. In this study, we used an identity construction framework to design a CoC training model that would be relevant, transferrable to future practice, and suggest appropriate evaluation outcomes.

**Summary of Results:** We will present a novel CoC educational approach and preliminary results of a two year longitudinal comparative evaluation of a System Resident Preceptor Intervention (SRPI) being delivered to one cohort of residents and preceptors. New formative assessments including a Continuity of Care ITER (CC-ITER) will be reviewed.

**Discussion:** Our focus will be on how residents experience their learning of CoC, and the effectiveness of a complex educational intervention aimed at integrating CoC into residents' identity at multiple levels of the postgraduate curriculum.

**Conclusion:** This approach aims to integrate the critical education factors and align CoC teaching within curricular goals. The result will be a generalizable framework for teaching and assessment standards for CoC in community based teaching programs.

**Take Home Messages:** Curriculum design for CoC can benefit from adopting identity construction frameworks.



#5DD13 (134563)

**What has changed in the course of "On Doctoring"? A qualitative research on the transformation process of self-positioning and learning attitude in a humanistic curriculum of "On Doctoring" for undergraduate medical students**

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Ching-Ru Shen

Hsiu-Lin Chen

Chau-Chyun Sheu

Chi-Lung Lin

Chung-Sheng Lai

**Background:** Most younger undergraduate medical students have limited understanding of the physicians' work, with their detached fantasies as substitution. Consequently, during the development of expertise in third and fourth year, and the training of clinical skills in fifth and sixth year, medical students face learning motivation, attention and stress adapting crisis. The objective of this research was to observe how undergraduate medical students construct their own ways to understanding and defining the role and reality of medical doctors in order to strengthen learning motivation by this humanistic curriculum on doctoring.

**Summary of Work:** A qualitative research study was conducted with hermeneutic phenomenological approach to explore the process of transformation of students' self-positioning and learning goals and needs. Research began in actual clinical experience program based on the German phrase "erlebnis pedagogic," meaning pedagogic experience. Research data consist of in depth descriptions about student encounters, medical personnel, and patients. Personal reflections are done by oral presentation and in writing. Finally, the data are analyzed by hermeneutic phenomenological research method.

**Summary of Results:** The qualitative study in education never aims to solve any problem but to represent the dynamic in the research field. This qualitative research data reveals explicitly the student participation indicated significantly the diversification of defining self-positioning and clarification of their learning needs. Thus clinical teachers are able to provide students with learning support closer to their needs.

**Discussion:** How students are influenced by hidden curriculum in such course.

**Conclusion:** Self-positioning and clarification of learning needs is the result of a bottom-up self-construction by the students. There is no good or bad, only diversity. Curriculum design with default position limited the expected learning effect. Research shows that the gap between student expectations and teacher curriculum design might be filled by an open flip liberal curriculum.

**Take Home Messages:** Further research will bring mix into curriculum on doctoring, as an effectiveness evaluation of the feasibility of this study.

#5DD14 (134257)

**Impact of "On Doctoring" clinical shadowing course on professional preparation in the second-year preclinical medical students**

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**Background:** Medical students need to build up professional identity before entering lifelong medical career. However, there is little opportunity to early clinical exposure to obtain the authentic experiences of medical practice. This study aims to evaluate the impact of "On Doctoring" clinical shadowing (ODCS) course on the professional preparation in physician's role and responsibility for the second-year preclinical medical students.

**Summary of Work:** ODCS course was designed for the second-year medical students at Kaohsiung Medical University since 2014. They participated in three sections of 3-hour ODCS activities under 2 to 3 physicians as mentors, including ward visit, outpatient clinic, surgeries, academic meetings, and education and life stories of patients or families. A final oral presentation and reflective essays were collected as both student's assessment and data for qualitative content analysis.

**Summary of Results:** More than three hundred essays were eligible and analyzed. Four categories were identified: 1) Medical professional competences (knowledge, skills and attitudes); 2) Interaction between patients or families and physicians; 3) Healthcare system; and 4) Career planning. Overall students' perceptions revealed that ODCS may facilitate perceiving patient's suffering, understanding the importance of patient-physician communication, medical training process, healthcare system operation, clarifying physician's role and responsibility, and developing medical career planning.

**Discussion:** This ODCS course acts as the experiential learning model in both realizing physician's responsibilities and preparing the professional role in career planning and healthcare system. Further studies are needed to follow up their future professional performance and career choice. The effects of mentoring skills and instructional approaches from supervisor physicians are still to be explored.

**Conclusion:** ODCS course may provide the opportunities for preclinical medical students to observe the real world of patient care and help them appreciating their professional role and significance in medical career preparation.

**Take Home Messages:** Early clinical shadow course through early authentic clinical exposure and physician's mentoring may enhance the professional identity formation and future career preparation for medical students.

#5DD15 (132325)

**Identity development in mature students with previous higher education experience**

**Remigio Zvauya\***, *College of Medical and Dental Sciences, Birmingham University, UK*  
*Paul Orsmond*

**Background:** Identity development during medical is influenced by several factors and interactions in a variety of learning environments. Factors such as role modelling in clinical placements, interactions with friends, family and peers have been described in literature as being important in student professional development. The impact of prior learning experience in higher education and prior identity on professional identity development was investigated in this study.

**Summary of Work:** Semi structured focus group interviews were conducted at three points during the first year of graduate students on an accelerated four year PBL medical degree programme. The interviews were transcribed and the data analysed.

**Summary of Results:** These mature students had important skills and experiences conducive to rapid identity development in a short period of time. Students had experience of peer learning, independent study and analytic skills that enable their identity to evolve quickly. Problem based learning influenced students perceptions of themselves and their evolving identity.

**Discussion:** From the outset students were aware of impact of the actions of their role models and were sometimes critical of the behaviours of their Doctors on placements. Students were aware of the potential conflict between acquiring skills necessary to become a doctor and the need to pass examinations. Students viewed clinical placements as learning environments conducive professional developments where they tended to forget the anxieties arising from the need to pass examinations.

**Conclusion:** Maturity, prior learning experience and other transferable skills were important factors in student professional development.

**Take Home Messages:** Mature graduate entry medical students develop their professional identity in relatively short period of 9 months to a level where they are confident they can function in clinical years of an accelerated medical degree programme.

#5DD16 (136056)

**Professional Identity Formation: First Year Medical Students' Observations of the Doctor-Patient Relationship**

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*Eric Shaw (Mercer University School of Medicine, Savannah, USA)*

**Background:** Reflection and its role in the development of critical thinking skills, clinical reasoning, and professional identity formation has led to an increase in medical schools including reflective practice as part of the curriculum. Although many medical schools incorporate early clinical experiences, much of the research has focused on outcomes for second and third year medical students (assuming a 4-year medical education).

**Summary of Work:** Our medical school requires an early clinical experience of two weeks during March of the first year in a rural and/or underserved area of the state. In addition to a population health project, students complete a structured reflection on the experience using the format: "I learned that..."; "I learned this (through, by, when...); "This learning matters because ..."; "In light of this learning I will...". These reflections were reviewed and coded using Atlas.ti to facilitate the qualitative analysis.

**Summary of Results:** Preliminary analysis indicated that the Doctor-Patient Relationship was of particular significance to students; 56% of the 97 students commented on this theme. In written reflections, students noted several components of the doctor-patient relationship which included developing trust, showing compassion, communicating with patients and their families, and displaying cultural competence/cultural humility.

**Discussion:** As medical educators meet the challenge of assisting students in developing a professional identity, examination of medical students' reflections may provide additional insight into how values and norms are internalized. These analyses may provide additional outcome measures useful in assessing student development.

**Conclusion:** This study contributes to the existing knowledge base and enhances understanding of a key component in the professional development of a physician. As early as first year, students display comprehension of the importance of physician-patient relationship in patient care.

**Take Home Messages:** Early clinical experiences may be a key factor in development a professional identity. Developing reflective capacity can contribute to professional development, a necessary life-long learning skill.

#5DD17 (135408)

**The difference of definition and expectation of medical professionalism from the viewpoints of the medical practitioner and the society in Taiwan**

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*Ching-Yi Lee (CGMERC, Taipei, Taiwan)*

*Shih-Tseng Lee (CGMERC, Taipei, Taiwan)*

**Background:** The idea of medical professionalism has evolved throughout that past few decades. Many studies have been performed to understand what the term “medical professionalism” means in today’s society from the viewpoints of the medical practitioner and of the patient who represents the expectations of the society. The idea of medical professionalism now became less of an automatic designation, but a set of behavioral goals and guidelines.

**Summary of Work:** The purpose of this study is to define medical professionalism using a qualitative method from focus groups interview. Twelve focus groups are interviewed. The first part involves interviewing general public including patients to determine their definition and expectations of medical professionalism. The second part addresses medical professionalism from the viewpoint of clinical practitioners including residents and attending staffs.

**Summary of Results:** The definition and expectation of medical professionalism differs a lot from general public’s point of view and clinical practitioners’ point of view. Some behavior that is considered as professionalism by physician is regard as bad performance from patients’ point of view. Some are less mentioned in medical professionals.

**Discussion:** These goals and guidelines were developed due to the changing needs and expectations of society. The definition and expectations of medical professionalism may have difference in general public and also in clinical practitioner.

**Conclusion:** Understanding the differences between various groups of people is essential for the development of education programs to improve the perception of medical professionalism in our country. This understanding is crucial for the development and implementation of educational programs and strategies for the evaluation and advancement of medical professionalism.

**Take Home Messages:** The definition of professionalism differs from patient and medical professional. Cultural impact (personal life style, experience... etc) also affects this phenomenon.

## 5EE Posters: Patient Safety / Prescribing

Location:

#5EE01 (134459)

**Views and experiences of medical error and open disclosure practice: a study of junior clinical staff**

**Debra Kiegaldie\***, University of Melbourne, Melbourne, Australia

Elizabeth Pryor (University of Melbourne, Melbourne, Australia)

Stuart Marshall (Monash University, Melbourne, Australia)

Alana Gilbee (Monash Health, Melbourne, Australia)

**Background:** Doctors and nurses have been found to engage differently with the concepts of patient safety and open disclosure of errors. Most research focuses on individual professions with few comparisons of attitudes and experiences across health professional groups using the same measure.

**Summary of Work:** A cross sectional quantitative survey of views, experiences and prior education of medical error and open disclosure was administered to 48 interns and 52 graduate nurses about to commence clinical practice.

**Summary of Results:** The majority had personal involvement with medical error, particularly near-misses. Few had disclosed an error. Most agreed serious and minor errors should be disclosed; opinions regarding near-misses diverged. Interns and nurses significantly differed in their views about the cause and importance of medical error, and their prior training experiences. 89% desired more education.

**Discussion:** Many junior nursing and medical staff commence clinical practice with some experience of medical error, particularly low harm errors but having had limited formal or informal education about open disclosure processes.

**Conclusion:** Education about managing near-misses is needed given junior clinicians' experiences. Lack of a shared approach to issues of the causality and significance of medical error has implications for how the two professions manage threats to patient safety. Interprofessional education for junior clinicians is needed to improve the shared understanding of error management and disclosure and facilitate team-based management, and to develop a consistent systems approach.

**Take Home Messages:** Educators should capitalise on the opportunity to work with junior clinicians at a time when they signal a willingness to learn about error and disclosure practices.

#5EE02 (134401)

**Imperfect practice makes perfect: Error-Management Training Improves Transfer Of Learning.**

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Ann Tabor

Charlotte Ringsted

Martin Tolsgaard

**Background:** Traditionally, trainees are instructed to practice with as few errors as possible during simulation-based training. However, transfer of learning may improve if trainees are encouraged to commit errors during training. The aim of this study was to assess the effect of error-management instructions compared to error-avoidance instructions during simulation-based ultrasound training. Primary outcomes included diagnostic accuracy and performance scores during the transfer test. Performance assessments rated by blinded ultrasound experts using the Objective Structured Assessment of Ultrasound Skills (OSAUS) scale. Secondary outcome was diagnostic accuracy and performance scores during simulation-based training.

**Summary of Work:** Medical students (N=60) with no prior ultrasound experience were randomized to error-management (intervention, n=32) or error avoidance (control, n=28) training. The intervention group was instructed to make errors during training. The control group was instructed to follow the simulator instructions to commit as few errors as possible. Training consisted of three hours simulation-based ultrasound training focusing on fetal weight estimation. Participants underwent a simulation-based pre- and post-test and a transfer tests on real patients seven to ten days after training.

**Summary of Results:** On the transfer test, intervention group participants attained higher performance scores with a mean of 67.7% (CI 62.4-72.9%,  $p < 0.001$ ; Cohen's  $d = 1.1$ ) compared to the control group 51.7% (CI: 45.8-57.6%). There was a borderline-significant improvement in diagnostic accuracy for the intervention group compared to the control group, 16.7% (CI: 10.2-23.3%) versus 26.6% (CI: 16.5-36.7%),  $p = 0.082$ .

**Discussion:** There are considerable differences in the way trainees should be trained in the simulated and clinical environments. Errors should be encouraged in the simulated setting, compared to clinical training, where errors must be avoided due to patient safety concerns.

**Conclusion:** Error-management instructions during simulation-based training improve transfer of learning to the clinical setting compared to error-avoidance instructions.

**Take Home Messages:** Imperfect practice makes perfect.



#5EE03 (134724)

Teaching about medical error: is there a way to do it?

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Raushan Dosmagambetova

Alma Muratova

Irina Riklefs

Gulmira Abakassova

**Background:** Currently medical schools rarely teach students on what can go wrong, focusing mostly on 'how to do it right'. However, the medical errors continue to be the major factor diminishing the quality of medical service around the world.

**Summary of Work:** Co-funded by the Erasmus+ Programme of the European Union, Karaganda State Medical University leads the international consortium on Teaching Against Medical Error (TAME). The consortium includes St. George's University of London, Karolinska Institutet, Masaryk University, Aristotle University of Thessaloniki, and six medical universities from Malaysia, Ukraine and Kazakhstan.

**Summary of Results:** Each of the six partner country Medical Universities will implement 12 virtual patient (VP) cases in its undergraduate curriculum designed to address ten 'deadly' medical errors. The project aims not only to capacitate the Universities in teaching against medical error, but also to give research evidence for the best VP case format tuned at medical errors.

**Discussion:** The project has only started in October 2015. In 3 years, the partners will map VP cases into their curriculum, adapt 6 provided VP cases to local healthcare needs, develop their own 6 cases, and redesign their assessment strategy to test how students learned to stay away from medical errors. All the partners are ready now to take the adventure of exploring the new ways to teach students against medical errors.

**Conclusion:** The promotion of patient safety should start early on in the medical curriculum. Knowing the most common medical errors will enable students to incorporate safe practices into their future profession. The research evidence of the best practices in TAME is also well-demanded.

**Take Home Messages:** We can only hope now that our humble efforts will have the long-term impact in creating the educational culture based on patient safety through training against medical errors using VPs at all levels of medical education around the world.

#5EE04 (126504)

Why not ASK? Advanced Skills & Knowledge course - An innovative patient safety training programme that challenges our traditional educational silos

**Craig Johnstone\***, Croydon Health Services, London, UK

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Gita Menon (Croydon Health Services, London, UK)

**Background:** Serious Incident's (SI's) in our Trust identify sepsis as a recurring theme. The deteriorating sepsis patient poses a significant challenge. Difficult family discussions, root cause analysis, statement writing and coroner's court may result. The aim of this course is to teach skills and knowledge to manage these challenging situations.

**Summary of Work:** Following consultation with local specialists a pilot course was developed including a challenging sepsis simulation, duty of candor / breaking bad news simulation, note and statement writing workshop, root cause analysis workshop and a simulated coroner's court inquest. The candidates were multi-professional including doctors, nurses and midwives.

**Summary of Results:** The feedback from the course was unanimously positive from faculty and candidates. The candidates highlighted the unique opportunity to learn these skills in the safety of a simulated environment. The Trust Executive Board level is motivated to use the course as an opportunity to disseminate learning from serious incidents.

**Discussion:** The Advanced Skills and Knowledge (ASK) course is a unique learning opportunity for staff in the Trust to improve their management of challenging situations. Utilising specialists from within the Trust including legal services, patient safety, risk management and simulation make this course innovative and novel in its approach to teaching outside of those traditional educational silos,

**Conclusion:** The ASK course unifies a range of specialists to educate multi-professional learners, with a common goal of benefiting the way in which they manage challenging situations. The learners acquired important knowledge and skills that are not traditionally taught.

**Take Home Messages:** Keeping abreast of SI's will allow the course to evolve to meet local need. Involving local specialists means the course is tailored to our staff and we envisage the course will equip our teams with the skills to better manage challenging situations in our hospital in the future.

#5EE05 (134329)

**The “SimHand”-Mobile-Application – a new way of teaching handover in undergraduate medical education**

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Hanna Schröder  
Hendrik Drachsler  
Lina Stieger  
Sasa Sopka*

**Background:** Handovers are a critical point of patient care and the need for handover training already at undergraduate level has been clearly elucidated. In the context of the EU-founded PATIENT project the AIXTRA Interdisciplinary Training Center developed the “SimHand”-Application, which introduces the user to different clinical cases, role games and quizzes. The objective is to raise awareness for patient safety at an early stage and to train handovers in a playful manner.

**Summary of Work:** The app was evaluated in randomized controlled educational research study within a clinical preparation course for medical students in their 2nd year (n=132). Course structure: - Short theoretical unit for introduction - Allocation of students into two groups: working through two (pre-)clinical cases using the SimHand-App or paper-based information In a pre-post-design questionnaire data regarding attitudes towards handover, patient safety and use of applications was collected. The assessment of app-usability was realized applying the “system usability scale” (SUS).

**Summary of Results:** Students show great interest in the topics patient safety and handover as well as sensitivity towards the use of mobile applications for learning purposes. The SimHand-App was rated with a SUS-Score of 65%, which is defined as borderline to good. Especially technical problems of the prototype were criticized. Numerous students appreciate the initial idea of the app, combined with standardized checklist and role play training.

**Discussion:** Further technical development and content-related extension are necessary to refine the SimHand-App and adjust it to students’ needs.

**Conclusion:** The SimHand-App is an innovative and potential learning tool for handover and patient safety.

**Take Home Messages:** Early handover teaching and training is essential for patient safety – mobile applications may offer an additional learning opportunity.

#5EE06 (135638)

**Pedagogy to Practice: aligning Human Factors & Patient Safety Education to the needs of clinical practice**

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Sarah Lyon (University of Liverpool, Liverpool, UK)  
Simon Mercer (University Hospital Aintree, Liverpool, UK)  
Jeff Goulding (University Hospital Aintree, Liverpool, UK)  
Julie Bridson (University of Liverpool, Liverpool, UK)*

**Background:** NHS England’s overarching purpose is to provide safe and “high quality care for all, now and future generations”(NHS England 2015). Following several highly publicised cases, Human Factors (HF) both at the individual and organisational levels, has been acknowledged as a leading root cause of error in healthcare. Some healthcare organisations have not fully understood or applied HF principles to areas where patient safety could be improved (Kohne et al (1999)). It is essential that healthcare professionals appreciate their role in implementing HF into clinical practice. There is a need to develop capacity through high quality multi-professional education based on HF principles, which meets practice requirements in a financially constrained NHS.

**Summary of Work:** Utilising a stakeholder approach, the University of Liverpool (UoL) in partnership with a tertiary simulation centre developed a multi-disciplinary 20 credit, masters level HF module (2014). Mindful of human resource pressures within the current NHS, a blended approach was used. Design was informed by experiential learning through high fidelity simulation, a pedagogy which allows for active learning and competency demonstration; providing a learner centred experience in an environment free of risk for patients. Reinforced by collaborative enquiry using online mediated platforms creating a learning community to share dialogue, whilst promoting multi-disciplinary collaboration.

**Summary of Results:** The module has been delivered twice and fully evaluated using UoL quality assurance mechanisms. Student assessments highlighted the application of learning within their clinical environments.

**Discussion:** As highlighted by student feedback/evaluation, this pedagogy is appropriate when students bring tacit knowledge which is valuable to others. Feedback from clinical partners indicates learning has impacted upon patient care, in relation to the development and review of existing practice.

**Conclusion:** This delivery allowed for mistakes to be made and reflection undertaken, in a safe environment safeguarding patients.

**Take Home Messages:** It is essential to engage clinical partners in order to align educational delivery with practice requirements.

#5EE07 (135436)

**Evaluation of knowledge and attitude about medical errors and patient safety in medical students**

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**Background:** Patient safety and medical errors are global problem that related to iatrogenic harm from health care. Learning about these issues is important in medical education.

**Summary of Work:** Cross-sectional study was done in all 22 fifth-years medical students at Sisaket Hospital Medical Education Centre from 2014-15. Participants were divided into 2 groups and attended 3-hour session on patient safety and medication errors during the Paediatrics course. Group A attended lecture-based learning followed by interactive case discussion. Group B started with small group debriefing and self-study case discussion. Data were collected by questionnaires to evaluate their level of knowledge and attitude before and after training.

**Summary of Results:** Level of knowledge about patient safety increased in 86% of participants without significant difference between group A and B ( $p=0.83$ ). Level of knowledge about medical errors in group B was significantly higher than those in group A including definition of medical errors, different type of medical errors, prescribing errors and drugs administration ( $p=0.042, 0.002, 0.011, 0.042$  respectively). Awareness in medication safety rose significantly after training in both groups. ( $p<0.05$ ).

**Discussion:** Although most participants have heard about patient safety, providing brief curriculum about it could enhance their knowledge and insight. All participants agreed that most of clinical errors are preventable and intended to change their clinical practice to ensure patient safety.

**Conclusion:** Knowledge about patient safety and medical errors improved by attending brief curriculum. Small group debriefing and self-study would be better than lecture-based learning in increasing knowledge and attitude towards medical errors and patient safety.

**Take Home Messages:** Awareness about patient safety and medical errors can be increased through experiential curriculum. Interventions that focus on deficit area are recommended.

#5EE08 (133924)

**Handoff Training Day for final year students: Addressing gaps in patient safety education – inspired by the EU-PATIENT Project**

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**Background:** As a significant source of adverse events for patients, handoffs are a critical point of patient care. This leads to the urgent need to train young medical professionals to conduct adequate handoffs. To address this gap, the EU-founded PATIENT project undertook research, development and implementation strategies in handoff training and developed a European curriculum for handoff training.

**Summary of Work:** Based on a local needs analysis and the curriculum of the EU-PATIENT-project we developed a handoff training day concept for our final year students. Focusing on practical experiences we applied methods as interactive seminar, case-based handoff training (multiple disciplines), discharge letter writing, computerized simulation, human patient simulation and video feedback. Participants received checklist-based pocket cards for their clinical workaday life. With a paper-based pre/post assessment we recorded knowledge and attitudes from the participants ( $n=22$ ). Exemplary handoffs were voice-recorded for qualitative analysis and prior to training as a baseline in comparison to future follow-ups.

**Summary of Results:** The initial needs analysis confirmed that students had very limited experience with handoffs. However, there was overall agreement on the urgent need for handoff training. Results of our training day showed a significant increase in self-confidence for the use of standardized handoff tools and performance a verbal handover. Also the students rated the use of standardized handoff tools as more important and helpful after the training. They highlighted the handoff training with a simulated patient.

**Discussion:** The intervention led to increased awareness for this critical issue. Further controlled studies are needed to compare teaching methods through practical performance assessment.

**Conclusion:** First steps towards patient safety education were taken and practical experience in handoff was provided to young medical professionals.

**Take Home Messages:** You can easily develop your own training sessions and use free access to curriculum, teaching methods and materials at [www.patient-project.eu](http://www.patient-project.eu).

#5EE09 (135354)

**Are you a giver and never a receiver of feedback?**

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*Dr Rachel Lindley University of Manchester UK*

**Background:** High level stakeholders in medical education recommend eliminating the medical culture of tolerance towards poor care (Francis 2013, GMC 2015). Doctors should lead this culture of change by promoting openness, transparency and candour. Students can be useful 'eyes and ears' looking out for poor care on placements. The General Medical Council (GMC 2015) state medical students must report concerns about patient safety to the appropriate person. This project analysed concerns raised by students on clinical placements to categorise the seriousness of the issue. We consider how faculty can best support the students in this professional duty.

**Summary of Work:** All concerns raised by students to a community team over a nine-month period were categorized as level 1, 2 or 3. Level 1: Placement provider referred to regulatory bodies. Level 2: Student removed from placement. Level 3: Probably the student could have addressed concern.

**Summary of Results:** Students independently raised 42 concerns (2 % of student population). Level 1 = 2 Level 2 = 6 Level 3 = 34

**Discussion:** Some medical students felt unable to resolve lower level concerns on placement. This could reflect the lack of an atmosphere conducive to openness, transparency and candour. GP tutors may be missing an opportunity to improve their practice by not supporting students to speak up.

**Conclusion:** The majority of concerns raised by students were minor and could be resolved by the student and placement without faculty involvement. Potential solutions will be discussed which aim to help students develop skills in professional conversations.

**Take Home Messages:** Raising concerns is a professional duty which some students need support to develop and utilise throughout their careers. Ultimately this may improve patient safety and satisfaction.

#5EE10 (133116)

**Prescribing error research to the medical curriculum integration**

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**Background:** The prescribing errors were found among medical students and intern physicians in Vachiraphuket hospital. Since the errors were undetected despite pharmacists screening, the adverse events were potentially harm to patients. We performed data research of prescribing errors to identify common errors and send feedback for further medical curriculum integration.

**Summary of Work:** Retrospective study in 813,027 outpatient prescriptions of year 2015 by Chi-square which P-value less than 0.05. Subgroup analysis was performed among 27 medical students and intern physicians (187,999 prescriptions) compared with 135 attending physicians (625,028 prescriptions). The characteristics of errors and departments were evaluated.

**Summary of Results:** 1. There were 653 medical students and intern physicians errors and 624 attending physicians errors. 2. 554 drug overdose prescriptions (43.38%) and 145 drug allergies prescriptions (11.35%) were mostly found. 3. The most prescribing errors were in pediatric department (258 errors, 20.20%) and medicine department (131 errors, 10.26%).

**Discussion:** The prescribing error of medical students and intern physicians had risk ratio 3.48 times compared with attending physicians at the 0.05 level of significance. That's necessary for medical curriculum modification especially pediatric and medicine department. Moreover, prevention system for drug allergy and cross-reactivity management were not acknowledged too.

**Conclusion:** The summary of prescribing error research will send to Vachiraphuket medical education center for further medical curriculum integration to emphasize on prevention. Such as Warfarin dose adjustment for targeted INR, pediatric dosage calculation and drug allergy management. For example, Ibuprofen and Diclofenac were considered related NSAIDs and potentially cross-reactivity.

**Take Home Messages:** Most important strategy for prevention of prescribing error should be conducted by revision and integration of physician concern to the medical curriculum under the academy responsibility to patient safety. The monitoring of prescribing errors should be done continuously to evaluate the efficacy of curriculum modification on improvement of safety issue.



#5EE11 (131784)

**Assessment-driven mobile learning for healthcare professionals on high-risk medication safety issues**

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*Steven D. Williams (University of Manchester & University Hospitals South Manchester NHS Trust, Manchester, UK)*  
*Kurt Wilson (University of Manchester, Manchester, UK)*

**Background:** Improvements in patient safety are a fundamental driver for health care systems worldwide. Assessment-driven mobile learning is a modern practical method of attracting health professional learners.

**Summary of Work:** The centre for pharmacy postgraduate education (CPPE) developed a Medicines Safety app utilising mobile technology to engage UK healthcare professionals and undergraduate trainees. Users tackle a quiz using questions chosen randomly from a bank, considering key issues related to the safe use of medicines. The app provides feedback, links to further topic information and continuing professional development (CPD) certification. A collaborative approach enabled identification of clinical pharmacists, doctors and nurses to write the questions and feedback. The quality of content used was assured through review by an editorial team of senior clinical pharmacist and medical honorary lecturer.

**Summary of Results:** Summary of results The app launched at the end of January 2014. The medication safety topics covered are: - Insulin - Opioids - Allergies - Anticoagulation - Medication safety - Transfer of care - Chemotherapy - Omitted doses - Intravenous therapy - Adverse drug reactions The app is available free of charge for Apple and Android devices, with more than 12,000 downloads from multiple health professionals by February 2016.

**Discussion:** Busy healthcare professionals need bite-sized learning at a time and place that suits them. The app offers features to encourage continued participation, points to further learning opportunities and fits with the CPD cycle. Assessment of learners' attitudes towards the app and its role in highlighting medication safety issues is required.

**Conclusion:** Mobile assessment-driven learning is accessible and engaging for healthcare professionals at postgraduate and undergraduate levels.

**Take Home Messages:** Easily accessible and engaging mobile assessment-driven learning apps could be more widely used for healthcare professionals at postgraduate and undergraduate levels to help achieve patient safety goals.

#5EE12 (133005)

**Playing your drugs right: gamification of antibiotic teaching**

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*James Edwards*  
*Alina Beltechi*

**Background:** Antibiotics are commonly prescribed drugs in both primary care and hospitals (1), and at high risk for prescribing errors. It is therefore necessary to influence prescribing behaviours and educating medical students is key. 'Gamification' of resources is being increasingly used within medical education to reduce pressure, add fun into learning, whilst promoting understanding and retention.

**Summary of Work:** A matching style dominoes game was developed to teach classes of antibiotics to 36 first year medical students. Students were taught using a didactic presentation, followed by the game. Knowledge of antibiotics was tested prior to, and after the session. A perception questionnaire on student confidence of antibiotics was also collected, before and after the session.

**Summary of Results:** Prior to session, student correct response mean was 57% (28-93%). After teaching, this increased to a correct response mean of 90% (78-100%). The perception questionnaire showed an increase in student confidence from 2 (1=not confident, 5=very confident) to 4. Qualitative data collected was generally positive; students acknowledged the game made antibiotic learning easier and more fun.

**Discussion:** The general trend worldwide describes medical students requesting more antibiotic teaching throughout training years, as they do not feel confident in their knowledge. This perception is reflected in our test results prior to teaching. Incorporating a 'serious' game into the teaching session has led to substantial increase in knowledge and confidence. Students enjoyed the alternative teaching more than the traditional lecture-based style.

**Conclusion:** Reusable resources such as 'serious' games are versatile learning tools and can be incorporated by students into their independent and peer-to-peer study sessions. Our study suggests that there is scope to expand the game series to a wider variety of subjects in medicine.

**Take Home Messages:** Games such as "Antibiotic Dominoes" are innovative tools that can reduce pressure on students, increase retention of knowledge and introduce fun into the classroom.

#5EE13 (134813)

**Workplace Based Student Prescribing: A Safe and Effective Way to Learn**

**Cameron Brown\***, *Cumberland Infirmary, Carlisle, UK*  
**Karen Lazonby** (*Cumberland Infirmary, Carlisle, UK*)  
**Gary Ferguson** (*Cumberland Infirmary, Carlisle, UK*)  
**Michael Freeman** (*Cumberland Infirmary, Carlisle, UK*)  
**Mahdi Nazar** (*Cumberland Infirmary, Carlisle, UK*)  
**Frances May** (*Cumberland Infirmary, Carlisle, UK*)

**Background:** It is mandatory for UK final year medical students to complete an assistantship. During this period they practice the skills necessary to work as foundation doctors. Feedback from students who previously completed their assistantship at the Cumberland Infirmary, indicated they were not confident in prescribing to the level of a foundation doctor. To combat this we introduced a standardised student prescription model throughout the hospital. We aimed to increase students' confidence and quality of prescribing, whilst upholding patient safety.

**Summary of Work:** Twenty-four students completed a pre- and post-assistantship questionnaire about their prescribing practice. During the assistantship we audited the student prescriptions against trust guidelines. Each weeks results were emailed to the students.

**Summary of Results:** Students completed 1101 prescriptions in 173 patient charts. There were 128 errors identified. The error rate was highest in the first week (16.3%) and lowest in the last week (6.9%). The majority of errors were related to omission of details for as required and antibiotic prescriptions. There were 3 medications that were administered that were not countersigned by a doctor. The pre-assistantship questionnaire indicated that 17% of students were confident in prescribing to the level of a foundation doctor, whereas post-assistantship 92% were confident.

**Discussion:** A prescription error rate of 6.9% is better than expected when compared with previously identified error rates of foundation doctors (8.4%) (Dornan et al, 2009). Students were more confident in their prescribing ability at the end of their assistantship. They were also more confident when compared with the previous cohort that did not have a standardised student prescribing model.

**Conclusion:** The introduction of a standardised pre-prescribing model for students undertaking their assistantship was successful in improving students' confidence and quality of prescribing whilst maintaining patient safety.

**Take Home Messages:** A standardised pre-prescribing model for students was successful in improving students confidence and quality of prescribing whilst maintaining patient safety.

#5EE14 (127024)

**Introducing 1st year medical students to drugs used in cardiology**

**Marcus Coffey\***, *Cardiff University School of Medicine, Cardiff, UK*  
**PC Williams** (*Royal Glamorgan Hospital, Llantrisant, UK*)

**Background:** Early exposure to the subjects of cardiology and pharmacology can seem daunting to 1st year medical students who may struggle to connect the underlying pharmacological science with the management of a cardiac pathophysiology.

**Summary of Work:** After a subject introduction, students were given 3 virtual patient scenarios, each concerning the use of a drug to help manage the patients' conditions. They were guided in their self-directed learning with structured workbooks linked to the clinical scenarios.

**Summary of Results:** Anonymised feedback data was collected and analysed over 2 academic cycles, with evaluations informing iterative modifications to future workshops: in 14/15, 97% of students indicated that they would like further workshops structured in this way compared to 86% of students in 13/14.

**Discussion:** Students commented on 'question overload' during the 13/14 session which led to reducing the workbook question-count for 14/15. This undoubtedly helped improve satisfaction scores for that cycle.

**Conclusion:** This workshop model format is now being successfully applied in other 1st year medicine teaching.

**Take Home Messages:** Self-contained workshop sessions (comprising a didactic introduction to a topic then a student-directed task followed by an expert-led group discussion 'wrap-up') are an effective method of introducing and exploring complicated de novo subject matter with 1st year medical students.

## 5FF Posters: Continuing Professional Development

Location:

#5FF01 (133239)

**What price Continuing Medical Education (CME) outcome follow-up?**

**David Hak\*, University of Colorado, Denver Health Medical Center, Denver, USA**

Jane Mihelic

Charisse Stroy

AO North America Education Advisory Board

**Background:** Accredited CME providers are expected to analyze changes in learner's competence, performance, or patient outcomes achieved by their educational activities. Obtaining attendee's long-term changes and their patient outcomes presents a significant challenge. This study examined whether a small financial incentive could improve follow-up response rates in adult surgeons following a live CME activity.

**Summary of Work:** 532 surgeons that attended CME events were sent an email request to complete a follow-up on-line survey 6 months following the course. Participants were randomly assigned to receive no incentive, a \$10 Starbucks gift card, or a \$25 Starbucks gift card for follow-up evaluation completion. Participants received the same survey that included 7 standard questions regarding their practice changes, comfort and confidence, barriers to change, and patient outcomes.

**Summary of Results:** Overall 17.7 % completed the follow-up survey. Survey completion rate was lowest in the no financial incentive group (10.7 %), 20 % in the \$10 incentive group, and 23.2 % in the \$25 incentive group. Differences from the no incentive group were statistically significant ( $p = 0.007$ ). Difference between the \$10 and \$25 groups was not significant ( $p = 0.515$ ).

**Discussion:** Researchers have investigated conditional and unconditional financial incentives on physician survey response rates reporting varying results. We are not aware of studies that have specifically examined surgeon response rates to conditional financial incentives. We undertook this project to improve follow-up data regarding our program's impacts on attendee's long-term changes and their patient outcomes.

**Conclusion:** While conditional financial incentive did increase the follow-up survey completion rate, the rate remained low in all groups. Increasing the incentive from \$10 to \$25 only slightly increased the response rate.

**Take Home Messages:** Providing a modest conditional financial incentive, as a gesture of thanks to participants, is useful in increasing the survey follow-up rate following a live CME event.

#5FF02 (130211)

**Flipping the Continuing Medical Education Classroom: Improved Perceptions after Exposure to the Novel Teaching Method**

**Christopher Stephenson\*, Mayo Clinic, Rochester, USA**

Amy T. Wang, (University of California Los Angeles, Los Angeles, USA)

Jason H. Szostek, (Mayo Clinic, Rochester, USA)

Jayawant N. Mandrekar, (Mayo Clinic, Rochester, USA)

Thomas J. Beckman, (Mayo Clinic, Rochester, USA)

Christopher M. Wittich, (Mayo Clinic, Rochester, USA)

**Background:** New teaching approaches for continuing medical education (CME) are needed. In flipped classrooms, coursework is completed beforehand with class time reserved for application. We developed and validated an instrument measuring flipped classroom perceptions, identified if participation changed perceptions, and determined which flipped classroom components were perceived to most impact learning.

**Summary of Work:** We conducted a cross-sectional validation study of Mayo Clinic Internal Medicine Board Review course participants. Online modules were developed delivering content prior to courses on acid/base and electrolyte disorders. A Flipped Classroom Perception Instrument (FCPI) was developed and given to participants before and after their flipped classroom experiences.

**Summary of Results:** Flipped Classroom perceptions improved with FCPI scores increasing from 3.74[0.75] to 3.97[0.76] ( $P < 0.001$ ). FCPI scores were unrelated to demographics or module completion. Preference for flipped classrooms increased from 38% before to 53% after ( $P = 0.0016$ ). The majority of participants thought knowledge was most enhanced by in-class sessions and online modules equally.

**Discussion:** Participant's perceptions and preferences for a flipped classroom model increased after experiencing a flipped classroom. Positive changes in FCPI scores were unrelated to module completion. This is likely because the in-class aspect of the flipped classroom, including group discussions and case-based learning, still had a large impact on participants learning.

**Conclusion:** The newly developed FCPI showed validity to internal structure, content, and relationship to other variables. Participant's perceptions of and preference for flipped classrooms significantly improved after exposure to the flipped classroom environment. A flipped classroom model is a feasible intervention with strong potential to enhance learning in traditional CME.

**Take Home Messages:** The FCPI is the first validated measure of participants' perceptions of a CME flipped classroom. The FCPI has strong validity evidence. Participants' perceptions of and preference for the flipped classroom improved after experiencing the flipped CME classroom. These findings support the need to further explore flipped classroom models in CME.

#5FF03 (136317)

**Can a programmatic assessment approach better enable physician practice improvement?**

**Wendy Yen\***, *College of Physicians and Surgeons of Ontario, Toronto, Canada*

**Kathryn Hodwitz** (*College of Physicians and Surgeons of Ontario, Toronto, Canada*)

**Niels Thakkar** (*College of Physicians and Surgeons of Ontario, Toronto, Canada*)

**Background:** The College of Physicians and Surgeons of Ontario delivers a peer assessment program designed to promote practice improvement. Assessments are traditionally comprised of a review of patient records and a semi-structured interview. Multi-Source Feedback (MSF) was recently incorporated into a subset of peer assessments to evaluate a broader range of physician skills (e.g., communication, collaboration). The impact of a programmatic assessment using multiple data sources is being evaluated to understand how physicians make practice changes based on different types of performance data.

**Summary of Work:** Six-month follow-up surveys and interviews were used to collect data from approximately 2,000 physicians receiving an assessment over three years.

**Summary of Results:** 270 physicians completed the follow-up survey and 32 physicians volunteered for an interview. The majority of physicians reported their assessment was valuable for learning about their practice and developing a learning plan. Only 39% considered engaging in continuing professional development (CPD) as a result of the assessment. Qualitative interview data on the types of practice changes made as a result of assessment will be presented thematically.

**Discussion:** Initial trends show that data from multiple sources is useful for stimulating practice improvement but a gap still exists between undergoing assessment and using performance data to drive CPD. Given that CPD is mandatory and most useful when it is assessment-driven, future work will focus on strengthening the link between assessment results and specific CPD opportunities by training assessors in CPD coaching.

**Conclusion:** Principles of programmatic assessment (multiple data sources administered over time) were well received by physicians undergoing a practice assessment by the medical regulator. More training of assessors is needed to facilitate the use of the data to drive assessment for learning. Other principles of programmatic assessment (e.g., using narrative data to complement numeric scores) will be explored in future research.

**Take Home Messages:** Principles of programmatic assessment (multiple data sources administered over time) were well received by physicians undergoing a practice assessment by the medical regulator.

#5FF04 (133179)

**Evaluating the impact of revalidation on GP Appraisal in Wales**

**Sarah Holmes\***, *Wales Deanery, Cardiff University, Haverfordwest, UK*

**Katie Laugharne**

**Steffi Williams**

**Background:** We introduced appraisal for all GPs in Wales (2500) in 2004 via an online system focussing on reflection on work and learning. Revalidation for all doctors in the UK was introduced by the General Medical Council in December 2012 as a periodic assessment that a doctor remains fit to practice. Appraisal is a cornerstone of revalidation.

**Summary of Work:** This study was carried out to evaluate the initial impact of revalidation on GP appraisal in Wales and to identify any improvements required. The study was conducted as an action research investigation relating to 2013-14. We undertook literature reviews and focus groups with doctors and appraisers to develop a survey which was then administered online.

**Summary of Results:** • Response rates: 61% of appraisers (n=55) and 30% (n=652) of GPs • The overwhelming majority of respondents reported good understanding of the purposes of appraisal and revalidation • The impact of revalidation on the appraisal process was viewed by over 50% to be 'medium' size, and 40% 'neutral' • 55% reported revalidation as a positive experience; 45% disagreed

**Discussion:** We explored concerns raised by the literature and focus groups about the impact of revalidation. Encouragingly, many GPs felt this had actually had a positive impact on their own work and learning. Revalidation had a greater impact on appraisers in terms of focus of appraisal and nature of their role, with increased time costs and a sense of additional responsibility.

**Conclusion:** Such high levels of reported understanding and clarity at such an early stage is positive. Appraisers' concerns need exploring and addressing. Positive experiences reported by GPs could be explored and enhanced.

**Take Home Messages:** • The purposes of appraisal and revalidation are now well understood • Revalidation has the potential to have a positive impact on appraisal • Appraiser concerns need exploring



#5FF05 (134038)

**Assessing physician performance with multisource feedback: A meta-analysis of reliability, validity, and feasibility**

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**Background:** The use of multisource feedback (MSF) has become a recognized method of assessing physician performance in practice. The purpose of the present systematic review and meta-analysis was to investigate the reliability, generalizability, validity, and feasibility of MSF for the assessment of physicians.

**Summary of Work:** EMBASE, PsycINFO, MEDLINE, PubMed, and CINAHL databases for peer-reviewed, English-language articles published from 1975 to January, 2016 were searched with inclusion criteria: MSF instruments to assess physician performance in practice, reporting psychometric evidence in the form of reliability, generalizability coefficients, and construct or criterion-related validity.

**Summary of Results:** A total of 43 articles were included. A random-effects model of weighted mean effect size differences ( $d$ ) resulted in construct validity coefficients across different levels in practice ranged from  $d=0.14$  to  $d=1.78$ , on two different occasions ranged from  $d=0.23$  to  $d=0.90$ ; concurrent validity coefficients on differences in assessor group ratings ranged from  $d=0.50$  to  $d=0.57$ ; and predictive validity coefficients across different standardized measures ranged from  $d=1.28$  to  $d=1.43$ .

**Discussion:** Employing medical colleagues, coworkers, and patients as a method to assess physicians in practice has high reliability, validity, and feasibility. It is an effective method for providing feedback to physicians from all specialties about their clinical and nonclinical (i.e., professionalism, communication, interpersonal relationship, management) performance.

**Conclusion:** MSF was generally conducted by 8 medical colleagues, 8 coworkers, and 25 patients to achieve adequate reliability and generalizability coefficients of  $\alpha \geq 0.90$  and  $E_p \geq 0.80$ , respectively.

**Take Home Messages:** MSF is a feasible, reliable and valid way to assess physician performance.

#5FF06 (135945)

**Building a CPD Program in an undergraduate medical school: Expanding the Vision**

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*Deema Al-Sheikhly (Weill Cornell Medicine- Qatar, Doha, Qatar)*

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**Background:** Weill Cornell Medicine-Qatar (WCM-Q) was established in 2001 in Qatar as the first overseas branch campus of a United States medical school and has become an important component of the local healthcare community. As continuing professional development (CPD) opportunities are paramount to build and maintain a knowledgeable healthcare workforce, we identified a need to provide accredited opportunities for healthcare providers for continued development and fulfillment of licensure requirements.

**Summary of Work:** We proposed the establishment of a CPD program at WCM-Q and expanded the mission and vision to include the promotion of educational endeavors extending beyond the undergraduate program. We obtained support from leadership and integrated program as part of the strategic plan. We identified the needs/target audience, developed goals/objectives, estimated resources, established a timeline, and defined outcomes and outcome indicators. We developed policies and procedures to align with local and international accreditation standards, launched applications for accreditation, created boards and committees and developed accredited activities both independently and in collaboration with accredited providers.

**Summary of Results:** The Division expanded from 3 members in 2011 to 7 in 2016. We received local accreditation and are in the process of obtaining international accreditation. We have instituted several recurring activities such as multi-disciplinary grand rounds, biannual educational workshop series, and a law and medicine series. Between 2013/14 and the 2015/16 academic years, the number of accredited activities increased from 1 to 10, credit hours offered from 5.5 to over 118 and attendees from approximately 100 to more than 2000. Our accredited activities attract physicians as well as other healthcare practitioners from both the public and private sector.

**Discussion:** Our CPD program has broadened the mission of our college and filled a local and regional need.

**Conclusion:** Our program has been successful in developing activities to improve the knowledge, competence and/or performance of physicians and other healthcare practitioners.

**Take Home Messages:** A CPD program can be successfully established in an undergraduate medical school.

#5FF07 (135536)

**Small intervention program to improve general practitioners' (GPs') communication teaching skills, involving GPs ensuring feasibility in general practice**

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Marit Rye (Norwegian University of Science and Technology, Trondheim, Norway)

**Background:** General practitioners (GPs) play an important role in teaching medical students communication skills. GPs take new academic roles for which they have little formal training. The Faculty of Medicine at Norwegian University of Science and Technology in Trondheim has initiated developments to increase GPs' teaching skills using The Calgary Cambridge model interview model (CC) and a "bank of ideas".

**Summary of Work:** We conducted two focus group interviews, asking the GPs engaged part-time as teachers in communication skills for medical students, how they assessed their current teaching skills, what was needed to improve these skills, and how this improvement should be made possible. Lack of teaching skills and pressure on time were the most important findings. The results were used to develop the training program to improve the GPs' teaching skills.

**Summary of Results:** Three of 21 GP teachers received four-days training in the CC model offered by the model's founders. The model was presented by the 3 to the other GP teachers; practiced, discussed and transformed to fit the curriculum. Exchange of experience and ideas among the GPs was done through two days annual meetings and visiting each other. This formed the basis of a "bank of ideas", written and shared online for inspiration.

**Discussion:** Discussion and Conclusion: See below!

**Conclusion:** The involvement of the GP teachers, such as participating through development and implementation of activities that advance teaching skills, is essential to build and sustain faculty development in a cost effective way. The probability of success of faculty development initiative depends on identification of the specific needs and insuring GP-oriented partnership, and securing the feasibility in general practice and continuity of programs.

**Take Home Messages:** GPs' teaching skills can be improved with small cost effective interventions, by involving GPs in development and implementation of faculty programs.

#5FF08 (132248)

**Collaboration: Essential to Pharmacists' Changing Roles and Continuing Professional Development**

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Stanley Varnhagen

**Background:** The professional work of pharmacists has undergone a transformation that requires collaboration between pharmacists, patients, and other health care professionals to provide patient care, contribute to interprofessional teams and primary care practices, as well as to prescribe medications. Collaboration is approached differently in various practice environments. A better understanding of collaboration associated with pharmacists changing roles is of interest to health care educators and practitioners.

**Summary of Work:** This mixed methods research explored the roles of pharmacists and their associated CPD needs. A qualitative descriptive approach was used to analyze data from 9 focus groups and 4 individual interviews in Alberta, Canada held between October 2012 and September 2013. The sample included 75 participants (pharmacists, pharmacy students, physicians, health care team members, and members of the public). A web-based survey of Alberta pharmacists (n=416) in October 2014 further explored results emerging from the focus groups and interviews.

**Summary of Results:** Pharmacists' roles were described as transitioning from a drug to a patient care focus. Collaboration with other health care professionals was essential to pharmacists' changing roles. CPD topics needed to support pharmacists' roles included clinical decision-making, patient assessment, and applying evidence to patient care. The preferred CPD approaches emphasized learning at work and collaboration.

**Discussion:** In the delivery of health services, collaboration is promoted as both desirable and necessary to solve complex patient problems and fulfill societal needs. Learning at work in collaboration with other health care professionals is a promising CPD strategy to support health care system changes.

**Conclusion:** The professional work of pharmacists is changing to a patient care focus. Collaboration is integral to patient care and learning. Learning collaboratively at work is a CPD approach preferred by pharmacists.

**Take Home Messages:** Health care educators may transform CPD to support changing roles, collaboration, and delivery of health services.

#5FF09 (134686)

**Satisfaction of The E-Learning System for Continuing Education in Taipei City Hospital**

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Lin-Yang Chi (Taipei City Hospital Department of Teaching and Research, Taipei City, Taiwan)

Oscar K. Lee (National Yang-Ming University Institute of Clinical Medicine, Taipei City Hospital, Taipei City, Taiwan)

Li-Lin Kuo (Taipei City Hospital Hoping-Fuyou Branch, Taipei City, Taiwan)

**Background:** The E-Learning system has been established since 2010 in Taipei City Hospital and all employees are recommended to take at least 20 hours of continuing education courses each year. However, E-Learning system could only be used by the intranet system in the hospital in the first 3 years and then finally established the internet access since 2014. This study aimed to evaluate the users' level of satisfaction with the E-Learning system.

**Summary of Work:** This was a 4-year repeated cross-sectional study from 2011 to 2014 in Taipei city hospital and there were 623, 724, 1227 and 1022 online anonymous questionnaires returned. The Center for Faculty Development (CFD) sends questionnaires to all faculties in February every year. The five-point Likert scale questionnaires have asked the satisfaction of the convenience, the learning effectiveness, and the quality of the online courses. The CFD reviewed the results and kept modifying the E-Learning system. We used trend test to investigate if the satisfaction of the E-Learning system is continuously increasing.

**Summary of Results:** The percentage of individuals reporting they were "very satisfied" and "satisfied" of the convenience of the online experience was 59.20%, 70.10%, 71.30% and 78.57% from 2011 to 2014 ( $p < 0.05$ ). The percentage of the learning effectiveness was 71.80%, 64.70%, 69.80% and 76.55% ( $p = 0.49$ ). The percentage of the quality of the online courses was 76.04% in 2013 and 83.15% in 2014. Sixty-nine percent was satisfied with the access to the E-Learning system outside the hospital. Most participants preferred to use the system after 16:00 which means off-work hours.

**Discussion:** After E-Learning system could be accessed outside the hospital, employees have greater learning flexibility and accessibility.

**Conclusion:** Hospital employees prefer to learn online during their off hours and the E-Learning system would be better to be accessed outside the hospital through internet.

**Take Home Messages:** An internet-based E-Learning system is more user-friendly and more effective than intranet.

#5FF10 (133048)

**Impact assessment of shared care in dermatology**

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Tânia de Caldas (University of Campinas, Campinas, Brazil)

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**Background:** Dermatological conditions are prevalent in primary care. Learning opportunities in the area are essential to improve patients careful evaluation.

Shared care promotes integration between different complexity levels services, improving resolution, and can be an useful tool for continuing medical education.

**Summary of Work:** The objectives of the study were to implant shared care in dermatology in Amparo city and assess its impact on effectiveness and as a teaching strategy and continuing medical education for general physicians and for family medicine residents. Shared care in dermatology was implanted with discussion meetings on diagnostic hypotheses and conduct of selected patients. In addition, low complexity procedures and theoretical debates were part of the process. Impact assessment of shared care in dermatology was performed for general physicians, family medicine residents, Family medicine residency preceptors and the Health Department of Amparo.

**Summary of Results:** Shared care in dermatology was considered excellent by general physicians and family medicine residents. Most residents and physicians considered their performance with dermatoses as incomplete before shared care and had much improvement after its implantation.

**Discussion:** Family medicine residency preceptors and the Health Department of Amparo classified shared care in dermatology as a fundamental experience in which the rearguard of an university specialist generated greater confidence through contact with scientific protocols. They concluded, also, that the methodology is motivating and provides more comprehensive approach to the patient.

**Take Home Messages:** There is a need for studies on different strategies for medical education in public health focusing on dermatology learning. The challenge for the future is to identify ways in which specialists and general physicians collaborate to provide the best medical results and not only financial.

#5FF11 (134006)

**Developing non-training grade doctors to improve recruitment & retention of doctors in a large Teaching Hospital in the UK**

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**Background:** Trainee doctors are unable to meet the increasing 'service' demands of the UK's National Health Service (NHS). The workforce is supplemented with non-training grade doctors (TGDs); usually non-UK graduates on short term contracts creating a highly mobile workforce & challenges to recruitment & retention. Encouraging career development through training may improve TGDs sense of wellbeing & fulfilment, competitiveness at interview for Training posts and aid recruitment & retention.

**Summary of Work:** Based on survey-identified needs of TGDs within our institution, we developed a bespoke 'training package' including access to Educational Supervision, guidance on personal portfolio development, study leave allowances, a new simulation package, a TGDs Handbook and a one day seminar on 'Introduction to the UK's NHS'. We also supported progress towards the Certificate of Eligibility for Specialist Registration (CESR).

**Summary of Results:** • The programme was well received with a high level of engagement from TGDs, good attendance at focus groups, workshops & the Induction Seminar • 79% of Seminar-attending TGDs had little or no knowledge of the NHS at the start of their careers with 92% stating they would have been better informed had such a seminar been provided earlier in their NHS careers. • Positive feedback from all TGDs • Reduced vacancy rate for TGDs suggestive of a positive impact.

**Discussion:** Early evaluation suggests that TGDs, whilst clinically competent, value guidance on non-clinical aspects of the NHS. Additionally, facilitating training fosters a sense of wellbeing & loyalty to the organisation.

**Conclusion:** Non-training grade doctors necessarily make up an increasing proportion of the work force in the UK. Supporting TGD educational & career developmental needs makes such posts more attractive, enhances recruitment & retention and consequently improves patient care & safety during challenging times.

**Take Home Messages:** Valuing this expanding section of the workforce is a key factor in reducing high staff turnover, improving quality of patient care and raising morale amongst TGDs.

#5FF12 (135584)

**Analysis of the Health and Care Professionals Council (HCPC) CPD and audit system used as part of continuing fitness to practice in the UK**

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**Background:** The Health and Care Professionals Council (HCPC) are the second largest regulator in the UK, with over 230,000 registrants in 16 professional group e.g. Allied Health Professions, Biomedical Scientists, Psychologists and Social Workers. They set up a Continued Professional Development (CPD) system which requires registrant to undertake CPD on a regular (every month) basis. A random sample of 2.5% are selected each year when a profession renews its registration and are required to submit their CPD file for assessment by the HCPC to ensure continuing fitness to practice. The system puts most of the onus on registrants to comply, be organised, and honest. It therefore offers a less expensive model compared to the medical model where all doctors are required to show CPD activity as well a multi-source feedback and a review of complaints and complements and everyone is assessed. The UK Department of Health commissioned research to examine the HCPC CPD and audit system which forms part of their system on continuing fitness to practice.

**Summary of Work:** The research involved five work streams: literature review, an examination of over 60 CPD records, interviews with council members, employers, CPD assessors and registrant (n=45), a survey of 8,000 registrants, and a health economic cost analysis.

**Summary of Results:** The CPD system does have many strengths: requiring regular consideration and engagement with CPD to both inform practice and lead to patient benefit. Weaknesses include the reliance on self-evaluation without any external evidence of professional practice or performance.

**Discussion:** The range of data collected about this system has identified a cultural shift on the view of CPD. However, more evidence from third parties would strengthen it.

**Conclusion:** This model offers some attractive elements compared with medical revalidation.

**Take Home Messages:** Linking CPD to a change in professional practice and to patient benefit should be considered more widely.



#5FF13 (135801)

**Assessing the Contribution of a Family Health Specialization course from the Perspective of Students**

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*Luciana Bisio Mattos*  
*Cleidilene Ramos Magalhães*  
*Maria Eugênia BresolinPinto*

**Background:** This study falls within the scope of Continuing Education in Health Care (CEHC). Primary Health Care (PHC) practices, especially the Family Health Program (FHP), have been used to ensure the organization of health services in Brazil.

**Summary of Work:** This is a qualitative study carried out in the context of a Family Health Specialization course offered by two institutions in Rio Grande do Sul, southern Brazil, in which focus groups and an online questionnaire were used. The goal was to assess the contribution of this Course, offered in two methods: the traditional/presential and the e-learning, to the activities of health professionals that work in the state of Rio Grande do Sul, Brazil. Participants were 64 professionals involved in PHC and then randomized enrolled in one of the groups (the traditional or the e-learning methods). Two focus groups were created for methods groups (one in the beginning of the course and one at the end).

**Summary of Results:** They're nurses (64.3%), physicians (9.5%) and dentists (26.2%). Based on data collected, the following were cited as contributions which the course brought: increase in the number of professional training courses outside of major urban centers, better understanding of the FHP, sharing of experiences and interdisciplinary work, courses as a form of CEHC, reflection on the work process and changes in the logics of care offered to users.

**Discussion:** It's necessary that CEHC be more valorized by the authorities, to improve the PHC.

**Conclusion:** The course gave rise to changes, such as reorganization of teamwork, implementation of group activities, implementation of humanized reception of walk in patients, and better understanding of the work process of an FHP team.

**Take Home Messages:** Professionals agree that CEHC and the graduate course are powerful instruments for practices' changes and of the work process.

#5FF14 (135768)

**Preliminary results of the effect of a national cardiotocography education program on incidence of birth hypoxia**

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*Thomas Bergholt*  
*Jette Led Sorensen*  
*Susanne Rosthoej*  
*Morten Hedegaard*

**Background:** Literature indicates a causal relationship between management of electronic fetal monitoring (CTG) and hypoxic brain injuries. Continuing CTG education is recommended. The aim of our study was to examine whether the introduction of a national obstetric CTG education program was associated with a decrease in the incidence of birth hypoxia.

**Summary of Work:** A national obstetric project was introduced in 2012. The project consisted of a mandatory CTG education program and three checklists for admission, oxytocin augmentation, and assisted vaginal delivery to be implemented at all 24 maternity units in Denmark. The CTG education comprised e-learning, a one-day attendance course and a written assessment. A total of 2037 doctors and midwives have up til now completed the education program. The study population consisted of all live born singleton cephalic-presenting infants, born at term at a maternity unit from 2008 to 2015. Data were retrieved from the Medical Birth Register and The National Patient Register. Birth hypoxia was measured with Apgar score <7 after 5 min, umbilical cord pH <7.00 and hypothermia treatment. Time trend analyses using logistic regression was performed.

**Summary of Results:** A total of 360.147 infants were included. Preliminary results do not indicate a significant reduction in the incidence of birth hypoxia. Analyses are ongoing.

**Discussion:** The program may not have had the intended effect, as implementation of change in clinical practice is complex. Other factors could affect fetal outcomes, such as communication, and interdisciplinary and inter-professional teamwork. Training in these skills was not a part of the project. Birth hypoxia is a rare event often caused by antepartum factors; a significant and sustained decrease in intrapartum-related hypoxia may be difficult to obtain.

**Conclusion:** A national obstetric CTG education program may not have decreased the incidence of birth hypoxia.

**Take Home Messages:** Implementation of a national education program is a complex task.

#5FF15 (135704)

**Managing your medical portfolio is hard (but it doesn't have to be!)**

*Richard Price\*, Health Education England (via research conducted at University of Liverpool), Yorkshire, UK*

**Background:** Many authors acknowledge the significant contribution of informal learning experiences to knowledge acquisition and the competence of learners. Managing a portfolio of continuous professional development is a requirement for many medical and healthcare professions. Portfolios typically consist of evidence and descriptions from a wide range of learning sources. However, unlike formal learning activities, informal learning experiences are rarely recorded and their contribution untracked.

**Summary of Work:** A study was conducted to identify if an emerging technology – the Tin Can API (xAPI) – supported healthcare professionals to track all their learning activities, both formal and informal, and to liberate their training records. Medical learners were provided with access to a prototype learning record store to collect various activities including reading eBooks, eJournals and watching videos. Changes in learner perceptions were tracked before and after using the prototype.

**Summary of Results:** The findings suggest medical learners want to take greater ownership of their training records and that the xAPI technology may be one solution to support collecting informal learning activities for use in a medical portfolio.

**Discussion:** Applications of the research include the ability to record experiential learning and track competence of students in higher education, supporting career development of healthcare and medical learners in the workplace, and supporting medical students in developing nations to track their learning where they do not have access to formal CPD resources.

**Conclusion:** The results echo the growing recognition in the learning and development community that management of learning records should no longer be employer-lead. Medical learners want to own their learning, find maintaining a portfolio difficult and want to improve the ease with which they track and maintain their continuing professional development.

**Take Home Messages:** Managing a portfolio of continuous professional development is hard, but emerging technologies are making the job a little easier!

#5FF16 (133629)

**Knowing what the doctor does not know: reducing re-admissions of patients with learning disabilities**

*Rags Subramaniam\*, East Kent Hospitals University Foundation NHS Trust, Ashford, UK*

*Adrian Simoes*

*Prathibha*

*Daniel Marsden*

**Background:** Re-admission rates of patients with Learning Disabilities are four times as likely to experience readmission compared to the general population within the acute hospitals in East Kent, England. Patients with learning disabilities expressed concerns about the standard of care they received. The Trust undertook a pilot project to assess and supplement knowledge of doctors about patients with learning disabilities requiring medical and surgical care.

**Summary of Work:** A group of 30 doctors from medical and surgical specialties participated in a workshop to assess knowledge of learning disabilities. Assessment workshop was facilitated by professionals in learning disabilities including 'Expert Patients'. Assessment tools devised and used comprised of MCQs, Case Scenarios, interviews and feedback of personal experiences from doctors. A checklist questionnaire of resources within the Trust was also used.

**Summary of Results:** Significant gaps in knowledge: • 67% gap on Aetiology of Learning Disabilities, incidence rates, degrees of LD • 86% on Communication issues and available resources • 83% on detailed mental capacity and consent legislation • 79% gap on knowledge of available support

**Discussion:** Should Learning Disabilities be a mandatory component of all postgraduate doctors curricula. Organisations should consider providing training on learning disabilities to uphold the NHS constitution and ensure equality of care across the spectrum of patients. Identifying training needs should incorporate a range of 'assessment of knowledge' tools and methodologies in order to develop meaningful training packages

**Conclusion:** Using bespoke tools and techniques were useful to assess the knowledge of learning disabilities among doctors. Curricula within Foundation and Specialty training do not adequately cover aspects of learning disabilities for doctors in acute hospitals. A customised approach provided significant information and identified training needs, to inform development of targeted training for doctors.

**Take Home Messages:** Doctors' assessment of knowledge on learning disabilities is necessary to construct learning programmes to reduce and prevent un-necessary hospital re-admissions.

#5FF17 (132991)

**Using the past to improve continuing professional development (CPD) in chronic disease management - a critical discourse analysis**

**Rene Wong\***, *Wilson Centre for Research in Education, University of Toronto, Toronto, Canada*

*Cynthia Whitehead (Wilson Centre for Research in Education, University of Toronto, Toronto, Canada)*  
*Simon Kitto (Department of Innovations in Medical Education, University of Ottawa, Ottawa, Canada)*

**Background:** Continuing professional development (CPD) is proposed as a way to improve chronic disease management yet the assumptions that inform CPD practices have not been examined. CPD may be improved by enhancing our understanding of how CPD works, under what conditions and why. Using diabetes as a case study, we investigate the historical emergence of current conceptions of CPD in chronic disease management.

**Summary of Work:** We conducted a Foucauldian critical discourse analysis of an archive of relevant policy documents, professional and CPD academic literature texts to trace the sociohistorical emergence of diabetes care discourses and the implications for CPD. We sought to understand: When does CPD emerge as a means to improve care? How does it evolve? Who stands to gain and lose power with particular characterizations of CPD?

**Summary of Results:** We identified two distinct discourses, each holding different implications for CPD. In the first, interventional discourse, CPD is a vehicle to address family physicians' inability to achieve guideline-recommended targets. In the second, self-managerial discourse, family physicians support patient decision-making but the role of CPD to enable these practices is unclear.

**Discussion:** CPD is hailed as an effective mechanism to improve care, particularly with specialist teachers and family physician learners. However the expertise and perspectives of family physicians to support and empower patient self-management is not reflected in CPD. Thus the discursive constructions of CPD reinforce power differentials between family physicians and specialists.

**Conclusion:** Our results help rethink taken-for-granted "truths" about CPD in chronic disease management. Highlighting the historical emergence of CPD as a discursive object makes visible its potential to reinforce power differentials between family physicians and specialists, paradoxically impeding effective collaboration.

**Take Home Messages:** Critical discourse analysis provides an opportunity to understand the historical emergence of CPD and the implications for what is currently possible for a CPD provider or learner to think, do and be.

#5FF18 (136164)

**Facilitating the Integration of Quality Improvement (QI) and Continuing Professional Development (CPD) at both the hospital and departmental levels within the discipline of Psychiatry**

**David Wiljer\***, *Centre for Mental Health and Addictions, Toronto, Canada*

*Gurneet Thiara (University of Toronto, University Health Network, Toronto)*  
*Sanjeev Sockalingam (University of Toronto, University Health Network, Toronto)*  
*Adriana Carvalhal (University of Toronto, St. Michael's Hospital, Toronto)*

**Background:** Regulatory bodies including the Royal College of Physicians and Surgeons of Canada have recognized the need for Continuing Professional Development (CPD) to include Quality Improvement (QI) into training programs to maintain certification requirements. Our study explores the potential barriers for facilitation and integration of QI into CPD within the existing framework in the discipline of psychiatry.

**Summary of Work:** In this study, the literature has been critically reviewed. Based on the findings, QI and CPD leads from the Department of Psychiatry department are being interviewed to identify opportunities and barriers to collaboration. Using purposive sampling, hospitals were selected based on type, size and the range of offered services. Semi-structured thirty minute interviews have been conducted and transcribed with 12 identified leads (7 QI, 5 CPD). All interviews are in the process of being coded and thematically analyzed using Hyperresearch (qualitative research software).

**Summary of Results:** Potential barriers and solutions have been identified, but it is uncertain whether these solutions have been widely adopted. The preliminary themes that have emerged from the initial data analysis from the first five transcriptions (2 QI leads, 3 CPD leads) include definitions of both CPD (education, academic activities, current standards of practice) and QI (quality indicators, quality outcomes, performance reviews), areas of integration and facilitation of both domains (mentorship, knowledge translation, evaluation), mechanisms for collaboration (grand rounds, joint committees, CME), benefits of collaboration, and current barriers preventing the collaboration (admin/data support, availability of clinicians).

**Discussion:** Our preliminary study results show that QI is interprofessional and CPD is more uni-professional. Also, it further explores that idea that fundamentally QI is hospital based and CPD is university based. The integration of QI and CPD has not been stated as an explicit goal at the organizational level.

**Conclusion:** The development of an integration model for QI in CPD within the discipline of Psychiatry holds significant promise for other sub-specialties aligning with new maintenance of certification requirements. There is a clear gap in the current literature on whether the barriers exist at the hospital or

departmental level, and what factors are associated with these barriers.

**Take Home Messages:** Our qualitative research study has identified many barriers that currently exist affecting the alignment of quality improvement and continuing professional development in Psychiatry at both the community hospital level and academic institutional level.

#5FF19 (136283)

**Continuing Professional Development in Medicine and Healthcare: Better Education, Improved Care, Best Outcomes**

**Mary Turco\***, *Geisel School of Medicine at Dartmouth, Lebanon, NH, USA*

*David Davis, Association of American Medical Colleges, Washington, DC, USA*

*William Rayburn, University of New Mexico School of Medicine, Albuquerque, NM, USA*

**Background:** In these times of rapid information exchange, a repositioning of continuing professional development (CPD) is needed to foster improved care at the bedside, in the clinic, and in the community.

**Summary of Work:** A team of scholars has considered the current status of CPD in medicine and health care to determine what must be done to achieve better education, improved care, and best outcomes.

**Summary of Results:** The result is an evolving text that examines meaningful trends in the development of the health professional, and the role of continuing education as a strategic resource that can transform delivery of care.

**Discussion:** Academic medicine has moved in two directions: (1) system-wide reform using electronic health records, practice networks, and widespread data (a “macro pathway”), and (2) professional development of individual clinicians through continuous performance improvement (a “micro pathway”). Scholars envision a better union between these parallel pathways through an acknowledgement that both are essential, a faculty commitment to QI education, re-engineering of CPD tools, and standards to sustain the alignment.

**Conclusion:** With the better union between system-wide reform and professional development, a better functioning system with improved metrics and value to enhance patient care will evolve.

**Take Home Messages:** Scholars have articulated meaningful trends in the development of the health professional and the role of continuing education as a strategic resource that can transform delivery of care.



## 5GG Posters: Clinical Teaching 1

Location:

#5GG01 (134109)

**Towards understanding how patient-centeredness is (not) learnt by undergraduate medical students: Insights from a behavioural model**

**Elize Archer\***, University of Stellenbosch, Cape Town, South Africa

EMB Bitzer

BB van Heerden

**Background:** The notion of patient-centred care has developed due to changes in health care such as the challenging of traditional medical paternalism and the increased access for patients to health information. There is evidence that a patient-centred approach has many benefits. It is therefore vital that medical schools foster patient-centred values and behaviour in their graduates, yet studies report students becoming less so during medical school.

**Summary of Work:** The aim was to understand how undergraduate medical students learn (or not learn) patient-centeredness. Focus group interviews were held with final year medical students (n=64). The interviews were transcribed, coded and categorised after which themes were identified. These themes were guided by components of Fishbein's (2000) Integrative Model of Behavioural Prediction (IMB).

**Summary of Results:** The interviews revealed that the intentions of some students were weak due to reasons such as poor self-efficacy, but the majority of students had the intention to act in a patient-centred manner. Factors such as environment and knowledge and skills hindered them however to behave as such. Students felt that personality is a strong influencing factor and that the most powerful learning of behaviours was through role modelling.

**Discussion:** The students identified the same barriers and enablers to behave in a patient-centred manner as similar studies done. What was very prominent in our study is that both teachers and students misinterpreted the term patient-centeredness. Another driving factor for student behaviour is the assessment system that is focussed on biomedicine and knowledge and skills, with little emphasis on attitudinal aspects.

**Conclusion:** To behave patient-centred, various factors need to be considered. The IBM model was useful to assist with some understanding of how students learn and develop such behaviours. However it was clear that our clinical learning environment (hidden curriculum) poses most of the challenges.

**Take Home Messages:** Behavioural science theories can assist curriculum developers to understand our real challenges, and from that suggest useful recommendations for our context.

#5GG02 (134551)

**Effects of Hospice and Palliative Care Education through Multi-Disciplinary Simulation**

**Li-Lin Kuo\***, Taipei City Hospital, Taipei, Taiwan

Yang-Ching Chen (Taipei City Hospital, Taipei, Taiwan)

Ting-Fang Chiu (Taipei City Hospital, Taipei, Taiwan)

Lin-Yang Chi (Taipei City Hospital, Taipei, Taiwan)

Oscar K. Lee (Taipei City Hospital, Taipei, Taiwan)

**Background:** Palliative care requires good communication skills on end-of-life and involves multi-disciplinary team of healthcare professionals. However, current physician training may be inadequate to meet the palliative care needs of end-of-life patients and their families.

**Summary of Work:** In 2015, Taipei City Hospital has developed a serial simulation educations on teaching hospice and palliative care for end-of-life patients. The palliative care simulation presents a series of scenarios involving a simulated end-of-life patients and his families. In each play, learning purposes in three scenes were: (1) bad news discussion and Do-Not-Resuscitate decision-making, (2) treatment options for symptoms relief, and (3) near-dying hospice care at home. A group of trainees including physicians, nurses, and social workers were randomly assigned to participate in each scene and to interact with simulated patient and his families.

**Summary of Results:** A total of 498 trainees from 6 different branches of Taipei City Hospital have been enrolled in this simulation. Each trainee has filled out a before-and-after questionnaire regarding the priorities of most important clinical managements in scene 1 and 3. After palliative care education through simulation, the proportion of including signing DNR as top three priorities in scene 1 has significantly increased from 40.8% to 52.8% ( $p < 0.0001$ ). In scene 3 after simulation, 77.8% of trainees regarded allowing important ones to say goodbye and thank you to the dying patient as the top three important clinical managements, as compared to 73% of trainees before simulation ( $p = 0.0370$ ). Emphasis on bereavement counseling has significantly increased from 40.3% to 48.5% ( $p = 0.0007$ ).

**Discussion:** Hospice care team leaders provide debriefing and discussion after each scene.

**Conclusion:** Palliative Care education through simulation significantly increased trainees' priorities on providing DNR decision discussion and bereavement counseling for end-of-life patients.

**Take Home Messages:** Simulation education is recommended to improve palliative care skills and communications.

#5GG03 (133564)

**“Let’s talk about death” program using a new teaching strategy to enhancing holistic healthcare**

*Pei-Chun Lin\*, Far Eastern Memorial Hospital, Taipei, Taiwan*

*Yun Chen (Far Eastern Memorial Hospital, Taipei, Taiwan)*

**Background:** Holistic care is the core value of healthcare education. Among that, end of life is the most difficult to teach in traditional ways. The aim of this program titled “Let’s talk about death” was to establish the meaningful learning actions and reflections in holistic care of end-of-life by using experiential learning.

**Summary of Work:** We designed a program with TED playlist titled “New way to think about death” to give the learner a soft way to think about death through ten 40 minutes lessons. Each lesson contain a short TED talks video, facilitators experience sharing, and trainer’s relevant end-of-life patient care experiences. Through these we create a new education model for enhancing learner’s cognitions in holistic healthcare. Questionnaires with feedbacks after lesson were collected.

**Summary of Results:** Learners’ feedback on various items gave a satisfaction rating 4.6 (Likert scale: 5 strongly agree; 1 strongly disagree) overall. 92% learners agreed this program can enhance their empathy facing the death, facilitate the sensitivity and passion to provide holistic care and sympathy adequately. 90% learners agreed this program can construct their self-confidence in communicating death with patients.

**Discussion:** We provide meaningful materials to facilitate learner’s reflections and learning activities and assist learners themselves to make the connections between their previous experiences and current learning. 90% learners appreciated this program to induce self-learning desire and create the connections with their previous holistic care experiences and would like to recommend this program to other fellows.

**Conclusion:** Through using TED short talks to open a new viewpoint about death with experienced facilitators as a driving force for having reflections with positive perceptions in order to induce learner self-aware and improve their capability of holistic care.

**Take Home Messages:** A training program integrated free popular web materials such as TED talks to teach end-of-life can enhance learners’ experiencing learning and holistic healthcare cognitions.

#5GG04 (133824)

**Transition To Clerkship – How Involved Are Medical Students In Ward Rounds?**

*Wei Quan Heng\*, Tan Tock Seng Hospital, Singapore, Singapore*

*John Mingzhou Chua (Tan Tock Seng Hospital, Singapore, Singapore)*

*Jeremy Shaowei Mong (Tan Tock Seng Hospital, Singapore, Singapore)*

*Kum Ying Tham (Tan Tock Seng Hospital, Singapore, Singapore)*

*Kenneth Wei Jian Heng (Tan Tock Seng Hospital, Singapore, Singapore)*

**Background:** The ward round is rich with clinical material. Inexperienced students – who lack professional socialisation skills – often struggle to take advantage of this learning platform. In this study, we described the interaction dynamics of ward rounds that involved medical students in their first clerkship posting. By understanding the strengths and weaknesses of the students’ social network, we identified interventions that can improve their participation in ward rounds.

**Summary of Work:** This was a field observation study of medical students in the ward rounds of their first clerkship posting. Independent observers were trained to record the direction and duration of all interactions that occurred during a ward round. Each ward round was observed for an hour. Data collected was evaluated with methods of social network analysis to generate descriptive statistics and network diagrams that represented, quantitatively, the socialisation patterns of each member of the ward round.

**Summary of Results:** Nine students were observed in 8 ward rounds for a total of 8 hours. They were passive observers who secluded themselves and directed most of their attention to study aids, fellow students, and ward computers. Their interaction with doctors and patients were limited. They were spoken to mostly by the Consultants.

**Discussion:** Prevailing research suggest that knowledge deficits and difficulties with professional socialisation contributed to the students’ passive behaviour. Pre-clerkship training may help to rectify these deficiencies. Consultants, as natural leaders in the ward rounds, can be leveraged to facilitate greater student participation and patient interaction. A flipped classroom approach, and a checklist of ward round objectives, will encourage proactive, goal-oriented behaviour.

**Conclusion:** New education strategies are needed to encourage proactive learning behaviour from inexperienced medical students during ward rounds.

**Take Home Messages:** To maximise learning during ward rounds, 1. Students need to be engaged more frequently by senior doctors and patients. 2. Pre-planning with students is needed to encourage proactive, goal-oriented participation.

#5GG05 (135556)

## **Interdisciplinary patient centered bedside teaching round-experience at Shuang Ho Hospital, Taipei Medical University**

**Bei-Wen Wu\***, Taipei Medical University – Shuang Ho Hospital, Taipei, Taiwan

Yuh-Feng Lin

Chaur-Jong Hu

Mei-Yi Wu

Po-Hao Feng

Li-Chin Sung

**Background:** Traditional teaching round is held by medical team that consist of attending physician, resident, internship/clerkship. Interdisciplinary issues such as dietary therapy, medication dosing and safety, rehabilitation, social work problems are solved through consultation. We have created interdisciplinary bedside teaching round to further promote patient centered care and education since Dec 2014 . In addition to physician, resident, internship/clerkship, nurse, dietitian, pharmacist, rehabilitation therapeutics, social workers as well as their students etc will join the bedside teaching.

**Summary of Work:** Section of Nephrology, Neurology, Chest Medicine, Cardiology and Department of Pediatrics have participated in this program. One week before bedside teaching, the attending physician selected proper patient, requested for informed consent, raised active problems, organized associated professions. On the date of teaching, using diabetic nephropathy in end stage renal disease(ESRD) as example, the interdisciplinary nephrology team including different levels of physicians and medical students, dietitian, pharmacist, social workers as well as students attended the teaching activity. We made differential diagnosis concerning etiology ESRD through history presentation, evaluated the possible comorbidities of cardiovascular and cerebral systems.

**Summary of Results:** We have carried out 38 section of interdisciplinary bedside teaching round from the participated sections and department since Dec, 2014. The satisfaction score for teaching form different profession faculties was 4.76 in average (total 5.0) evaluated by all students. We thought that interdisciplinary bedside teaching not only provided patient centered care and education but also interprofessional knowledge and skill learning for the students and faculties.

**Discussion:** During bedside teaching, dietitian and pharmacist demonstrated the low protein dietary manipulation, medication compliance and side effect monitoring, physician educated the prevention of comorbidities and avoidance of nephrotoxic agents, nurse emphasized life style modification, social workers surveyed the necessary for financial and psychological support.

**Conclusion:** The interdisciplinary team discussed the patient centered decision making. The students as well as faculties learned comprehensive interprofessional knowledge/skill as well as patient centered care.

**Take Home Messages:** Interdisciplinary bedside teaching not only provided patient centered care and education but also interprofessional knowledge and skill for the students and faculties.

#5GG06 (133362)

## **Challenging learning situations in the clinical environment**

**Ming-Chen Hsieh\***, Tzu-Chi General Hospital, Tzu Chi University, Hualien, Taiwan, Hualien, Taiwan

Shu-yuan, Liang (Tzu-Chi General Hospital, Tzu Chi University, Hualien, Taiwan)

Tsung-Ying Chen (Tzu-Chi General Hospital, Tzu Chi University, Hualien, Taiwan)

**Background:** Difficulties that arise during training are sometimes identified by learners themselves, who might first seek help from their clinical teachers or from other services.

**Summary of Work:** This 'Education Retreat' pilot program is designed for practicing clinical teachers who want to enhance their clinical teaching ability.

**Summary of Results:** We discussed the symptoms and signs that indicated potential problems; summarized the literature on educational diagnosis and aimed to help teachers expand their “differential” in various challenging learning situations; and arranged a GOSTE (Group Objective Structured Teaching Examination), try to the management of challenging learning situations.

**Discussion:** Our changing goals for learning, deeper understanding of teacher learning and student thinking, have led to new findings about the impact of teacher professional development and how best to sharpen clinical teachers' skills and knowledge.

**Conclusion:** Extended opportunities to better understand student learning, curriculum materials and instruction, and subject-matter content can boost the performance of both teachers and students.

**Take Home Messages:** Clinical preceptors have a great responsibility when training students and often this training takes place in a fast-paced, high workload environment.

#5GG07 (133889)

### Parents' perception on paediatric bedside teaching

**Erwin Khoo\***, *International Medical University, Kuala Lumpur, Malaysia*

**Stefan Kutzsche**, *International Medical University, Kuala Lumpur, Malaysia*

**Background:** Children are used in paediatric clinical teaching courses or skills assessment. Parents often feel a commitment to let their children participate even if they are concerned or ambivalent. This study sought to examine parent's perceptions, motives and concerns when they agree to involve their children in bedside teaching (BST).

**Summary of Work:** Parents were invited to participate in a researcher administered survey directly after the paediatric BST involving 24 semester eight students. The questionnaire addressed parent's level of comfort, safety issues, confidentiality, organisation and timing. They were encouraged to submit suggestions for improvement.

**Summary of Results:** A total of 21 parents participated. Parents showed altruistic attitude to help students learn. It helped them to understand their child's problem. They were concerned about tiring procedures and repeated examinations. They think they should be involved in the planning. Results are not influenced by prior parental experience and concerns.

**Discussion:** Parents agree to paediatric training when their own children are taking part. They are motivated to contribute to clinical teaching rounds and usually give consent. They feel that their influence on the structure of student visits in the paediatric ward could significantly reduce the burden of their offspring.

**Conclusion:** The study revealed that respect for children and parents' autonomy contributes to a positive, safe and comfortable clinical learning environment. Parent involvement in planning the teaching sessions will help students and teachers to understand the importance of patient integrity in BST settings.

**Take Home Messages:** To make teaching in the presence of paediatric patients possible, future guidelines must emphasise a structure in which parents and children and faculty can plan together.

#5GG08 (136149)

### Breaking barriers and changing attitudes: Training Medical Students on access to safe abortion

**Carles Pericas Escalé\***, *International Federation of Medical Students' Associations, Vilanova del Valles, Spain*

**Michalina Drejza** (*International Federation of Medical Students' Associations, Poznan, Poland*)

**Background:** Unsafe abortion accounts for almost 10 million of the total amount of induced pregnancy terminations. These unsafe abortions comprise 13% of maternal mortality worldwide, representing a disastrous yet avoidable outcome. The WHO defines unsafe abortion as a "procedure for terminating pregnancy carried out by persons lacking the necessary skills or in an environment that does not conform to minimal medical standards. We, as medical students acknowledged the importance of educating future healthcare providers on access to safe abortion and set up a three day curriculum together with our partner organization, Ipas.

**Summary of Work:** Since 2013, we have held the workshop every four months in different regions, with the aim to adequately prepare students on how to take action for safe abortion and make them understand how it interlinks with human rights and public health. We cover sexual health and reproductive rights; gender equality and abortion policies as well as woman-centered comprehensive abortion care.

**Summary of Results:** Over 100 medical students have been trained since we established this workshop, all of them showing after our qualitative pre and post workshop assessment attitude changes as well as intercultural learning.

**Discussion:** Implement a safe abortion curriculum in countries with different cultural backgrounds is difficult, however we believe all health professionals should know about these issues and that therefore should be included in the formal curriculum.

**Conclusion:** Over 80% of the medical students that received the training, conclude that we, as future health professionals should be emphatic in understanding that the decision to terminate a pregnancy is a personal matter for every individual and not based on the physician's values

**Take Home Messages:** As shown in the results, this has proven to be an effective non formal education training for students. This approach could set the ground for faculties to implement this as an elective or as part of their formal curriculum.



#5GG09 (127500)

**Assessing shared decision-making skills of 3rd year medical students**

*Lucille Ong\*, Academic Medical Centre, Amsterdam, Netherlands*

**Background:** 70% of patients wants to be involved in their care. Patients want to be informed about the possible treatment options, discuss preferences and eventually be able to decide together with their doctor which treatment fits best. Shared decision-making (SDM) meets this need, having a positive effect on satisfaction, quality of life and the doctor-patient relationship.

**Summary of Work:** We teach students a 5-phase SDM consultation model: 1. Start/goal 2. Informing 3. Deliberation 4. Preference 5. Decision. Recordings of 347 students conducting SDM consultations were assessed using a rating list. Assessments were categorized as: below expectations (4-5), meets expectations (6-7-8), and above expectations (9-10). Furthermore, students provided written reflections of their consultation.

**Summary of Results:** A semi-structured rating list was developed to assess SDM skills of 347 medical students. The average assessment was 7,0. Thirty four students (10%) failed, whereas 19 students (5%) performed above expectations. The majority of students (85%) performed at 'meets expectations' level. All students fulfilled their reflective Portfolio assignment.

**Discussion:** Our teaching method shows that SDM communication skills can be taught to 3rd year medical students. We were also able to assess these skills. Students' SDM skills meets our level of expectations. These hopeful results however do not foretell students' future behaviour. By providing SDM workshops to clinicians we hope to incorporate SDM skills in doctors' medical practice.

**Conclusion:** Our 5-phase consultation model can be used to teach SDM skills. - These skills can then be assessed using a semi-structured rating list. - The majority of students performs at an adequate level of performance.

**Take Home Messages:** SDM skills can be taught and assessed. SDM needs to be implemented in medical education.

#5GG10 (131541)

**The effectiveness of a two week planned learning based teaching method**

*Mao-Meng Tiao\*, Kaohsiung Chang Gung Memorial Hospital and Chang Gung Medical Education Research Center, Kaohsiung, Taiwan*

*Chih-Jen Chen  
Chih-Hung Chen  
Chih-Cheng Hsiao  
Lynn Monrouxe*

**Background:** The random acquisition of knowledge in the clinical setting for students through different patient encounters makes the students feel not at ease and inequitable. The "Planned Learning" creates a strategy to achieve specific outcomes for learners on clinical placement. Our aims are to evaluate the efficacy of the planned learning intervention and whether this intervention provided a more standardized learning experience.

**Summary of Work:** We implemented a 2-week set of teaching materials for the 30 residents who rotated to the Paediatric Gastroenterology department. All the teaching materials were handed out to be read by the students prior to the beginning of their rotation. Each day a different set of materials were read by the residents and were then discussed on the following day with their teachers.

**Summary of Results:** A pre-test, a post-test knowledge and a satisfaction questionnaire were administered with Student's t-test. The average post-test score was  $94 \pm 7.3$  (80-100) in compare with a pre-test score of  $51 \pm 20.3$  (30-100) ( $P=0.005$ ). The satisfaction rate of this course is 90% and is greatly embraced by the students.

**Discussion:** Our study depicted that students can learn in more detail the most common topics in the workplace even without seeing the actual cases during their training period. Some suggested the teaching materials should be handed to the students 7 days earlier and a longer course might also be suitable for the planned learning.

**Conclusion:** Planned learning allows students to know ahead of time what they will be taught during the next 14 days. This makes the students more at ease and prevents the occurrence of an inequitable teaching that is common to an encounter type of teaching.

**Take Home Messages:** A 14 days planned learning strategy allowed students to be more at ease, provided a more standardized learning experience and prevented the occurrence of an inequitable teaching. Further research in other contexts is needed to clarify the difference of the intervention of this planned learning effect.

#5GG11 (133699)

**Online Management of a Hospital-Wide Bedside Teaching Programme for Medical Students**

**Gemma Fairclough\***, Royal Liverpool University Hospital, Liverpool, UK

Mark Lewis

Thomas FitzMaurice

Arpan Guha

**Background:** Traditional bedside teaching offers medical students the opportunity to interact with patients and gain practical experience, a noted decline exists from 60% of all clinical activities in the 1960s to as little as 8% in 2014. Facilitation of effective bedside teaching was the aim of our project.

**Summary of Work:** An existing online platform was used to design an electronic timetable flexible to doctors' availability. The purpose was to maximise the potential number of available sessions and move from a supply to a demand led view, thus working around doctors' clinical commitments. Qualitative and quantitative feedback was obtained throughout.

**Summary of Results:** From September 2015 to February 2016 26 doctors taught 76 sessions. Of 108 programme feedback forms 95% thought it was well organised and 99.0% enjoyed the teaching. Ninety initial feedback forms identified paper-based sign up was preferred by 17.7%. Further feedback from January showed 100% considered online sign-up system easy.

**Discussion:** When organising a teaching programme difficulties arise with respect to time-limitations of busy doctors and successfully linking up doctors who are keen to teach with medical students who are keen to learn. Bedside teaching can be reinstated in modern medical teaching using this flexible online programme.

**Conclusion:** This programme ran successfully and was universally enjoyed. The flexibility for the tutors to sign up when they are available enables a dynamic approach to teaching sign up. This online method of delivery and flexible timetable is transferable to other teaching programmes.

**Take Home Messages:** Flexibility is a key to success when organising teaching programmes in a busy teaching Hospital. Using an online sign-up allows remote organisation and its ease of use encourages greater uptake.

#5GG12 (132079)

**Does Delivering Clinical Skills Instruction with Learning Communities Increase OSCE Performance at the End of Year 2?**

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**Background:** In an environment that has become more demanding of clinical productivity, it is important that students enter clerkships ready to contribute as effective team members. To meet this challenge many schools have integrated clinical skills instruction in the foundational years. Little research exists on the impact of clinical skills curriculum.

**Summary of Work:** In 2013 the University of Utah implemented a learning community (LC) model for longitudinal clinical skills instruction. Prior to 2013 students received four months of clinical instruction, but not in learning communities. We hypothesized that LC students would perform better than non-LC students on an end of year 2 OSCE.

**Summary of Results:** LC student (N = 99) scored higher than non-LC students (N = 86) in history gathering, physical examination, diagnosis, and evidence-based medicine OSCE domains,  $P < 0.003$  for all comparison. Non-LC students scored higher in communication compared to LC students,  $P = 0.001$ .

**Discussion:** Future research will need to determine if the improvement seen at the end of year 2 translates into students having better clinical skills during year 3 clerkships.

**Conclusion:** Delivering more clinical instruction via learning communities in years 1 and 2 improved students' OSCE performance, with the exception of communication skills.

**Take Home Messages:** This is the first study in medical education to show an increase in clinical performance based on instruction delivered via a learning community.

#5GG13 (135686)

**Student or site?: A 12-year investigation of performance on National Board of Medical Examiners® (NBME) clinical subject examinations at one international medical school**

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Gregory Gilbert (DeVry Medical International's Institute for Research and Clinical Strategy, Iselin, USA)  
Eugene Grochowski (AUC, Sint Maarten, Netherlands Antilles)  
Julie Scott Taylor (AUC, Sint Maarten, Netherlands Antilles)

**Background:** There is tension between admitting and training students who can become outstanding physicians but may struggle with mandatory, standardized written examinations and enrolling only students who are likely to succeed with those high stakes assessments. It can also be challenging to administer a cohesive clinical program across accredited but geographically distributed sites.

**Summary of Work:** At American University of the Caribbean School of Medicine (AUC), 2,681 students between November 2002 and December 2014 were categorized as "high" or "low" achievers based on their performance on USMLE Step 1 ( $\leq$  or  $>$  200). Clinical sites ( $n=54$ ) were categorized as either "high" or "low" performing based on students' scores on each of five NBME subject examinations (specialty and mean cut off: internal medicine=75, OB/GYN=68, pediatrics=70, psychiatry=73, and surgery=69). Regression models were constructed for each NBME subject examination to explore the student-site interaction.

**Summary of Results:** A cohort of 2,681 students completed 13,305 clinical rotations at 54 sites over 12 years. The students' average age was 25 years; 58% were male. Their mean MCAT score was 24 ( $se=0.08$ ). In each of five separate NBME subject examination regression models, the student-site performance level interaction term was significant.

**Discussion:** Clinical deans overseeing a geographically distributed program need objective guidance to drive investment of resources to improve medical students' success.

**Conclusion:** At our institution, the quality of clinical sites correlates with students' NBME subject examination performance in every specialty. Although both are important, improving the clinical curriculum (content) at our lower performing sites may be as high an impact intervention as working with students on their test taking skills (process).

**Take Home Messages:** In addition to the test-taking ability of individual students, the quality of a clinical site is an important factor in medical students' success with NBME subject examinations. Further investigation will inform site-specific interventions.

#5GG14 (131792)

**Experienced family caregivers positively contribute to the perception of nursing trainees toward the therapeutic play for hospitalized children**

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Yachung Jeng  
Hsiu-Hua Chiu  
Ching-Mei Chang  
Chih-I Hung  
Ching-Shiang Chi

**Background:** Recently, the idea of integrated holistic medicine was gradually adopted. Related clinical activities, e.g., developing therapeutic play for hospitalized children, usually involved multiple family caregivers without medical professional. How the family caregivers influence nursing trainees' learning during novitiate was unclear.

**Summary of Work:** Thirty-nine nursing trainees attended a lecture on the tenets of therapeutic play program. Trainees' understanding on the expected program benefits toward hospitalized children and their caregivers and trainees' perception toward (or observation on) the benefits during activity were respectively assessed before and after the program activity.

**Summary of Results:** On the benefits of discomfort mitigation, family caregiver burden alleviation, children emotion improvement, and communication and healthcare enhancement, 33.33%, 35.9%, 41.03%, and 48.72% trainees perceived the benefits during activity, while the perception score significantly decreased if more family caregivers were new participants of the program or had a college degree.

**Discussion:** Previous studies indicated that novitiate students perceived higher stress when patients (or their families) show distrust or request for help. Suppose that new participants with higher education level could be unfamiliar with activity rules and more courageous to ask questions. This could make trainees distracted to cope with participants' consultation.

**Conclusion:** The realizations of many modern healthcare models depend on future health workers' willingness to re-engage in such healthcare. To reduce the interference on education quality of novitiate from patients and their caregivers to nursing trainees is therefore an important point for promoting such healthcare.

**Take Home Messages:** To promote future nurses' positive perception toward modern healthcare modes such as integrated holistic medicine, mentors should carefully evaluate the potential interference or burden came from patients and their caregivers to trainees, especially when the novitiate curriculum involved multiple patients and family caregivers, e.g., therapeutic play for hospitalized children.

#5GG15 (135906)

**Application of Situated Simulation Teaching in Pressure Sores Nursing Education**

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*Mei Hua Wang (NTUNHS, Taipei, Taiwan)*

**Background:** Pressure sores are a common problem in clinical care, not only affect the patient physiological, psychological, social, also takes a huge cost. January, 2015 to survey and check the new nurses' skin assessment, turning positioning, pressure sore grading knowledge and skills. The lack of accurate and complete. Therefore, application of situated simulation teaching in pressure ulcers nursing education to reduce the pressure ulcer rate.

**Summary of Work:** Application of situated simulation teaching in pressure ulcer nursing education include: pressure ulcer prevention education programs and situational simulation skill drills. First, the education and training program includes skin care and evaluation, skin cleansing and protection, the right to tear the tape method, classification and prevention of pressure sores. Second, the situation simulation skill drills: (a) design three kinds of common clinical cases of pressure ulcers into the situation, including the shift of the skin assessment, pressure ulcer grading; (b) use of equipment and resources; (c) clinical simulate three-step process: briefing, simulation and debriefing; (d) repeatedly skilled and evaluation learning outcomes.

**Summary of Results:** After the implementation of the teaching strategies, new nurses pressure ulcer prevention knowledge score increased to 95 points from 70 points. Second, pressure sore prevention teaching satisfaction are 94.28%. Third, the patient pressure ulcer rate dropped 0.18% to 0.12%.

**Discussion:** The preparation of simulation teaching sessions, especially those that involve high-fidelity simulations, is time-consuming. Thus, designing a course curriculum and applying appropriate teaching strategies to achieve the desired learning outcomes is a substantial challenge for nurse educators.

**Conclusion:** The use of simulated teaching situations, can improve pressure ulcer prevention knowledge and skills of new nurses, and enhance the satisfaction of teaching.

**Take Home Messages:** Compared to traditional teaching strategies, situated simulation teaching providing learners immersive learning experience, to learn from the mistakes, and can repeatedly practice until proficient in the ability of becoming part.



## 5HH Posters: Postgraduate Communication Skills

Location:

#5HH01 (133235)

**Communication skills teaching of Brazilian medical residents in primary care: perception of the use of pre-recorded videotapes of real consultation with feedback in small groups**

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**Background:** Effective communication improves health outcomes, satisfaction for both patient and doctor and improve the therapeutic relationship. Research highlights the importance of video recording in communication skills teaching.

**Summary of Work:** This work analyzed a questionnaire asking about changes observed in the medical practice of 32 primary care residents after their participation in sessions of pre-recorded videotapes of real consultation, and receiving feedback by a small group, using Problem Based Interview methodology (PBI). Each resident presented one videotape in a small group with a maximum of 12 residents in sessions during about 90 minutes. The videotape was stopped each time anybody notice something important related to communication in the interview.

**Summary of Results:** All medical residents described positive changes in their medical practice. The main changes reported was less interruptions in the patient speech, better time management, increase of empathy, more observation about patient's non-verbal communication, better approach about patient's worries, more use of opened questions and better approach of the patient's main complaint.

**Discussion:** As previously showed Problem Based Interview (PBI) allows that each resident observe yourself, and the feedback received by the members of the group helps the resident to have better strategies to deal with a difficulty in the communication with the patient.

**Conclusion:** The use of pre-recorded videotapes of real consultation with feedback by a group improve the interview and the reflective practice about communication skills in the perception of the medical residents. It should be more encouraged in the medical schools.

**Take Home Messages:** The use of pre-recorded videotapes of real consultation with feedback by a small group is very useful in communication skills teaching.

#5HH02 (134876)

**Barriers to effective communication and collaboration among physicians and nurses in Pediatrics Department in State of Qatar**

**Manasik Hassan\*, Hamad Medical Corporation - Pediatrics Department, DOHA, Qatar**

*Ahmed Duhair*

*Ahmed ould Vetten*

*Ahmed Alhammadi*

**Background:** Clear communication is associated with better quality of care to patients, increase teamwork and job satisfaction for physicians and nurses.

Effective team communication in a hospital inpatient setting is challenging and often requiring unplanned communication among busy healthcare providers. Study aims to identify barriers to provide effective communication and collaboration among physicians and nurses in daily inpatients practice and to explore potential recommendations that can overcome challenges

**Summary of Work:** A cross sectional survey were administered from September until November 2015 to the physicians and nurses on pediatrics inpatients wards at Hamad Medical Corporation the main tertiary hospital in Qatar, questioner included details of demographics, perceptions and barriers to proper communication and collaboration in daily clinical practice. Questions offered objective answers utilizing the 4 -point Likert scale that can be used to perform statistical analysis

**Summary of Results:** Out of 124 responses, 83 (67%) were Physicians and 41(33 %) Nurses. Almost (69%) of physicians stated that they enjoyed communication with nurses compared to (41.5%) of nurses ( $P < 0.012$ ). Nearly (67.5%) of physicians had a good communication with nurses compared to (44%) of nurses ( $P < 0.039$ ). Both group identified several barriers to effective Physicians -Nursing Communication; Lack of sharing plan in decision-making, Lack of physician openness to communication, lack of receiving accurate and correct information, difficulty reaching the physician, lack of professionalism and lack of institutional support

**Discussion and Conclusion:** Our study shed light on barriers to optimal physician - nursing communication in pediatrics Inpatient setting; better understanding of these aspects will insure excellent patients care level

**Take Home Messages:** Our finding identified several strategies to overcome above challenges: mandatory bedside rounds between health care providers and patients, implement structured communication tools, Improve organizational culture and organized lectures and workshops to pediatrics health care providers to ensure excellent patients care.

#5HH03 (135026)

**Using a Rational Explanation Checklist to examine doctors' explanations to patients: initial feasibility study in general practice**

**Maureen Topps\***, University of Calgary, Calgary, Canada

Katherine Kelly, University of Aberdeen, UK  
Christopher Burton, University of Aberdeen, UK  
Aliya Kassam, University of Calgary, Canada

**Background:** General Practice deals with vague symptoms and undifferentiated clinical situations. Patients expect explanations, and some receive inadequate information, especially when there is no clear medical reason. General Practitioners (GPs) employ a number of strategies and explanations depending on the clinical presentation. A "Rational Explanation Model" (REM) has been proposed as a mechanism for enhancing communication with patients about symptoms regardless of the underlying cause. Using a checklist based on the REM, pilot testing was conducted to assess whether there are observable differences between "strong" and "weak" explanations of symptoms.

**Summary of Work:** A medical student (KK) observed GP consultations for a range of symptoms. For each consultation the student completed a Rational Explanation Checklist about the explanation the doctor provided. This included items relating to the symptom / reason for consultation; the nature of any explanation; whether it was agreed as plausible by both parties; whether explanations included a label (or diagnosis); and whether it included a mechanism by which symptoms arose.

**Summary of Results:** 154 patients participated. For "medically explained" symptoms (64% of cases), doctors had an extensive and sophisticated repertoire of explanations and included desirable features such as checking agreement with the patient. For "medically unexplained" symptoms doctors appeared to have fewer explanations and were less likely to include labels or mechanisms.

**Discussion:** Difficult to explain symptoms are challenging for GP's and may leave patients with inadequate explanations. The REM checklist appears to discriminate between "strong" and "weak" types of explanation. This information can be used to strengthen the types of explanations provided by GP's when encountering medically inexplicable presentations. This can enhance the patient centred approach through better communication, enhanced patient engagement and improve patient satisfaction.

**Conclusion:** Use of the REM should be further explored as a functional communications enhancement.

**Take Home Messages:** A REM can enhance GP communication skills and patient engagement in a patient centred manner.

#5HH04 (132512)

**ComPsych: A postgraduate communication skills training program about discussing schizophrenia diagnosis and prognosis for psychiatry trainees**

**Philippa Ditton-Phare\***, University of Newcastle, Newcastle, Australia

Harsimrat Sandhu (Hunter New England Local Health District, Newcastle Australia)  
Brian Kelly (University of Newcastle, Newcastle, Australia)  
David Kissane (Monash University, Melbourne, Australia)  
Carmel Loughland (University of Newcastle, Newcastle, Australia)

**Background:** Mental health clinicians do not always communicate optimally with patients and their carers, particularly when discussing a schizophrenia diagnosis. Communication skills training (CST) has addressed gaps in other medical specialties, but evidence for its efficacy in psychiatry is limited. This study evaluated a pilot psychiatry-specific CST program named ComPsych developed specifically for the Australian context (Ditton-Phare et al., 2015).

**Summary of Work:** Postgraduate psychiatry trainees (n=44; mdn age=32; %male=50) attended the ComPsych training with the aim of acquiring skills in how to competently discuss distressing information about schizophrenia with patients and their families or carers. Using a pre-post training design, self-report and objective Standardised Patient Assessments (SPAs) were used. Self-report assessments consisted of 9 questions to examine trainee satisfaction with the ComPsych program and their confidence communicating with patients. Observational, time-limited, video-recorded standardised patient assessments (SPAs) with simulated patients were conducted with a subset of 30 psychiatry trainees. SPA performance was coded using the Comskil Coding System (Bylund et al., 2010).

**Summary of Results:** Trainees reported high satisfaction with the ComPsych training program and delivery. Following training, trainees' reported confidence in their own communication skills was increased, along with an increased ability to critically evaluate their own communication competency (effect sizes from  $d = -0.98$  to  $-1.68$ ). Objective pre and post SPA observations of trainee performance showed that communication skills improved significantly for Agenda Setting skills ( $d = -0.82$ ), while skills related to Questioning correspondingly decreased ( $d = 0.56$ ). A dose effect was also observed for Agenda Setting ( $\eta = 0.34$ ), with trainees who attended more ComPsych training modules outperforming those attending fewer.

**Discussion:** The results of the current study demonstrate an increased frequency of some patient-centred communication behaviours by psychiatry trainees post-ComPsych training. Trainees were highly satisfied with the program and reported significant improvements in their confidence to communicate distressing information about schizophrenia to patients and their carers. Importantly, their ability to

critically evaluate their own communication competence was improved. SPA data demonstrated increased skills acquisition, specifically in agenda setting skills, possibly reducing the need for recurring questioning.

**Conclusion:** This initial evaluation precedes a more comprehensive evaluation of the ComPsych program and the development of further curriculum modules (e.g., discussing treatment and recovery, shared decision-making, and conducting family interviews). This translation of CST to psychiatry may address significant gaps in training and clinical practice at the postgraduate level.

**Take Home Messages:** Whilst communication skills can be taught effectively in medicine, there is little evidence for its efficacy in psychiatry. The ComPsych communication skills training program has been piloted for psychiatry in the Australian context. The program is highly rated by trainees and has increased the frequency of some patient-centred communication behaviours.

#### #5HH05 (134584)

**Collegial relations and positions in workplace based communication training. A qualitative study**

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**Background:** Post-graduate medical communication training predominantly takes the form of short mandatory courses separated from clinical work. Theories concerning situated learning, transfer, and communication training, however, suggest that this type of training may be more effective if it was designed as work place based training

**Summary of Work:** This project developed and implemented a workplace based communication skills training concept for doctors in five different hospital departments in Denmark. The concept built on the Calgary-Cambridge Observation Guide, and involved role-play, video supervision, collegial feedback and facilitator training. The project included a qualitative study. The qualitative study applied ethnographic methodology, i.e. observations and interviews with participating doctors (n=49). The aim of this study was to explore: 1) doctors' perspectives on the training, and 2) what barriers and resources emerged from training in the work place. Using a framework of positioning theory (e.g. Rom Harré), the data was analyzed.

**Summary of Results:** The material shows that collegial relations are both a resource and a barrier for the training. It is a resource inasmuch as it enables doctors to learn from each other, create a mutual vocabulary for coping collectively with issues of communication. However, close working relations also make feedback, especially constructive criticism, challenging. Another barrier is the disturbance of hierarchical structures and positions between juniors and seniors. Several

positions are at play in the sessions, which makes the training situation more complex and unstable, than if the participants did not work together.

**Discussion:** Even though much is gained from implementing workplace based communication training, a variety of collegial aspects still influence how learning can take place.

**Conclusion:** Overall, the workplace setting reinforces collegial feedback. However, collegial relations are both a resource and a barrier for the training.

**Take Home Messages:** More focus should be on developing workplace based communication skills training taking into account the complexity of the setting.

#### #5HH06 (134723)

**More than just the Doctor: The Complex Association between the System, Healthcare Professionals and Patient in the Patient-doctor Relationship.**

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*Khoo Hwee Sing (Health Outcomes & Medical Education Research, National Healthcare Group, Singapore)*

*Issac Lim Wai Yeen (Health Outcomes & Medical Education Research, National Healthcare Group, Singapore)*

*Mervyn Koh Yong Hwang (Tan Tock Seng Hospital, National Healthcare Group, Singapore)*

**Background:** Studies have focused on verbal and non-verbal communication errors displayed by doctors during their interaction with patients. We move beyond the micro aspects and identified macro and meso level factors that negatively affect the patient-doctor encounter.

**Summary of Work:** We conducted a qualitative content analysis of 124 negative patient feedback about doctors received between March 2013 and February 2014 at a large acute hospital. Various factors beyond doctor's communication skills that contributed to poor doctor-patient relationship and eventual negative feedback from patients and their family members were identified. A two-step fine coding system was used.

**Summary of Results:** The following themes were identified from our analysis: 1) Bureaucratic: Arising from healthcare system (sub-specialisation, information transfer) 2) Symbiotic: Interdependence between healthcare professionals (negative service spillover effect whereby patients perceive healthcare experiences as a whole and preceding service lapses evokes negative emotions, poor inter-professional practice) 3) Reflective: Mirroring between patient and doctor (recursive communication lapses).

**Discussion:** The bureaucratic nature of the healthcare system diffuses individual accountability, and contributes to silo mentalities. A symbiotic relationship between healthcare professionals as seen in the negative service spillover effect, affects patients' subsequent encounters with their doctors. Poor inter-professional communication is associated

with inconsistent clinical information being relayed to patients. When doctors fail to empathise with patients' negative experiences, these factors contribute to the mirroring of negative emotions and recursive communication lapses.

**Conclusion:** Besides micro level factors, macro and meso level factors beyond the doctor also contribute to poor doctor-patient relationship.

**Take Home Messages:** Despite the widespread systems approach to healthcare, there needs to be an increased awareness about individual collective responsibility and the symbiotic relationship between healthcare providers, as these factors impact the patient-doctor relationship.

#5HH07 (132172)

**Utilizing situational simulation in nursing education to improve nurses' self-efficacy of communication skills when communicating with family caregivers of patients**

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*Shu-Tai Sheen Hsiao*

**Background:** This purpose of this study was to apply situational simulation in nursing education to increase nurses' self-efficacy of communication skills when communicated with family caregivers of patients.

**Summary of Work:** A cross-sectional research design with convenience sampling was conducted. Participants completed the pre-post test of questionnaire which included a background form and the self-efficacy of communication questionnaire (SEC). The education included the teaching video and discussion of communication skills. The part-t test and Pearson's correlation were examined differences in SEC.

**Summary of Results:** The majority (95.5%) was females, with a mean of clinical experience 52.7 months (N=45). The SEC scores were significant increased after this program ( $t=-2.4$ ,  $p<0.05$ ). Each item of SEC was increase ( $p<0.05$ ). Nurses who had longer years of clinical experience reported higher increase SEC scores in this study ( $r=0.3$ ,  $p<0.05$ ).

**Discussion:** The results were consistent with a previous study by Haung et al. (2014), in which "situational simulation education programs" can effectively improve the communication skills in nurses. Furthermore, participants who had longer years of clinical experience reported more increases in self-efficacy of communication skills after completing the education program.

**Conclusion:** The results of this study showed that nurses who completed the situational simulation education program improved their self-efficacy of communication skills. This study added to the growing knowledge about the situational simulation education

program which used actual clinical events as scenario would lead nurses to learn appropriate communication skills.

**Take Home Messages:** Nurses who had longer clinical experience significantly improved their self-efficacy of communication skills. The result showed that the scenario simulation education is not only useful for new graduate nurses but also important for senior staff nurses. Therefore, the simulation education is acceptable to increase nurses' self-efficacy of communication skills.

#5HH08 (134795)

**Teaching end of life (EOL) communication in the emergency department (ED) through high-fidelity simulation scenarios**

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*Angela Stone, Sunnybrook Health Sciences Centre and University of Toronto, Toronto, Canada*

**Background:** EOL care is challenged in the ED because of compressed timelines and necessity of caring for the patient while simultaneously communicating with the family. Previous literature describes EOL training delivered in didactic sessions and workshops or simulated encounters with standardized patients divorced from the acute care episode. Currently at the University of Toronto there is no EOL curriculum for emergency medicine (EM) residents.

**Summary of Work:** We implemented high-fidelity simulation training for residents on the EM rotation that required participants to manage the acute presentation while communicating with the patient's family. These hybrid scenarios were incorporated into existing simulation-based resuscitation training. We evaluated scenario feasibility, participants' satisfaction and self-perceived effect on practical skills in EOL communication (measured on a 5-point Likert scale).

**Summary of Results:** We developed two hybrid scenarios: 1) speaking to a family member by telephone while attempting resuscitation of a cardiac arrest patient; 2) assessment and management of a lung cancer patient with severe dyspnea, including establishing goals of care with the substitute decision maker. Over 25 months (2014/1-2016/2), 69 postgraduate year-1 and -2 trainees participated. Most had limited previous exposure to EOL training. The overall level of satisfaction was high and the sessions positively contributed to the trainees' self-perceived knowledge on the topic (mean $\pm$ SD scores: 4.44 $\pm$ 0.62 [scenario 1]; 4.22 $\pm$ 0.68 [scenario 2]).

**Discussion:** In the ED environment, EOL communication often occurs during management of high-acuity patients, a scenario not considered in existing training. Our novel simulations addressing this common ED scenario were feasible and well-received.

**Conclusion:** High-fidelity simulation can be used to teach EOL communication in the acute care environment. Effects on actual resident performance and family satisfaction should be evaluated.



**Take Home Messages:** Simulation of EOL discussion simultaneous with acute medical management addresses an unmet ED teaching need. Our simulations were feasible and well-received by residents.

#5HH09 (132964)

**The effect of scenario-based course to improve self-confidence on communication in PGY ICU nurse**

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**Background:** Communication skill is a core attribute required of professional nurse, especially in critical care. But intensive care unit (ICU) nurse of post-graduate year (PGY) lack of communication experience and training with critical ill, families and colleague. Therefore, we hope scenario-based course can improve their communication skills and self confidence.

**Summary of Work:** Ten PGY ICU nurses undertook the eight times multidisciplinary scenario-based communication course that included basic communication skill, common conflict with critical ill, care givers and colleague, and grief in critical care. Data collected via self confidence in communication scale. Statistical analyses were performed using the SPSS(version 20.0).

**Summary of Results:** All the PGY ICU nurses were female. Result of wilcoxon rank test show that communication was decrease in clear ( $p = .033$ ), and appropriate ( $p = .016$ ) that compare with pre-course. But communication in humor, steady and warm were not associate with significant change.

**Discussion:** The scenario-based communications course provides thePGY ICU nurse a learning environment of safe, low stress and helpful for solving problem. They can developed their own communication skills through personal experience and sharing.

**Conclusion:** The scenario-based communications course provides thePGY ICU nurse a learning environment of safe, low stress and helpful for solving problem. They can developed their own communication skills through personal experience and sharing.

**Take Home Messages:** It could be parallel extended to all categories education of the PGY nurses in our hospital when they were familiar in clinical agenda. So that they could more effective and suitable to communication with patient, care givers and other colleagues.

#5HH10 (134742)

**Limited health literacy in patients: how do educators address the issue in practice?**

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Yu Fan Sim (NHGP, Singapore, Singapore)

**Background:** Studies have reported that healthcare professionals (HCP) often overestimate patients' literacy levels and seldom use communication strategies recommended by health literacy experts. This study aimed to determine (1)the awareness, attitudes, communication strategies of primary care HCPs towards patients with limited health literacy (LHL) and (2)any differences between educators and non-teaching HCPs.

**Summary of Work:** A self-administered, anonymous, cross-sectional survey was conducted amongst HCP in 9 polyclinics in Singapore using a questionnaire with the following constructs i) awareness of LHL ii) communication techniques used with patients with LHL iii) barriers in management of patients with LHL Respondents were also asked to indicate if they were involved in training undergraduate/ postgraduate HCP students.

**Summary of Results:** Response rate was 79% (458 of 580). 40% of respondents were nurse/medical/pharmacy/allied health educators. There were no statistically significant differences between educators and non-teaching HCPs in their perception of the problem posed by LHL, communication barriers, use of communication strategies and perception of personal ability in communicating with LHL patients. The preferences for enablers to improve patient communication were similar for all HCP groups, the 2 most preferred options being the provision of visual tools and more time with patients. 87.4% of respondents had never received any training in communicating with LHL patients. 74.5% felt a need to undergo formal training in communicating health information to patients

**Discussion:** HCPs awareness of their patients' LHL and the use of appropriate communication techniques can improve health outcomes in LHL patients. Educators like their non-teaching colleagues need training, more patient time and tools to better manage LHL patients.

**Conclusion:** Most HCPs, including educators, report a lack of formal training in communicating health information to patients. All HCPs including educators need training, more patient time and tools to better manage LHL patients.

**Take Home Messages:** All HCPs including educators need training, more patient time and tools to better manage LHL patients.

#5HH11 (132256)

**Speech recognition software generated clinical interview transcripts: An effective tool to improve feedback outcomes**

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**Background:** Speech recognition systems can instantly and accurately transcribe verbal interactions, enabling doctor-patient conversations to be analyzed in detail. Although there are diverse useful data sources to provide clinical performance feedback, we introduced interview transcripts generated through speech recognition software using AmiVoice® to make feedback more specific and precise for the evaluation of medical history taking skills. We investigated whether this methodology is superior to voice recording-only feedback for clinical skills training.

**Summary of Work:** 79 medical students in a General Medicine clinical clerkship rotation were assigned to either speech recognition feedback (n=39) or voice recording feedback groups (n=40). All students' medical interviewing skills during California Simulation Alliance (CSA) case scenarios were assessed twice using Mini-CEX. Participants were asked to make the most appropriate diagnosis based on the medical interview. Between assessments, the intervention group received feedback based on speech recognition system generated medical interview transcripts; the control group received feedback based on audio recordings. Mini-CEX scores, diagnostic accuracy, and duration of feedback sessions were compared between groups.

**Summary of Results:** Overall Mini-CEX scores were higher with speech recognition-based feedback (intervention group:  $5.2 \pm 1.1$  to  $7.4 \pm 0.9$ , control group:  $5.6 \pm 1.4$  to  $6.1 \pm 1.2$ ,  $F(1, 77) = 35.7$ ,  $p < 0.01$ ). Diagnostic accuracy was higher with speech recognition feedback (87.2% versus 67.5%,  $p < 0.01$ ). The duration of feedback sessions was shorter with speech recognition feedback (22.6 minutes versus 27.7 minutes,  $p = 0.04$ ).

**Discussion:** The results suggest that using speech recognition software permits clinical educators to better identify deficiencies in history taking which then allow feedback to be more specific and effective.

**Conclusion:** Feedback based on speech recognition systems leads to improved Mini-CEX scores and diagnostic accuracy, while reducing total feedback time.

**Take Home Messages:** Speech recognition-based feedback is an effective and efficient method to improve clinical performance.

#5HH12 (136187)

**Medical training and attitude for communicating death in children**

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**Background:** International and national curriculum guidelines for undergraduate medical education emphasize teaching of communication skills in medical training. Objective: To document the perception of pediatric preceptors and residents on the academic preparation of physicians to the attitude of reporting child death.

**Summary of Work:** Qualitative research, using interviews with Pediatricians of an ICU and residents of a hospital school. The questions assessed teaching/learning of communication skills against the infant death, references in medical training, attitudes, acceptance, protocols and methods, transmission of the example from preceptor/resident.

**Summary of Results:** There is a gap in behavioral training to communicate bad news. The attitudes found were sudden versus gradual news, empathic/sensitive behavior, emotionally shaken versus balanced and cold/dry. The cold/dry behavior was prevalent in preceptors. The emotionally shaken in residents. Most physicians reported not knowing methods for teaching any communicating bad news. The example of preceptors and their daily experience were the most frequently reported sources of knowledge.

**Discussion:** The gap in training to communicate bad news is the same in others institutions, for example research realized on eight Dutch medical schools.

**Conclusion:** There is dissonance between curriculum guidelines and practice of medical schools. The transition biomedical to bio-psychosocial behavior is accelerated with the teaching of communication skills, decision-making, empathy and conflict management.

**Take Home Messages:** Medical education needs to move forward in teaching methodologies for behavioral affective competencies, such as the communication of infant death and dealing with the emotional repercussions.

#5HH13 (135623)

**The effectiveness of flash-card history taking in hearing-deficit elders, a sample group in Thailand**

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Supakrit Auiwattanakul (Suranaree University of Technology, Nakornratchsima, Thailand)

**Background:** Thailand and many countries are going to be aging society. A problem of hearing in elderly patients has an obstacle of communication with health personnel and physicians. This problem will be found more frequent in future with no alternative of communication aids in many health-care center. The flash-cards of symptoms are an innovation of communication to improve the reliability of patient-doctor interview. Then, the purpose of this study is comparison of flash-card communication between hearing-deficit and normal hearing elderly patients.

**Summary of Work:** The sample size are 43; 21 in study group and 22 in control group included from OPD elders. The inclusive criteria are patient age of sixty or more. The exclusive criteria are neurological diseases and visual problems (e.g. CVA, mental retardation, Down syndrome, First, the questionnaire is a self-assessment to screen their hearing status. Second, flash cards interpretation measure correctness in percent. All patients are informed and asked for permission.

**Summary of Results:** The mean age of hearing-deficit group is older than normal hearing group, significantly ( $p < 0.03$ ). The gender proportion has no statistically significant. The flash cards represent 28 symptoms. The results of percent of correctness by uni-variable analysis are in-different, except cards for diarrhea and cystitis. But all cards of symptoms have no statistically significant between groups after age factor added into analysis.

**Discussion:** The flash-cards of symptoms can be used for history taking in old ages. But the limitation of this communication are more time need and personnel to interpret the patient response. However, it has more advantages in hearing-deficit patients. The flash cards (first version) have only main symptoms, the other details will need more cards and be more complexity. Age has an effect on outcome (confounding). Because older age has more hearing deficit. Then, age-adjusted analysis should be considered. The picture drawing need skill and knowledge of symptom. Last, we have not compared the words or phrases and figures.

**Conclusion:** The flash-card communication has advantages in primary taking history of hearing-deficit elders. And they need cousins to give additional details.

**Take Home Messages:** Older patients need more communication aids.

#5HH14 (134534)

**Improving Standards of Hospital Discharge Summaries - An Educational Curriculum for House Officers**

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Yan Qin (Singhealth, Singapore)

Qiao Li Tan (Singhealth, Singapore)

Mei Ling Kang (Singhealth, Singapore)

Poh Yong Tan (Singhealth, Singapore)

**Background:** Discharge summaries are pivotal in the continuity of care for our patients. Audits of discharge summaries have shown they are often poorly organized, convey inaccurate information and fail to include pertinent information. Discharge summaries are usually completed by house officers who have little clinical experience and are also unfamiliar with the required components. We have come up with a formal curriculum and template with the aim of improving the standard of discharge summaries.

**Summary of Work:** Study participants were 16 House Officers posted to Internal Medicine. A discharge summary curriculum was created after extensive literature review and focus group discussions. A discharge summary template was devised. The curriculum included lectures, small group teaching and an objective evaluation instrument.

**Summary of Results:** Following the implementation of discharge summary template followed by lectures, percentage of summaries that included all the recommended components increased by 30%. Average total score improved by 4% ( $p = 0.459$ ). There were improvements in average scores for the components of physical examination, hospital course, discharge diagnosis, medication changes, discharge advice, tests pending, follow-up plans and overall impression score. However there were decreased average scores in the components of premorbid condition, presenting complaint, past medical history and condition upon discharge.

**Discussion:** House officers require formal training in writing discharge summaries. The provided template aids in the completion of discharge summaries with inclusion of recommended components. Subsequent small group teaching can focus on improving the components in which the house officers scored more poorly.

**Conclusion:** Hospital inpatient discharge summaries can be complex and are an integral part of continuity of patient care. Ultimately we hope to use this curriculum as an educational tool in improving clinical reasoning skills, which will then lead to better patient care.

**Take Home Messages:** An educational intervention to improve inpatient discharge summaries benefits house officers, healthcare providers and patients.

## 511 Posters: Student engagement

Location:

#51101 (135491)

**Video-assisted self-assessment of direct ophthalmoscope examination support performance for Thai medical students**

**Dam Mookmanee\*, Suratthani Medical Education Center, Suratthani, Thailand**

*Bawkway Chinkulkitniwat (Suratthani medical education center, Suratthani, Thailand)*

**Background:** Direct ophthalmoscope examination is important part of medical setting on clinical examination skill. This examination is difficult to teach and competency is difficult to assess. Observation and feedback is the fundamental principle in practical Direct ophthalmoscope skill with the use of the video to assist the debrief session. Therefore, we evaluated the utility of video assisted self- assessment in Direct ophthalmoscopic class in Thai medical students.

**Summary of Work:** 27 fifth year medical students participated in this study. After demonstration and some practice, we video –recorded each participants' performance. They were assessed themselves using standard checklists; view their own videos; received instructor's feedback and performed self-assessment with checklist again. Questionnaire (self-assessment form) were used to obtain the participant's comment.

**Summary of Results:** 11% of the participants had no experience in direct ophthalmoscope before. 9.2 % of the participant felt uncomfortable being video recorded. 89.5% agreed that they could identify their own pitfalls from the video than verbal feedback in video-record group. Comparing the self- assessment score obtained before and after watching videos, 44.8 % of the participants underestimated their own performance.

**Discussion:** The students who participated in this study had higher score in the end of course OSCE station in communication skill and examination skill.

**Conclusion:** Video assisted self-assessment can be utilized promote student learning of communication skill and examination skill for Direct ophthalmoscope.

**Take Home Messages:** Video assisted self-assessment can be utilized promote student learning.

#51102 (132043)

**Being your own examiner, a descriptive study of self-certification in a basic laparoscopic skills course**

**Ebbe Thinggaard\*, Copenhagen Academy of Medical Education and Simulation, Copenhagen, Denmark**

*Karn Fjørtoft Kjerstad*

*Ismail Gögenur*

*Lars Konge*

**Background:** Surgeons are required to work independently during surgery where they carry the responsibility for the treatment of their patients. Although independence in clinical practice is necessary to shoulder this responsibility, it receives little to no attention during simulation-based training. Independence can be promoted by using self-directed learning, however, independence only comes with taking responsibility, which includes taking responsibility not only of your training but also for your certification. In this study we wanted to push the boundaries of self-directed learning and explore whether participants were able act as their own examiner.

**Summary of Work:** Twenty-eight physicians participated in the basic laparoscopic skills course at Copenhagen Academy for Medical Education and Simulation, where they rated their own number of errors and timed their procedures on the Training and Assessment of Basic Laparoscopic Techniques test. The tests were video-recorded and based on these data they decided for themselves when they had reached a predefined level of competency. A blinded rater rated the participants when the course had finished.

**Summary of Results:** We found that all participants reached the pass/fail standard, and that there was a high reliability between self-assessed results and blinded ratings at ICC=0.89 ( $p<0.001$ ).

**Discussion:** In this study we have shown that self-certification is feasible and that ratings are reliable. As this is a descriptive study much remains unanswered. Especially in regards to the consequences of letting participants certify themselves. Further research is needed to investigate self-rated self-certification and how transferable independence in training is to independence in clinical practice.

**Conclusion:** We found that self-certification was feasible and high reliability between self-assessed results and blinded ratings Participants were able to reach a predefined pass/fail level using self-rating. Participants had a tendency towards rating their own performance lower than that of a blinded rater.

**Take Home Messages:** -Trainees are able to decide when they have reached a required level of proficiency in basic laparoscopy -Self-ratings for self-certification are reliable -Faculty tend to be more lenient than trainees when rating a test in basic laparoscopic skills



#51103 (134649)

**A constructivist design for an undergraduate teaching skills course promotes student engagement and confidence**

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Ann Chu (Imperial College, London, UK)  
Alistair Cannon (Imperial College, London, UK)  
Steven Tran (Imperial College, London, UK)*

**Background:** The General Medical Council (GMC) recommends that all undergraduate medical students are taught how to teach<sup>1</sup>. We have designed a one week compulsory teaching skills course for undergraduates using a constructivist framework<sup>2</sup>.

**Summary of Work:** The course is centred round two practical teaching tasks: a near-peer bedside teaching session and a classroom-based peer teaching session. In addition, a micro-teach on a non-medical topic forms a baseline learning needs assessment. Educational theory is taught on days 1 and 3 to support these activities. Evaluation of utility, engagement and confidence were collected by a semi-structured end-of-course questionnaire over 12 courses in 2015 (n=244). Numerical data were analysed using Excel and free text coded and discussed to consensus by authors.

**Summary of Results:** The most common free-text themes associated with utility were (i) Opportunity to practise (114/245) (ii) Theory, including putting theory into practise (55/245) (iii) Feedback, particularly receiving feedback (33/245). "The session was very helpful to allow us to apply the skills we learned throughout the week, and receive constructive feedback" Quantitative analysis supported this. Microteach was rated as engaging or very engaging by 218, bedside teaching 212, classroom teaching 208. Classroom teaching led to more or much more confidence in 175, microteach 174, bedside 172. Theory and individual coursework linked to reflection were perceived as the least engaging elements.

**Discussion:** By designing practical activities during the week, students were given the opportunity to develop their teaching skills in a constructivist manner – applying educational theory to their own experiences of learning and teaching...practical activities led to high engagement and confidence

**Conclusion:** Students valued opportunities to put theory into practice and receive feedback; this was central to their perception of the usefulness of the course.

**Take Home Messages:** We recommend a constructivist approach in designing courses teaching undergraduates educational skills. References 1. General Medical Council. Tomorrow's Doctors. Outcomes and Standards for Undergraduate Medical Education. London: GMC 2009. 2. Taylor DCM & Hamdy H. (2013) Adult learning theories: Implications for learning and teaching in medical education: AMEE Guide No. 83, Medical Teacher, 35:11, e1561-e1572

#51104 (134791)

**Engaging students through a workshop on medical education**

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Isabel Neto, University of Beira Interior, Covilhã, Portugal*

**Background:** Teaching is one of the roles of a doctor. Medical students should develop basic knowledge in topics related with medical education, not only to develop their competencies as future doctors but also to effectively promote their engagement.

**Summary of Work:** Aiming to promote medical students' commitment in curriculum planning and delivering, we have designed a basic medical education workshop which included principles of medical education, learning methods and assessment. Students voluntarily participated in the workshop. A survey on their perspective on the workshop was delivered before and after it.

**Summary of Results:** Nineteen students participated. 63,2% were male and mean age was 23 years. 5,2% students were from 1st year, 15,8% from 2nd year, 31,6% from 3rd year, 26,3% from 4th year and 21% from 5th year. Will to become a student-as-teacher changed from 3,6 (mean value in Likert scale) before the workshop (BW) to 4,4 after the workshop (AW); motivation to do research changed from 2,7 BW to 3 AW; relevance of this topic to the curriculum from 3,9 BW to 4,0 AW. Regarding what competences students developed during the workshop, they more frequently referred communication, knowledge on the topic, responsibility, professionalism and motivation.

**Discussion:** Although this was a small sample, we can conclude that there is an increase in interest and willingness to participate in teaching activities after the workshop. Furthermore, this activity enhanced students' knowledge on the topic which they can use for curriculum development and peer-teaching sessions.

**Conclusion:** Providing opportunities to learn about education is useful to improve students' motivation towards teaching and research in this field. There are several advantages that can be achieved by its integration in the medical curriculum.

**Take Home Messages:** There is a need to find innovative strategies to increase students' interest and participation in medical education.

#51105 (134910)

**Students' evaluation of the ASPIRE Student Engagement in the Curriculum Criteria – a mixed methodology study**

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Janusz Janczukowicz (Medical University of Lodz, Lodz, Poland)

**Background:** ASPIRE is an AMEE initiative for international recognition of excellence in medical education. Student Engagement has been defined as one of four main areas of excellence and applies to students' roles as partners in curriculum development.

**Summary of Work:** Twenty four students actively involved in curriculum development from all Polish medical universities were invited to participate in an online-survey, evaluating their perception of the ASPIRE Student Engagement criteria with an option to comment on each of them. They were also asked to identify obstacles and suggest possible actions.

**Summary of Results:** Students recognised their engagement in research activities and service delivery in local community as criteria implemented in the most satisfactory way. The students' role in curriculum development, faculty development activities and self-assessment were the most neglected fields. Students emphasized the importance of raising their awareness of medical education for further development of their engagement. They indicated faculty underestimating their activities and a figurehead type of their representation with little to none real influence on curricular decisions.

**Discussion:** It has been well documented that students playing an active role in academic community are of great value for medical education. Nevertheless, to our knowledge there is no existing research on student engagement based on the ASPIRE criteria. Our project will be followed by the Delphi-based procedure aimed at working out the joint programme of increasing the students' engagement in medical education.

**Conclusion:** While student engagement in scientific and local community projects is adequately implemented, their representation on school committees is satisfactory only with regard to numbers, while their role in decision-making processes is significantly limited.

**Take Home Messages:** Effective developing students' awareness and knowledge of medical education, and a change of faculty attitudes towards purposeful student engagement are essential for increasing students' motivation to act as change agents in curricula development.

#51106 (130788)

**Involving students in curriculum design: an experience from diabetes education**

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Charles G. Taylor Jr. (The University of the West Indies, Cave Hill Campus, Cave Hill, Barbados)

Madhuvanti M. Murphy (The University of the West Indies, Cave Hill Campus, Cave Hill, Barbados)

**Background:** Previous research has suggested that having students share the responsibility for curriculum design— active student participation (ASP)— may empower students. Few studies have evaluated the use of ASP during curriculum development within medical education. We evaluated the use of ASP to design a curriculum for inpatient diabetes care in order to determine its usefulness as an alternative teaching method.

**Summary of Work:** Fifty-five final-year medical students were guided to write individual aims, objectives and learning methods to structure training sessions on inpatient diabetes care. Over 60 aims, objectives and learning methods were analysed and used to guide training in inpatient diabetes care; a curriculum specific to the student needs. Students reflected on their ASP experience through writing guided, reflective narratives (<400 words). The impact of the sessions on knowledge was assessed using clinically-authentic, case-based exercises which students completed cases prior to and after the training sessions. Reflections were qualitatively analysed, while student performance on cases were analysed using paired t-test.

**Summary of Results:** Students generated a comprehensive, published document that can be used to guide teaching inpatient diabetes care. ASP aided goal-setting: 'Writing the curriculum helped by forcing me to think about what I didn't know and wanted to know'; inclusivity translated to increased confidence: "...[we] were not intimidated to make suggestions or add our input." Students performed significantly less medical errors in case-based exercises up to 6 months following the training sessions ( $p < 0.001$ ).

**Discussion:** Students' reflections show that ASP increased confidence and goal-setting both of which may facilitate deeper learning, however, further research is warranted regarding the impact on learning.

**Conclusion:** Involving students in designing a curriculum for inpatient diabetes care was effective and well received by undergraduate students.

**Take Home Messages:** Confidence, and possibly learning, is increased when students contribute to their curricula.

#51107 (133136)

**Medical students' research productivity after research project course; a 2-year follow-up study**

**Riitta Moller\***, Karolinska Institutet, Stockholm, Sweden

Mimmi Shoshan

**Background:** In order to develop a scientific understanding and attitude and to build a strong scientific foundation for future medical practice, several medical schools have courses involving authentic research projects as a mandatory part of their curriculum. Such a course (20 weeks; 30 ECTS credits; term 7) was introduced at Karolinska Institutet in 2010. Currently, there is no coherent way to investigate the impact of these courses. The purpose of this study was to evaluate the outcome of medical students' research projects in terms of scientific publications and presentations.

**Summary of Work:** Through 2010 to 2012, 581 students (55% females; mean age 26 yrs) completed the course. The data were collected from questionnaires filled in by the students 2 years after the course. In total 392 students (60% females; mean age 27 yrs) returned the questionnaire, corresponding to a response rate of 67%.

**Summary of Results:** 109 students (19%) were co-authors on a scientific paper that emerged from the research project and 60 students (10%) were co-authors on a scientific paper on a topic other than the scholarly project. 32 (5%) and 29 (5%) students had given a presentation at a national and international scientific meetings, respectively. After the two years, in total 36 students (6%) had been registered as PhD students and 127 students (22%) were planning to start PhD studies.

**Discussion:** The results support the growing body of literature showing that students' research projects have been successful in several medical schools, not only as shown by publication and information delivery outside the home university, but also in terms of undertaking postgraduate studies. Further studies are needed to explore the long-term outcomes.

**Conclusion:** Research project course may foster students' research productivity.

**Take Home Messages:** Scholarly projects encourage students' research activity beyond the course.

#51108 (131535)

**A Successful Medical Student Paediatric Volunteering Service**

**Sam Parsons\***, University of Manchester, Manchester, UK

Charlotte Colam

**Background:** Hospital attendance is a frightening and stressful time for children and their parent/carers. Children's Hospital University of Manchester Student's (C.H.U.M.S) is a medical student volunteering service aimed at reducing stress, anxiety and pain through play in an in-patient setting whilst improving student confidence and communication skills with children.

**Summary of Work:** During a 10 week pilot, 14 medical students completed training led by a play therapist. Each student volunteered for 10, 1.5 hour sessions in the Royal Manchester Children's Hospital. The children completed questionnaires including quantifiable and qualitative questions. The parents/carers and the student volunteer's views were also sought.

**Summary of Results:** 22 children and 25 parents/carers were enrolled. This study reported a significant increase in the younger children's mood from 3.9-4.5/5 ( $p=0.019$ ). Qualitative data demonstrated the adolescents and the parents/carers appreciated the project. The medical students felt the project improved their communication skills and confidence in talking to children.

**Discussion:** Play is a vital component of childhood and when used in the hospital setting can have beneficial effects on key areas of patient and family experience and satisfaction. As well as providing key benefits to the children, the students gained invaluable skills that will shape them into well-rounded doctors.

**Conclusion:** C.H.U.M.S influenced the holistic development of each medical student whilst improving children's mood and perceived pain.

**Take Home Messages:** C.H.U.M.S has expanded and internally recruited for management positions and secured further funding. This reoccurring 10-week project teaches medical students numerous key skills and improves the children's time in hospital. This study has provided evidence to justify the incorporation of such projects into other medical schools.

#51109 (132878)

Teaching media by students to enhance teaching and learning in eye procedures

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**Background:** Teaching media generated by students enable novice medical students to learn the eye procedures. We have recently introduced medical students generated teaching media in an eye learning program. In this study, we examined the improvement in confidence after the learning process in eye procedure.

**Summary of Work:** Thirty-eight fifth year medical students in Prapokklao Hospital was assigned to 4 groups to study and generate teaching media, one media per one group( eg.visual acuity examination, foreign body removal). Self- directed learning was performed in each group under the supervision of the instructor. Each group showed how to do the procedure and then generated the VDO( 3-5 minutes/group). The students shared the VDO with each other before doing the procedure. After the learning, the students were asked to self-assess their satisfaction, and to rate their confidence before and after the learning process using a 5 point Likert scale.

**Summary of Results:** Seventy-four percent of the students rated their satisfaction more than or equal to 4. The average confidence score before was 2.1 (not much). After the course, it rose to 4.2 (confidence). This rating score showed the improvement of confidence in the learning process( $p < 0.05$ ).

**Discussion:** Teaching media by students enhance teaching and learning in eye procedures. The students will understand and show how to do the procedures and gain more confidence before learning from the patients.

**Conclusion:** Teaching media by students improved self-rated confidence. It can be a powerful learning experience.

**Take Home Messages:** Learners gain a confidence boost when taught by using students generated teaching media.

#51110 (135417)

Should Peer Teaching be designed by the students?

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Kati Hakkarainen (Tampere University, Tampere, Finland)

**Background:** Tampere University Medical School offers clinical stage medical students an elective block "Learning, Teaching and Facilitating". During this block, students design and implement a peer teaching event for junior peers. We describe the designing process, implementation and the feed-back from peer teachers and junior peers.

**Summary of Work:** 24 clinical stage medical students took part in the elective. The planning of the practical teaching event started as online discussions on Eliademy© platform and was finalised in a face-to-face meeting with the instructors of the elective (= authors).

**Summary of Results:** Clinical students described their experiences as planners and facilitators on the online platform and in face-to-face discussions. Their online discussions were analysed qualitatively. Junior students filled out a feedback form. Students chose "Patient Encounter" as their teaching topic. Patient encounter is included in the curricula, but students felt an additional approach useful. Their plan consisted of selecting a patient, asking his/her consent, interviewing and examining him/her; meeting the junior student group and preparing them for the patient encounter; facilitating the encounter; discussing afterwards with the junior students. Students highlighted professional values as learning goals. Clinical students felt their role as planner/teacher/facilitator was professionally and emotionally rewarding. Junior students' trust on their expertise surprised them. Junior students felt that they got new insights to encountering patients and the threshold for asking questions was lower than usually.

**Discussion:** Based on our experiences we suggest that students should be allowed or even obliged to design peer teaching. They have a relaxed and intuitive relation to their junior peers and a good grasp of their needs.

**Conclusion:** Advanced medical students show aptitude and motivation for designing and implementing peer teaching. The experience encourages them to trust their abilities as professionals and facilitators of learning. Junior students welcomed this teaching format.

**Take Home Messages:** Peer teaching designed by students is an inspiring way of teaching.



#5111 (133660)

**Developing a student-led transition team:  
Overcoming the challenges**

*David Hope\*, University of Edinburgh, Edinburgh, UK  
Avril Dewar  
Chiara Ventre  
Helen Cameron*

**Background:** Student-led transition teams can be more accessible to new undergraduates and provide support in an empathic and engaging way. However, the nature of medical education – especially the demands on student time in the clinical years and the lack of formal training – can inhibit the development of student-led transition teams.

**Summary of Work:** Since 2012 we have been implementing a vision for student-led support for students at-risk of failing a year 1 MBChB. We have identified development challenges and potential solutions. Key goals include creating a large, well-trained transition team with skills for both this popular peer assisted learning (PAL) opportunity and general peer support.

**Summary of Results:** The most significant challenges were: (1) a lack of training so team members were unprepared for the challenge of supporting at-risk students, (2) the low number of students able to volunteer time, (3) the tendency for volunteers to be academically excellent and so unfamiliar with challenges faced by at-risk students and (4) the rapid progression through medical school meaning students could only volunteer for one year, reducing knowledge transfer and expertise in the team. To resolve these issues we are implementing accredited training to improve skills and make volunteering more attractive (addresses 1 and 2), focusing training on at-risk students (addresses 3), and structuring the transition team so students join in year 3 and “graduate” to more advanced roles as they progress (addresses 4).

**Discussion:** The obstacles to building an effective transition team are significant but can be overcome by identifying challenges and designing tailored solutions.

**Conclusion:** Student-led transition teams can reduce drop-out rates, promote a supportive community and provide an opportunity for PAL.

**Take Home Messages:** We are keen to share successful ideas and hear about efforts to organise student-led transition teams elsewhere. By collaborating across institutions we can pool expertise and enable such teams to be powerful tools for supporting new students.

#5112 (134942)

**Screening study conditions and student motivation at a German Medical School: Experiences with two short questionnaires**

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Hannover, Germany*

**Background:** At Hannover Medical School the regular evaluation of courses is accompanied by separate evaluations of study conditions and the reasons for studying medicine or dentistry. The questionnaire for screening study conditions (HSC) is distributed each year to every student of medicine and dentistry. The questionnaire for screening study motivation (HSM) is deployed each year to students in their first, third or fifth year of studies.

**Summary of Work:** The HSC covers a wide range of general topics. It is constructed to detect acute problems within the study program, which aren't located within a single course. The annual surveys allow separate reports for medicine and dentistry, male and female students for each topic. While some topics were dealt with every year (e-learning, financing, guidance services, library), there is also space for current subjects. The HSM should help to detect student expectations concerning their future working life. Because students are requested to use an individual code, the separate surveys can be analysed longitudinally. The HSM shouldn't detect short-term changes but the development of professional attitudes. It isn't a psychometric instrument like the NEO-FFI. It's just a loose-knit screening tool on group level to discriminate between several reasons for studying medicine or dentistry.

**Summary of Results:** Both questionnaires were used since ten years. The poster presents some handpicked results out of this period.

**Discussion:** The HSC has influenced several concrete improvements of study conditions, while the HSM is used as an additional tool for interpreting differences between students of medicine and dentistry.

**Conclusion:** While the HSC is used more or less like a smoke detector, the HSM is used as a research tool to gain a better understanding of the reasons for career choices.

**Take Home Messages:** The HSC and the HSM are valuable instruments for the improvement of teaching and learning at a medical school.

#5113 (135131)

## Peer assessment and Self assessment in a Gross Anatomy Dissection Course

*Young-Jong Woo\*, Chonnam National University Medical School, Gwang-ju, South Korea*

*Eun-Kyung Chung*

*Eui-Ryoung Han*

*Jung-Ae Rhee*

**Background:** Implementing peer assessment and self assessment early in the medical curriculum is valuable in teaching first-year medical students assessment skills when evaluating their behavior, as well as the behavior of their colleagues. This study sought to incorporate various instruments for peer- and self-assessment in order to inquire into the educational implication within collaborative small group environments.

**Summary of Work:** One hundred and forty-two first-year medical students were recruited to participate in this study. All students evaluated themselves and their peers during the gross anatomy dissection course using both quantitative and qualitative instruments.

**Summary of Results:** Self assessment scores were significantly lower than those scores from peer assessment. Female students and graduate students consistently over-marked themselves. Peer assessment scores using rating or ranking correlated significantly with academic achievement scores in anatomy ( $r=0.324$ ,  $r=0.311$ ). However, no significant correlation was observed between the peer assessment scores using description or checklist and academic achievement scores in anatomy.

**Discussion:** Both quantitative and qualitative instruments are useful for constructive feedback. However, quantitative methods such as rating or ranking are better than qualitative methods in order to consider peer assessment results for academic achievements.

**Conclusion:** Self assessment results in substantial under-marking compared to peer assessment. Peer assessment may be a reliable and valid method for evaluating medical students' performances within collaborative small group environments.

**Take Home Messages:** Although self assessment has an important role to play in supporting the development of skills in reflection and self-awareness, self assessment is a less accurate means of assessing student performance than peer assessment. Peer assessment can be a powerful tool to assess and encourage formation of professional behaviors, particularly within collaborative small group environments.

#5114

## Student Engagement at the FMUL according. ASPIRE criteria: A move to excellence driven by the students

*Manuel Lucas\*, Faculty of Medicine, University of Lisbon, Lisbon, Portugal*

*Miguel Miranda (Faculty of Medicine, University of Lisbon, Portugal)*

*António Pais-de-Lacerda (Faculty of Medicine, University of Lisbon, Portugal)*

*Madalena Patricio (Faculty of Medicine, University of Lisbon, Portugal)*

*António Vaz Carneiro (Faculty of Medicine, University of Lisbon, Portugal)*

**Background:** A move to excellence is among the great challenges medical education is facing worldwide. In 2009 the AMEE offered a new initiative entitled 'ASPIRE' to reward schools and offer role models to those wishing to reach this ambitious goal. So far, ASPIRE indicators were defined in 4 areas with 'Students engagement in the school' being one. At FMUL a group of students working at the DEM decided to examine the situation in this area to identify actions for improvement.

**Summary of Work:** To identify FMUL students' perception on the level of excellence according to ASPIRE standards. The objective is to identify strong/weak areas to define priority actions to be implemented. For initial diagnosis a group of highly motivated students filled the ASPIRE form. A questionnaire based on ASPIRE indicators was sent to FMUL students ( $n=XXX$ ) asking their views on FMUL excellence. Based on results a list of priority actions will be established. Interviews will take place with teachers coordinating each academic year to discuss feasibility. A final report will be sent to all students for approval/suggestions before being sent to the Dean and all teachers.

**Conclusion:** Initial diagnosis points to excellence achieved in 16 out of 22 sub-criteria with engagement in the local community and service delivery as the strongest dimension. Remaining results will be presented in Barcelona.

**Take Home Messages:** We anticipate this study will guide the changes to be implemented and simultaneously will motivate students for moving the school to excellence by increasing their awareness when filling in and discussing the results of the questionnaire.

## 5JJ Posters: Student as Teacher

Location:

#5JJ01 (135634)

Comparing the effectiveness of teaching suturing by peers, core surgical trainees and consultants

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**Background:** The value of peer-assisted surgical teaching of basic surgical skills has not been evaluated compared to near peer-teaching and consultant-led teaching. This study thus aimed to assess the effect of suturing sessions taught by peers, post-graduate surgical trainees (Core Surgical Trainees (CSTs)) and Consultant surgeons

**Summary of Work:** The Barts and The London Surgical Society hosted a basic suturing skills course. 60 participants were recruited on the basis that they had never done or seen suturing being performed. Participants were randomly allocated to three groups: peer-taught, CST-taught and Consultant-taught. Participants were taught basic suturing techniques for two hours. Subsequently, students were assessed via the Objective Structured Assessment of Technical Skill (OSAT) marking scheme provided by the Royal College of Surgeons in their surgical skills courses by a Consultant surgeon. Group differences were assessed using a one-way Anova with a post-hoc Tukey.

**Summary of Results:** 17 marks are available on OSAT. The average scores for those taught by peers, CSTs and consultants were 14.47, 14.06 and 14.67 respectively. These differences were not statistically significant ( $p=0.5321$ ).

**Discussion:** Peer or near-peer teaching of technical surgical skills is comparable to that of consultants in medical students with no previous surgical experience. This can have significant impact on the delivery of surgical education in medical school curriculum. More research is required to see if this applies to advanced skills.

**Conclusion:** The effectiveness of being taught basic surgical skills by peers, junior and senior surgeons may be similar.

**Take Home Messages:** Peer-teaching may provide an equally useful means of teaching students basic surgical skills compared to consultant-led teaching.

#5JJ02 (134318)

Implementing Crisis Resource Management (CRM) principles into undergraduate education using a peer-teaching approach

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**Background:** Efficient teamwork is closely linked to various outcomes in healthcare, e.g. patient safety. Schemes such as CRM principles provide guidance on how to measure good teamwork, but are normally not part of the undergraduate curriculum. Therefore - as a pilot study - we wanted to implement them with peer tutors.

**Summary of Work:** We developed a guideline based on CRM principles for an emergency medicine simulation for students in their final year. Peer tutors were trained to observe and give feedback by introducing CRM principles. Students were asked afterwards which principles they had known before, which were discussed and whether this was helpful.

**Summary of Results:** Peer tutors described the tool as practicable and the students rated their tutors input as helpful (mean = 1.7 - 2.1, scale -3/+3). Often discussed principles were "communicate effectively" and "distribute workload". Only in few cases, students stated that principles were discussed in group, which they did not know before.

**Discussion:** The validity of our results is limited by the small amount of participants ( $N=34$ ) and the fact that they rely on subjective statements of students and tutors. No objective measures were taken, whether teamwork improved over the course of the simulation.

**Conclusion:** By using the guideline, tutors were able to feedback team performance and remind medical students of their prior knowledge of CRM. However, in only few cases they could teach new principles to the participants. To achieve this, principles might need to be made more present and tutors trained more intensively.

**Take Home Messages:** Our intervention proved to be a possibility to implement CRM principles with peer tutors and was highly appreciated by students. When repeated several times, the guidelines for good teamwork could become increasingly present in the students' thought processes and lead to future doctors who are more sensitive towards efficient teamwork.

#5JJ03 (133392)

**Pedagogical path for students at the Faculty of Medicine, University of Turku**

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**Background:** In the spring of 2014 a 2-year 20 ECTS pedagogical path for clinical students was launched at the faculty of medicine at the University of Turku, Finland. Three pedagogically oriented students were elected to the path in 2014 and 2015 respectively for a duration of two years. The students took a total of 10 ECTS credits of educational studies and another 10 ECTS of practical peer-teaching.

**Summary of Work:** Elected students planned and taught both curricular and voluntary study modules for students in earlier phases of their studies. These units were presented to and approved by selected members of the pedagogical staff of the faculty prior to the teaching sessions and consisted mainly of teaching clinical skills in a practically-oriented way. The peer-teachers on the pedagogical path were responsible for teaching clinical skills for first-year students on the curricular course "cardiorespiratory and renal physiology". These skills included ECG registration, blood pressure measurement and cardiac auscultation.

**Summary of Results:** An open feedback regarding peer-teaching was collected from the students after the sessions. Overall, the feedback was positive. Most students felt that peer-teaching was well suited for the teaching sessions. The motivation of the teachers, the ease to relate to the teachers and the overall low-pressure atmosphere of the sessions were also mentioned as assets. Some students mentioned that the sessions motivated them to become peer-teachers themselves.

**Discussion:** Peer-teaching is becoming an increasingly established form of teaching at our faculty.

**Conclusion:** Peer-teaching has been well received by both students and peer-teachers according to the collected feedback.

**Take Home Messages:** The pedagogical path offers pedagogically oriented students a unique possibility to deepen and practice their pedagogical skills.

#5JJ04 (134543)

**Direct experience in early clinical exposure of preclinical students conducted by senior clinical students in a Thai medical school**

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**Background:** Inability to realize the importance, use, and application of preclinical content in clinical years leads to lack of motivation in preclinical study. This program, conducted by senior clinical students, aimed to promote early clinical exposure to preclinical students with direct clinical experience to encourage their study motivation.

**Summary of Work:** 169 preclinical and 106 clinical students were registered to this program. One clinical student brought 1-2 preclinical students to experience clinical environment in various fields including internal medicine, pediatrics, surgery, obstetrics and gynecology, anesthetics, and emergency medicine. Self-reported questionnaire was obtained from 85.2% of the preclinical students after program completion.

**Summary of Results:** 89.6% and 91.0% of preclinical students had increased preclinical study motivation and realization of preclinical knowledge application, respectively. Mean±SD pre-&post-program score (1=very low, 5=very high) was 3.26±0.97&4.28±0.66 for preclinical study motivation, 3.68±0.87&4.36±0.71 for attitude towards a medical practitioner, and 2.60±1.08&3.97±0.78 for realization of preclinical knowledge application, all p<0.05.

**Discussion:** Since senior medical students have recently passed preclinical years, they tend to understand the situation of preclinical study and realize the importance of preclinical contents in clinical work. Effortless and intimate communication between clinical and preclinical students and direct experience in early clinical exposure might be the key success factors.

**Conclusion:** Early and direct clinical experience of preclinical students conducted by clinical students effectively promoted preclinical study motivation, attitude towards a medical practitioner, and realization of application of preclinical knowledge. Key success factors of this program might be direct clinical experience of preclinical students with effective communication with clinical students.

**Take Home Messages:** Early clinical exposure with direct clinical experience of preclinical students successfully promoted their preclinical study motivation, realization of application of preclinical knowledge, and a positive attitude towards a medical practitioner. Management of this program by senior clinical students leads to the achievement of such purposes.



#5JJ05 (132037)

## A Systematic Approach to Peer Teaching in Histology for Medical Students

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**Background:** Peer teaching is known to be an effective way to help medical students learn. As the cognitive congruence model proposes, students learn better from teachers who can present on a similar cognitive level, rather than from experts who tend to use more complex language. However, there remains a need for precise guidelines on how to develop a curriculum for medical peer teaching.

**Summary of Work:** A student-led review course was constructed at Sackler School of Medicine to teach histology to first year medical students. Our peer-teaching model encompassed two principles: (1) optimizing attention span, and (2) using active learning. Students who received (n=66) and did not receive (n=62) peer teaching were compared based on grades on two separate histology practical exams.

**Summary of Results:** Groups were comparable based on a non-significant difference in their MCAT scores (p=0.74). No significant difference was found between the two groups on the first practical exam (p=0.79), but the intervention group performed significantly better than the control group on the second practical exam (p=0.03).

**Discussion:** Students showed improvement in histology grades with our system of peer teaching compared to without it. Two tutors alternated teaching every 15-20 minutes, and classes were restricted to one hour. Tutors promoted active learning by drawing on the whiteboard, and by distributing worksheets that provided space for students to draw along. PowerPoint slides were used sparingly, limited to headings outlining the topics at hand.

**Conclusion:** Students benefit from a peer-teaching model that optimizes attention span and encourages student engagement. This model has been successfully replicated by peer instructors in other courses at Sackler School of Medicine.

**Take Home Messages:** This peer-teaching model can serve as a systematic guide for peer teachers to develop student-led curriculums at other medical schools.

#5JJ06 (134960)

## Learning by Teaching the Basic Life Support (BLS): University Beyond its Walls

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**Background:** Basic life support (BLS) is taught to students in medical schools and the external community is not usually benefitted from this learning.

**Summary of Work:** With this social concern, 17 beginner medical students were trained in BLS in a simulated environment and were instructed to replicate the training in the community. Divided into three groups, supervised by a teacher, they trained 32 community health workers in BLS. Students' performance was evaluated before training the community through theoretical and practical tests, and after training through practical test, overall performance evaluation and self-assessment. Health workers took the theoretical pre-test and, after being trained, the theoretical post-training and the practical ones.

**Summary of Results:** The theoretical score of the students was  $8.3 \pm 1.7$  (max=10) while the practical score increased from  $12.2 \pm 2.9$  (max=17) to  $15.2 \pm 1.1$  after the teaching activity in the community (p<0.001). The overall assessment got  $9.3 \pm 0.8$  (max=10). There was a correlation between the practical and global assessments (Pearson  $r=0.6$ ; p=0.02). The self-evaluation score was  $9.0 \pm 0.5$  (max=10). The theoretical score of health professionals increased from  $8.9 \pm 5.4$  to  $15.8 \pm 3.0$  (max=20; p<0.001). In the practical evaluation, the score was  $12.4 \pm 2.8$  (max=17). There was no correlation between the theoretical post-test and the practical evaluation (p=0.3). Considering the practical test, there was no significant difference between the students' pre training test and the health workers' one (p=0.9).

**Discussion:** A better practical performance of students after teaching others demonstrates that the activity was an effective learning methodology. Concurrently, the students acted as disseminators of knowledge to other people, who have learned really well.

**Conclusion:** Teaching the community improves students' performance and enables the social role of the university once health professionals have demonstrated their knowledge. The university, going beyond its walls, plays its role in social accountability.

**Take Home Messages:** Teaching is a very effective way to learn.

#5JJ07 (134266)

**The effectiveness of medical students as teachers for the teaching of preterm labor**

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**Background:** Engaging medical student as teachers is widely and increasingly used in medical schools. The aim of this study is to evaluate the effectiveness of medical students as teachers for teaching of preterm labor.

**Summary of Work:** Fifteen fifth year medical students were assigned into teacher (N=8) and student group (N=7). Teacher group was introduced the reference source of knowledge for preterm labor. They were asked to teach the student group for 45 minutes by using PowerPoint. After that, medical teacher encourage both group to ask the questions and open discussion. Modified Essay Question (MEQ) was conducted to measure the knowledge.

**Summary of Results:** Compared to student group, mean score was significantly higher in teacher group ( $75.25 \pm 1.92$  vs.  $62.86 \pm 3.05$ ;  $p=0.006$ ).

**Discussion:** This study found that medical as a teacher improve the better knowledge of preterm labor. The limitation of this study were the less participant, and which were not randomly assigned might impact the result. Another limitation were the experience of teaching, and the evaluation of teaching skill in teacher group.

**Conclusion:** Medical student as a teacher promote better outcome for the teaching of preterm labor.

**Take Home Messages:** Medical students should be engaged, and educated to be teacher.

#5JJ08 (135863)

**Summer Pre-Medical Program at Alfaisal University: Outcomes of Peer-Assisted Learning**

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**Background:** Entering medical school as a freshman can be one of the most challenging transitions a student can experience. The Summer Pre-medical Program (SPP) was designed and taught by senior medical students as a socio-academic summer enrichment program at the College of Medicine, Alfaisal University. Our aim is to look into the outcomes of this summer premedical program, to observe for any beneficial effects among the students who attended this program. This will aid us in improving the pre-med program such that it eases the transition of freshmen students into their first years of medical school

**Summary of Work:** A cross-sectional survey was conducted among medical students of all academic years at Alfaisal University by distributing online and paper-based questionnaires via email and social media sites. Survey responses were then analysed

**Summary of Results:** Out of 162 responses, 90 pupils attended SPP before starting their first medical year and almost all of these students reported GPA above 3.5 out of 4. In addition, these students were better oriented, had smoother transition into medical school, got better understanding of basic sciences and could become more socialize and organized. According to 82.3% of the surveyed students peer assisted teaching in premed program was very beneficial. Furthermore, many students believe peer assisted learning should also be practiced during their medical school years

**Discussion:** Attending the premed program has a positive impact on the students. Not only it helped students academically by attaining good grades but also nurtured them to socialize

**Conclusion:** As Premed helps in getting acquainted to the system faster, achieve good grades and socialize more, it would be extremely beneficial if it is attended by all freshmen medical students

**Take Home Messages:** Peer-assisted learning is highly encouraged in all academic years.

#5JJ09 (134529)

Peer-TED, Peer Learning: Share and Get It

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**Background:** Peer learning is thought to create a conducive environment and enhance self-esteem. We examined whether participating in TED-style talks with each other similarly fosters positive experiences.

**Summary of Work:** Peer-TED, a training program merged with the ideas of TED-style talks for trainees was implemented at a single hospital in Taiwan. This comprised post-graduate year (PGY) physicians taking a free topic of speech for eight minutes and receiving immediate feedback from peers and supervisors for two minutes. 74 participants were enrolled in the program. A self-assessment questionnaire (8 items answered via a 5-point Likert Scale) was used for the analysis following the program.

**Summary of Results:** Participants agreed that Peer-TED gave improvements in the following aspects: being more confident ( $4.14 \pm .078$ ), having better presentation skills ( $4.23 \pm .073$ ), promoting peer learning with peers ( $4.43 \pm .067$ ), being inspired toward their career ( $4.38 \pm .071$ ), relieving stress in the clinical environment ( $4.09 \pm .102$ ), and believing it is time-worthy ( $4.27 \pm .080$ ). The lowest aspect was desiring to prepare for another speech ( $3.74 \pm .105$ ).

**Discussion:** Peer-TED undoubtedly boosts peer learning, but why didn't every student want to share more despite loving it? We believe this is due to the training process: students are trained to be homogenous, making it hard for them to express their individuality. However, there is much evidence showing that keeping one's individuality facilitates learning. Peer-TED may shift the ratio from homogenization to individuality, and enhance the intrinsic motivation of learning.

**Conclusion:** Peer-TED, not only for the presentation skills, but for the mind, is worth spreading to the PGY training.

**Take Home Messages:** Peer-TED facilitates peer learning by creating a conducive environment and enhancing self-esteem. It may also enhance the intrinsic motivation of learning.

#5JJ10 (136142)

Mutual identification as a mechanism underpinning peer-assisted learning (PAL)

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**Background:** Peer-assisted learning (PAL) is increasingly used within medical school curricula. While there is some evidence about its effectiveness, less is known about how it promotes learning. We therefore chose an in-depth qualitative approach to explore sociocultural mechanisms underpinning PAL, with concepts drawn from Wenger's Communities of Practice (1998).

**Summary of Work:** The study employed semi-structured focus groups and one-to-one interviews with medical students and peer-tutors. Video recordings of PAL sessions were used to stimulate reflection, helping to ground participants' discussion in real PAL sessions. Two analyses were undertaken: a critical discourse analysis of peer-tutors approach to feedback; and a template analysis of models of teaching and learning using a priori themes from Communities of Practice.

**Summary of Results:** Participants contrasted PAL sessions and the approach of peer-tutors with that of senior, clinical tutors. Peer-tutors described mutual identification with students. This comprised a deep and often implicit understanding of a shared sociocultural context. Such identification had important influences on the models of teaching and learning employed by peer-tutors, specifically including their approach to feedback delivery.

**Discussion:** PAL existed in dialogue with teaching undertaken in clinical settings by more senior tutors. Mutual identification was a key aspect to PAL that facilitated its effectiveness as a tool for teaching and learning. Our analysis builds on Communities of Practice theory: mutual identification adds to Wenger's existing descriptions of the concepts of mutual engagement and identification.

**Conclusion:** Mutual identification grounded in shared sociocultural context between peer-tutors and students define many aspects of the PAL interaction and learning experience.

**Take Home Messages:** Mutual identification between students and peer-tutors fosters learning in the context of PAL. We develop this concept within Wenger's Communities of Practice theory.

#5JJ11 (133445)

**Learning by teaching: an Experience Through Opportunity Activity for Final-year Medical Students**

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**Background:** Learning by teaching is a comprehensive method related to Maslow's hierarchy of needs. Successful learning, preparation and teaching others contributes to the upper-three levels of the pyramid (social-belonging, self-esteem and self-actualization). We cultivated an activity for our final-year medical students through this method and radiology interpretation was the chosen subject to be learned and taught because their OSCE scores in recent years were just average.

**Summary of Work:** During the period between semesters, we discussed with 6th year students about improving their radiology interpretation skill and promoted learning by teaching method. After engaging them, sixty student teachers were divided into six groups of the must-know imaging topics. They designed their own way to teach their students (5th year students) and worked hard with staff supervisors for the topic and class preparation. We evaluated the results by using questionnaires.

**Summary of Results:** Eighty percent of the student teachers liked to teach and 67% got a better handle on the topic. All of the 5th year students loved to learn from their seniors because it was less pressure (100%) and simpler (63%), they had incentive to catch up with their mentors. Six supervisors impressed final-year students' active, intensive works, but this method required a lot of time for introduction and working with students.

**Discussion:** Besides improving radiology interpretation skill, all of the student teachers perceived sense of value, accomplishment and solidarity after teamwork. We could say that they achieved at least the level of self-esteem in Maslow's pyramid. This method needs student engagement to create the motivated and effective work with lower inhibitions and higher sense of purpose.

**Conclusion:** Learning by teaching method supports improving clinical competencies, strengthens self-esteem and reinforces student engagement.

**Take Home Messages:** Students could be more than our expectations when they have appropriate supports and empowerment.

#5JJ12 (135717)

**The Role of Peer Assisted Learning in Medical Education: Reform Plan**

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**Background:** Peer assisted learning (PAL) is defined as "development of knowledge and skill through active contribution of knowledge by peers". This is particularly true in medical education, where the restrictions on resources have forced instructors to look for creating new educational approaches which can transfer information to learners in more active way. This study was conducted under the goal to determine whether PAL could be alluded as an alternative to teacher-based approach or not.

**Summary of Work:** This randomized controlled trial was conducted among target population of 4th semester basic science medical students of Shiraz University of Medical Sciences. 60 individuals were selected based on census and divided into two experimental and control group using randomized number table as participants. A researcher-made pre-test and post-test consisted of 10 questions which validity was confirmed by experts of SUMS was taken from all participants to compare scores. Experimentals were trained by a gifted talent student who was knowledgeable in courses' topics and controls by routine approaches. Gathered data were analyzed by SPSS version 14 using descriptive statistical methods.

**Summary of Results:** Results demonstrated a significant difference between the pre-test and post-test scores of all participants ( $p < 0.05$ ). There was a significant difference between scores of case and control group members ( $p < 0.01$ ). There was also a significant difference between the scores of different subgroups ( $p < 0.05$ ).

**Discussion:** According to the results derived from the present study, the crucial role of teacher in learning could not be ignored. However, Peer Assisted Learning could be alluded as one affordable and reliable learning method which would be able to improve medical education effectively.

**Conclusion:** This reliability would also be highlighted if the most appropriate strategy was taken. This study also demonstrated the efficacy of PAL in proportion to numerical values which means the less the tutees the more effectiveness of PAL.

**Take Home Messages:** This study has been conducted for the first time in Iran and has been accepted in two educational country congresses.



#5JJ13 (135933)

**An investigation into the perceived improvement of undergraduate dental students' confidence and preparedness in an OSCE-type setting after a peer-led intervention**

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**Background:** Exam confidence preceding OSCEs can be perceived as significantly less than written or multiple choice examinations due to its' unpredictable nature, the tight time constraints of each station and the more practical nature of the examination. This is exacerbated by the lack of practice possible before sitting the exam in comparison to written and multiple choice examinations.

**Summary of Work:** A peer-led mock-OSCE intervention was utilised. This included 6 phases. Phase 1 involved recruitment of student tutors who had successfully passed the OSCE examination. Phase 2 involved recruited students creating lists of examinable OSCE topics and creating a list of stations which could be 'mocked' with limited recourses and having them verified by professional teaching staff at Glasgow Dental Hospital and School. Phase 3 involved advertisement. Phase 4 was detailed circuit planning and organisation. Phase 5 was the orchestration of the mock-OSCE. Phase 6 included feedback and reflection.

**Summary of Results:** Feedback illustrated that the students unanimously found the mock-OSCE significantly improved both their confidence and preparedness for OSCE examinations. All students also said that they found the mock-OSCE useful and would recommend it. Results will be made available in full, with comparison of data from the next session, at the conference.

**Discussion:** Results strongly indicate that the mock-OSCE intervention was successful in improving perceived confidence and preparedness in an OSCE-type setting. Improvements for the next mock-OSCE sessions were minor and easily edited.

**Conclusion:** Providing the opportunity for undergraduate dental students to experience a 'mock-OSCE' session can have a significant effect on their perceived confidence and preparedness in an OSCE-type setting.

**Take Home Messages:** Peer led mock-OSCE sessions can provide an effective method to improve student confidence and preparedness.

#5JJ14 (135952)

**Evaluation of a peer assisted learning (PAL) program as a revision tool for undergraduate dental students**

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**Background:** While common in fields such as medicine, peer assisted learning is extremely under-utilised in dentistry. There is a significant lack of literature to discuss PAL in dentistry. A literature search by the authors yielded fewer than 10 published articles concerning the use of PAL in undergraduate dentistry

**Summary of Work:** "The BDS Revision Seminar 2015" was organised in 7 stages. Stage 1: voluntary recruitment of peer tutors in years 2-5. Stage 2: distribution of topics and creation of revision presentations with corresponding revision handouts. Stage 3: verification of material by professional teaching staff in undergraduate dental education. Stage 4: promotion via social media. Stage 5: 4 tutor rehearsals with peer feedback. Stage 6: Seminar: distribution of revision materials and delivery of tutor presentations to tutees in the year below. Stage 7: feedback collection.

**Summary of Results:** Questionnaire feedback assessed on a 5 point likert scale from 98 tutees was overwhelmingly positive. Tutees indicated that they felt improved confidence (mean=3.88) and preparedness (mean=4.00) for examinations, found tutors to be friendly and approachable (mean=4.72) and felt that they provided a good quality of teaching (mean=4.44). Verbal feedback from tutors indicated they enjoyed the experience and felt that teaching the material helped to better understand it.

**Discussion:** Tutees and tutors both found the program an effective revision tool and felt comfortable in a PAL environment.

**Conclusion:** Both groups reported they enjoyed the program and thought it was of a high quality.

**Take Home Messages:** This program was student-led. PAL gives students the opportunity to create revision tools with minimal staff time needed and create an educational support network among students. It will be expanded in "The BDS Undergraduate Conference 2016".

#5JJ15 (136012)

**Peer-Led OSCEs with constructive peer feedback as an effective revision aid for undergraduate dental students**

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**Background:** Constructive feedback is invaluable to improvement throughout professional life. Giving, receiving, interpreting and implementing change after receiving feedback are skills which should be developed during undergraduate life. Students can often be more receptive and engage better with their peers as they may have a more immediate understanding of the difficulties faced and can provide a less intimidating figure than professional staff to question and turn to for guidance

**Summary of Work:** Peer-led mock-OSCEs were organised and conducted by undergraduate dental students. All mock-OSCE material was verified by teaching staff at Glasgow Dental School. Constructive feedback was provided to students individually by student examiners following each station and generally in a presentation by a peer tutor following the session. Both examiners and tutors were in the year above the tutees. This gave them an acute understanding of issues tutees may face and how to best overcome them.

**Summary of Results:** Of 86 students who completed written feedback, almost all agreed that they found student tutors to be approachable, felt comfortable asking questions, found the feedback useful and felt that the session was beneficial to their learning. A complete breakdown of results following this and the following year's intervention will be available at the conference. Student tutors and examiners fed back that they enjoyed developing skills in giving feedback and felt that it helped them to understand better how to give and receive feedback

**Discussion:** There was strong evidence to indicate that tutees found the mock-OSCE intervention to be useful and that they felt it was beneficial to receive feedback from peers. Student tutors and examiners found the session beneficial in developing themselves as professionals

**Conclusion:** Student tutors and examiners found the session beneficial in developing themselves as professionals

**Take Home Messages:** Peer feedback is an invaluable and under-utilised resource in undergraduate education.

#5JJ16 (135979)

**A Peer-Assisted Learning approach to promoting self-learning using mobile technology – A Multiple-Choice Questions App for smartphones**

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**Background:** Smartphone use has risen exponentially in recent years. The use of healthcare apps is increasingly popular in Medicine but apps for Dentistry are less common and well developed. There is scope develop apps as a learning resource for undergraduate Dental students.

**Summary of Work:** A student app developer was recruited for app construction. There are two distinct app softwares; Apple and Android. There is a cost discrepancy according to software and platform (smartphone vs tablet). An android app was selected due to cost-constraints. An architectural plan of the app was constructed and peer volunteers were recruited from various year-groups to create MCQ questions. Subject specialists within Glasgow Dental School verified questions constructed by students. The app developer published the app on the Android platform for users to download for free. App availability was promoted on social media.

**Summary of Results:** Evaluation will take place periodically by requesting participants of app to provide feedback using questionnaires and focus groups whilst simultaneously monitoring app downloads. This can be replicated at every dental school across the UK.

**Discussion:** Apps are a common resource used by undergraduate students as a learning tool for education. There are over 100,000 apps for medical students but this resource is severely lacking for dental students.

**Conclusion:** The main hurdle in construction an app is the funding required to hire an app developer to construct the app. Limitations in funding encouraged us to recruit student app developer, who had no experience in making apps for Apple.

**Take Home Messages:** There is scope to reach and teach thousands via construction of an MCQ app as a learning tool. The potential benefits and drawbacks require further investigation. We plan to develop an app as specified. Evaluation of the app will be available at the conference.

## **Session 6: Plenary**

Tuesday 30 August 2016: 0830-1015 hrs

### **#6A Plenary: Stumbling blocks into stepping stones; celebrating medical education in Rwanda**

**Location: Auditorium**



**Phillip Cotton\*** (*Vice Chancellor of the University of Rwanda, Rwanda*)

The University of Rwanda was created two years ago from the merger of the seven public Universities and has 31,000 students on 14 campuses. It is the majority provider of doctors & nurses, & the sole provider of all other health care professionals. The merger is one part context and during these two years, in response to predicted needs, we have opened the first-ever dental school, doubled the intake into medicine, and started the first ever Masters degrees in clinical nursing for 160 candidates. The challenges facing students and faculty, and delivery of teaching in clinical environments, are not new but the opportunities that emerge are exciting and energizing.

### **#6B Plenary: Medical Education in Difficult Circumstances: a student perspective**

**Location: Auditorium**



**Ewa Pawlowicz\*** (*Recent Graduate, Medical university of Lodz, Poland*)

Difficult circumstances, faced by both students & faculty, in medical education range from military activities, human rights violations and poverty, to the lack of awareness of evidence-based medical education resulting in an outdated, traditional way of teaching. Until recently, Polish medical curricula were considered very traditional; non-integrated and overloaded with theoretical knowledge while minimising practical skills & social competence. Thanks to exchange programmes and support from international organisations, Polish students have become acquainted with modern educational systems and are initiating their implementation. Examples of Polish students' activities & projects will be presented, also illustrating how medical students can act as change leaders in medical education.

## Session 7: Simultaneous Sessions

Tuesday 30 August 2016: 1045-1230 hrs

### #7A Symposium: Medical Education in Difficult Circumstances: Finding solutions to problems

Location: Auditorium



**Robert Woollard\*** (University of British Columbia, Canada)

**Elpida Artemiou\*** (Ross University School of Veterinary Medicine, St Kitts and Nevis, Caribbean)

**Elizabeth Kachur\*** (Medical Education Development, USA)

**Trevor Gibbs\*** (AMEE, UK)

The world of medical education is not a level playing field; for each school that has the abilities to maintain high quality medical education, there are many who are delivering medical education under varying difficult circumstances, caused by multiple factors.

Using three examples drawn from medical schools and Universities from around the globe, each giving a different perspective on difficult circumstances, the symposium will explore and share the various mechanisms that these schools have used to bring their institution up to the same level of quality enjoyed by the few.

This symposium will:

- Review the various examples of difficulty;
- Consider how specific difficulties can be overcome by specific strategies;
- Explore the transferability of these coping strategies to other situations;
- Consider the formation of a cohort of individuals / Institutions prepared to continue looking at how to cope with / research into medical education under difficult circumstances

### #7B Symposium: Teaching Professionalism to Medical Students: A Cross-National Discussion

Location: 211 – P2

**Ducksun Ahn\*** (Korean Institute for Medical Education and Evaluation, South Korea)

**Barbara Barzansky\*** (Liaison Committee on Medical Education/American Medical Association, USA)

**Dan Hunt\*** (Liaison Committee on Medical Education/Association of American Medical Colleges, USA)

**Nobou Nara\*** (Tokyo Medical and Dental Institute, Japan)

The development of professional behaviours in medical students is strongly influenced both by the

formal curriculum of the medical school and the informal (“hidden”) curriculum that students learn by interaction with their teachers and mentors.

This symposium will examine the concept of professionalism from a cross-national perspective. From the context of their own countries, the panellists will address questions designed to stimulate discussion:

1. How and by whom is professionalism for physicians defined in the country?
2. How is professionalism taught and assessed? Are there agreed upon behaviours that students must demonstrate, especially in the clinical setting?
3. How is inappropriate professional behaviour by students and by faculty addressed?

The panellists will identify similarities and differences across countries and create some general principles for teaching professionalism. Through small group discussion, the audience then will consider how the conclusions reached by the panel apply to their own national setting.

### #7C Symposium: Integrating Social and Behavioural Sciences in Medical Education

Location: MR 112 – P1

**Jeni Harden\* (Chair)** (University of Edinburgh, UK)

**Tracey Collett\*** (Plymouth University Peninsula Schools of Medicine and Dentistry, UK)

**OJ Sahler\*** (University of Rochester, USA)

**Octavio Enriquez\*** (Universidad Andrés Bello, Chile)

**Edinburgh University Medical Students** (UK)

**Anya de longh\*** (UK)

The importance of social and behavioural factors in the aetiology of medical disorders is well established. In recent years reports in the US and UK have called for reforms in medical education to properly equip graduates with the skills to address new health challenges, to identify societal and behavioural factors that caused them or impeded their treatment, and develop strategies for successful intervention or prevention. In this symposium speakers from medical schools in the UK, USA and Chile will discuss the integration of social and behavioural sciences (SBS) in the curriculum. Students' views and experiences of SBS will be given in a presentation by Edinburgh medical students. Finally we will also hear from a patient leader who will discuss the significance of SBS and the potential it presents to strengthen patient and public involvement in medical education.



## 7D Research Papers: Program Evaluation

Location: MR117 – P1

#7D1 (127503)

**Does Myanmar-International Medical University Community Collaborative Project (MICCP) enhance student authentic learning?**

**Ni Ni Win\*, International Medical University, Kuala Lumpur, Malaysia**

Ranjit De Alwis (IMU, Malaysia)

Edward Russell Crowther (IMU, Malaysia)

Htar Htar Aung (IMU, Malaysia)

**Introduction:** The International Medical University (IMU) is initiating various local, charitable community service activities. While local projects are easy to plan and execute community service projects delivered internationally with different cultural, socioeconomic and geographical differences is challenging. The objectives of the MICCP project were to provide students a hands-on experience of working with a rural health team in a foreign jurisdiction; to experience working together with students from other health programmes and; to broaden their horizons by experiencing life in another ASEAN country and sharing their culture. The aim of this qualitative study was to explore whether students' community-based learning experiences met their expectations.

**Methods:** A total of twenty nine IMU undergraduate preclinical year students from Medicine, Pharmacy, Dietetics with Nutrition, Chiropractic and Psychology participated. The students conducted health screening and talk, nutritional assessment, taught First Aid, English and did planting teak and some entertainment at the village primary school. The students listed down their expected learning outcomes before MICCP project. At the completion of the program, we conducted a semi-structured, open-ended written interview of the student participants that explored their perceptions. The analysis of questionnaires performed. From their daily diary reflection, significant descriptions were extracted, coded by content, and then grouped into subcategories. These subcategories were then separated into main categories based on their emergent themes.

**Results:** The response rate was 90 per cent. Half of the students had previous community service experiences at their local area before joining MICCP. Learning via the community project was more meaningful than in a classroom setting (88%) and learning tool for inter professional collaboration work (81%). The project enhanced aware of cultural differences between the two countries (77%). The experience helped them to a better understanding of team-working in the provision of healthcare (73%) and learning tool for social accountability to others (69%). The main categories identified were "team work", "leadership skill", "communication skill," "learning culture and skill to work in a multicultural

environment" and "inter professional learning" and "community health learning". One student reflected as "We were exposed to the overhanging reality of disparity between rural-to-urban population ratios and healthcare access. Furthermore, we experienced first-hand the limitations of community health interventions, and were given the opportunity to acquire and refine organisation, planning and leadership skills to attempt to overcome those limitations and maximise intervention efficacy under circumscribing circumstances. Learning to work with others was among the few important qualities emphasised throughout. While 'extending love beyond nations' and making our small impact in the lives of those who are underprivileged, we in fact received much more in return – an insightful exploration and development of ourselves, our capabilities and potential as future healthcare professionals through humanity."

**Discussion:** MICCP project achieved its targeted educational goals including students gained valuable knowledge and skills required for effective teamwork and the skills necessary to work in a multicultural environment. They developed an appreciation of the life of those less privilege peoples and an understanding of how to improve health through education.

**Conclusion:** Authentic learning was promoted in a contextual setting. Insights into soft skills, inter professional learning and altruism were gained. References 1. Kaye DK, Muhwezi WW, Kasozi AN, Kijambu S, Scovia N Mbalinda SN, et al. Lessons learnt from comprehensive evaluation of community-based education in Uganda: a proposal for an ideal model community-based education for health professional training institutions. BMC Medical Education 2011, 11:7. <http://www.biomedcentral.com/1472-6920/11/7> 2. Ladhani Z, Scherpbier A JJA, Stevens FCJ. Competencies for undergraduate community-based education for the health professions – A systematic review. Medical Teacher, 2012, 34: 733–743. DOI: 10.3109/0142159X.2012.700742 3. Kelly L, Walters L, Rosenthal D. Community-based medical education: Is success a result of meaningful personal learning experiences? Education for Health • Volume 27 • Issue 1 (April 2014)

#7D2 (127943)

**How to implement a Programme for Overseas Doctors: Findings from a realist evaluation**

**Amelia Kehoe\*, Durham University, Durham, UK**

Jan Illing

John McLachlan

Simon Forrest

Jane Metcalf

**Introduction:** Overseas Medical Graduates (OMGs) are relied upon to ensure effective healthcare delivery. However, concern has grown around the regulation and professional practice of those qualified overseas. Research suggests that overseas doctors are likely to

face difficulties with communication, culture, practical issues, team working and hierarchical structures. A multitude of recommendations have been made concerning support for OMGs; however currently there is no robust evidence to indicate how to effectively develop interventions to aid OMG transition to their host-country. This research seeks to understand i) how programmes set up to support OMGs enable them to make a successful transition to the host country, ii) what mechanisms trigger successful outcomes and in which contexts, iii) what barriers may hinder transition, and iii) how interventions can be developed and improved for future implementation.

**Methods:** Following the findings from a realist synthesis, a pilot Programme for Overseas Doctors (POD) was developed within one North East Trust. The programme provided both experiential training opportunities and a support system. The programme was primarily aimed at doctors new to the Trust who had gained their medical degree overseas. A realist evaluation was conducted across two years using a multiple case study design. A total of 100 interviews took place. Participants included programme attendees (OMGs), supervisors, 'buddies' and OMGs who had experienced either no intervention or were from other North East Trusts and had experienced minimal induction (interviews were conducted 3 months and one year after programme implementation). Pre and post questionnaires were distributed and performance data collected. Data was analysed using framework analysis and interpreted to refine programme theories developed in the initial realist synthesis.

**Results:** Three contextual levels were found to impact on adjustment: individual factors (e.g. capacity to change/role identity), training factors (e.g. supervisor/peer support) and organisational factors (e.g. cultural awareness/contextual factors). Psychological mechanisms triggered included self-efficacy, social capital, motivation, insight and acculturation. Educational mechanisms included preparedness, professional growth and transformative learning. Evaluation of the first cohort led to developments of POD for the second cohort, including the implementation of enhanced supervision, initial needs assessment, earlier and longer induction, use of previous POD attendees and a better recruitment process. Performance data and findings from interviews with non-intervention OMGs illustrate the critical need for such a programme.

**Discussion:** Establishing a strong support network and ensuring OMGs feel welcomed is critical to adjustment. The necessary individual, training and organisational contexts must be working together in order to improve adjustment in the transition process. Input from all levels within the organisation is needed and all team members must be culturally aware of OMG needs. Difficulties resulting from transition to a new country, which may impact upon patient safety and delivery of healthcare, are addressed and recommendations made as to how other Trusts can implement such programmes.

**Conclusion:** The implementation of an enhanced induction programme and on-going support is needed. The findings support and develop the framework proposed by an initial realist synthesis; giving a better understanding as to how programmes should be developed to support overseas doctors.

#7D3 (126846)

#### Cross-validation of a Learning Climate Instrument in a non-Western Postgraduate Clinical Environment

*Jaime Pacifico\*, De La Salle Health Sciences Institute  
College Of Medicine, Dasmarias, Cavite, Philippines*

*Cees van der Vleuten*

*Arno Muijtjens*

*Phderlyn Sana*

*Sylvia Heeneman*

**Introduction:** In postgraduate medical training, there is a need to continuously assess the learning and working conditions to optimize learning. Students or trainees respond to the learning climate as they perceive it, not necessarily as intended by the training program. The Dutch Residency Educational Climate Test (D-RECT) is a learning climate measurement tool with well-substantiated validity. However, it was originally designed for Dutch postgraduate trainees and it remains to be shown whether extrapolation to non-Western settings is viable. The dual objective of this study was to revalidate D-RECT outside of a Western setting and to evaluate the factor structure of a recently revised version of the D-RECT containing 35 items.

**Methods:** We invited Filipino internal medicine residents from 96 hospitals to complete the revised 35-item D-RECT. Subsequently, we performed a confirmatory factor analysis to check the fit of the 9 scale model of the revised 35-item D-RECT. We used the following criteria and associated pre-determined cut-off values to gauge goodness of fit: relative Chi-square ( $CMIN/DF < 2$ ), goodness-of-fit index ( $GFI > 0.9$ ), Tucker-Lewis index ( $TLI > 0.9$ ), comparative fit index ( $CFI > 0.9$ ) and the root mean square error of approximation ( $RMSEA < 0.08$ ). Inter-rater reliability was assessed using generalizability theory.

**Results:** Confirmatory factor analysis revealed that the factor structure of the revised 35-item D-RECT provided a reasonable fit to the Filipino data, after removal of 7 items. Five to seven evaluations were needed per scale to obtain a reliable result.

**Discussion:** With this cross-validation study we have demonstrated that the D-RECT, although originally designed for postgraduate medical trainees in the Netherlands, is useful in a non-Western setting. We were able also to validate the internal consistency and internal 9-factor structure of the revised D-RECT. Cultural differences that influence how trainees learn possibly explain why some items had to be removed from the 35-item revised D-RECT before the 9-factor structure provided a good fit to the Filipino data.

**Conclusion:** When used for the evaluation of the clinical learning environment in a non-Western

postgraduate training setting, the D-RECT, in its revised form, exhibited psychometric validity. We recommend that its application be extended to other Asian clinical training programs and specialties, other than internal medicine.

**References:** Boor, K., et al. Development and analysis of D-RECT, an instrument measuring residents' learning climate. *Medical Teacher*, 33:820-827  
Silkens, M., et al. Revisiting the D-RECT tool: Validation of an instrument measuring resident's learning climate perceptions. *Medical Teacher*.  
DOI:10.3109/0142159x.2015.1060300

#### #7D4 (128230)

##### **Factors Affecting Successful Use of Mentorship for Newly Appointed Neurosurgical Consultants; Multi-Institute Experience**

**Hossam Maati\***, Benha University, Cairo, Egypt

**Introduction:** Background Background: The principle of mentoring as a learning relationship has led to its use in undergraduate and postgraduate medical education. In medicine, mentorship is often Defined as: The process whereby an experienced, highly regarded, empathic person (the mentor), guide another individual (the mentee) in the development and re-examination of their own ideas, learning, and personal and professional development. Mentoring can enhance technical and non-technical skills. Aim: To explore factors affecting successful use of mentorship for newly appointed neurosurgical consultants in 4 neurosurgical centers.

**Methods:** Summary of work : This prospective, qualitative, descriptive, multi-center study includes 20 neurosurgical lecturers. For all of those lecturers, semi structured, multiple mini individual interviews were undertaken between April and November 2014

**Results:** Summary of results : Our results revealed that there are widely recognized benefits of mentorship for the new neurosurgical consultants. There are several factors affecting successful use of mentoring including previous experience of the mentor to act as a mentor, good understanding and suitable expectation of mentorship relationship between mentor and mentee, suitable matching between mentor and mentee, and good clinical and research experience of the mentor.  
**Discussion:** Conclusions Mentorship is of a high value for the new neurosurgical consultants, however, multi-factorial obstacles may enable such relationship to be widely used.

**Conclusion:** Conclusions Mentorship is of a high value for the new neurosurgical consultants, however, multi-factorial obstacles may enable such relationship to be widely used.

#### #7D5 (128059)

##### **Re-design of the System for Evaluation of Teaching Qualities in Anesthesiology Residency Training (SETQ Smart)**

**Kiki M.J.M.H. Lombarts\***, Academic Medical Center, Amsterdam, Netherlands

Andrew Ferguson, Craigavon Area Hospital, Portadown, UK

Markus Hollmann, Academic Medical Center, Amsterdam, the Netherlands

Bente Malling, Aarhus University, Aarhus, Denmark

Onyebuchi Arah, University California los Angeles, Los Angeles, USA

**Introduction:** Modern anesthesiology residency training requires high performing teaching faculty. This study reports on new tools for the evaluation of core teaching qualities of anesthesiology faculty, developed by an international team of anesthesiologists and researchers using the well-researched System for Evaluation of Teaching Qualities (SETQ).<sup>1</sup> The SETQ originated in the Netherlands; approximately 3500 residents and teaching faculty now use the system every year. International interest in the SETQ started the development of a new cross-national system, named SETQ Smart. This study investigates (i) the structure, (ii) the psychometric qualities of the new tools, and (iii) the number of residents' evaluations needed per anesthesiology faculty to reliably use the new SETQ Smart tools.

**Methods:** Two SETQ Smart tools – one for faculty self-evaluation and one for resident-evaluation of faculty - were developed iteratively by literature review, multiple discussions in the research group and faculty and residents' consultation rounds in the various teaching sites. The 'Teaching as a Competency' framework<sup>2</sup> was leading in reflecting upon the content validity of the original SETQ. A multicenter cross-sectional survey was then conducted among 399 anesthesiology faculty and 430 residents in six European countries. Participation was anonymous. Items could be rated on a 7-point Likertscale. Residents also provided narrative feedback. Statistical analyses included exploratory factor analysis, reliability analysis using Cronbach's alpha coefficients, item-total scale correlations, inter-scale correlations, comparison of composite scales to global ratings and generalizability analysis to assess residents' evaluations needed per faculty.

**Results:** In total, 240 residents filled out 1622 evaluations for 247 faculty. Participation varied per country. The SETQ Smart tools revealed 6 teaching qualities consisting of 25 items for both the resident and the faculty self-evaluation tool. Cronbach's was very high ( $> 0.95$ ) for the total SETQ Smart tools, and high ( $> 0.80$ ) for the separate teaching qualities. Inter-scale correlations were all within the acceptable range of moderate correlation. Overall tools and their scales correlated moderately to highly with the global ratings. For reliable feedback to individual faculty 3 to 5 resident evaluations are needed.

**Discussion:** This study provides empirical evidence for the first ever cross-national measurement tool for individual faculty teaching performance. The 6 teaching scales identified in the SETQ Smart included 4 scales from the original SETQ tool, and two new scales ('learner centeredness' and 'professional practice management'). Newly added professionalism items did not fit in any particular teaching scale. The reported reliability and validity results support the use of the SETQ Smart in quantifying and stimulating excellence in faculty teaching performance internationally. Teaching faculty may now use performance feedback for guiding their performance improvement plans. Strengths of the study included European wide participation and the underlying (SETQ) evidence-base. Additional single country studies may be performed in the future.

**Conclusion:** The first cross-national tools for evaluating individual anesthesiology faculty teaching performance were found to be valid, reliable and feasible for formative use in various European anesthesiology residency training programs. The SETQ Smart may also be useful to investigate and minimize variation in anesthesiology training within and across countries.

**References:** Lombarts MJ, Bux MJ, Arah OA: Development of a system for the evaluation of the teaching qualities of anesthesiology faculty. *Anesthesiology* 2009; 111:706–19.  
Srinivasan M, Li ST, Meyers FJ, Pratt DD, Collins JB, Braddock C, Skeff K, West DC, Henderson M, Hales RE, Hilty DM: "Teaching as a Competency": Competencies for Medical Educators. *Acad Med* 2011; 86:1211–20.



## 7E Research Papers: Quality improvement and patient safety

Location: 212 – P2

#7E1 (127576)

### Benchmarking in Australia using the IFOM – A Step towards Quality Assurance

**Zarrin Siddiqui\***, *The University of Western Australia, Perth, Australia*

*Anna Ryan (University of Melbourne, Australia)*

*Deborah O'Mara (University of Sydney, Australia)*

*Helena Ward (University of Adelaide, Australia)*

*James Fraser (University of Queensland, Australia)*

**Introduction:** This research study describes a benchmarking exercise undertaken by five Australian medical schools for the purpose of quality assurance. The collaboration was designed to explore differences in International Foundations of Medicine (IFOM) examination performance for final year medical students with an International Comparison Group as well as within the five participating schools, and with predicted performance on the United States Medical Licensing Examination (USMLE) Step 2 Clinical Knowledge Examination.

**Methods:** All the participating medical schools used the IFOM as a formative assessment, yet administration conditions and mode of delivery differed between schools. Descriptive analyses were used to compare Australian schools performance both overall and by medical discipline sub-scales for the 1443 medical students who sat the IFOM examination in 2014. In order to make valid comparison of the sub-scores from the five schools by sub-discipline, the mean scores for each school were adjusted by a calibration factor to equalise the overall grand mean of 528.

**Results:** Australian medical students performed better than the International Comparison group, however less than one quarter of Australian students met the IFOM CSE standard of competence of a total test score of 587 (based on the Step 2 of the USMLE). Variability in scores overall, and scores across disciplines, subjects and physician task profiles was relatively small amongst the five Australian Medical Schools, when the overall performance of each school was calibrated. Nevertheless, one schools did perform better on Preventive Medicine and Health Maintenance and one on Gynaecological and Obstetric Disorders and Discipline questions.

**Discussion:** Using the IFOM results for cross-comparisons of similar cohorts has identified small differences in overall performance and by domain across the five Australian medical schools. However once overall performance is taken into account there is very little variation in the performance of graduating cohorts in the five medical schools involved in this study. Disclosure of test administration conditions allowed participating medical schools to understand their own results in the context of the test conditions at other Australian sites. Continuation of this study

over time to obtain longitudinal data will reveal whether the results reflect student differences or curriculum effects. International comparison highlights the risk of comparison without consideration of test context and grade implications and could provide misleading information.

**Conclusion:** Whilst recognising the limitations of single point comparisons, benchmarking endeavours such as this may provide a useful way for medical schools to monitor their progress over time, to evaluate curriculum change and for new schools to judge their progress against established programs.

**References:** Finucane P, Flannery D, Keane D, Norman G. Cross-institutional progress testing: feasibility and value to a new medical school. *Med Educ* 2010 FEB 2010;44(2):184-186.

Schuwirth L, Bosman G, Henning RH, Rinkel R, Wenink ACG. Collaboration on progress testing in medical schools in the Netherlands. *Med Teach* 2010 2010;32(6):476-479.

#7E2 (128011)

### Unravelling Quality Culture in Higher Education Institutions: a Realist Review

**Guy Bendermacher\***, *Maastricht University, Maastricht, Netherlands*

*Mirjam oude Egbrink (Maastricht University, Maastricht, the Netherlands)*

*Ineke Wolfhagen (Maastricht University, Maastricht, the Netherlands)*

*Diana Dolmans (Maastricht University, Maastricht, the Netherlands)*

**Introduction:** There is a growing belief that Higher Education Institutions should nurture a 'quality culture' in which structural/managerial and cultural/psychological organisational elements act in synergy to improve education (EUA, 2006). Notwithstanding the positive connotation of 'quality culture', its exact configuration and practical value are subject to debate as research underpinning its merits is scarce. A realist review was conducted aiming to: 1) identify hampering and promoting organisational context elements impacting quality culture development, 2) explore the most important 'working mechanisms' of quality culture, and 3) provide insights in the outcomes associated with quality culture development.

**Methods:** The realist review encompassed combining a systematic literature search, theory-driven analysis, and propositions contributing to further theory development. The method allows for refining the relationship between contexts, mechanisms and outcomes of social intervention programmes (Pawson et al. 2005). A systematic literature search was performed to identify studies relating to quality management and quality culture development. To be eligible for inclusion, articles needed to concern 1) higher education, 2) internal quality management, 3) educational enhancement, 4) in-class education, and

5) empirical research. Application of the inclusion criteria resulted in 31 articles eligible for review. **Results:** Promoting structural/managerial elements are: improvement strategies, evaluation systems, stakeholder involvement, student centeredness, attention to policies, procedures and responsibilities. The hierarchy in institutions, departmental division and research focus form impeding elements. On the cultural/psychological dimension, people-orientedness, valuing of autonomy and professionalism form promoting elements, while disciplinary and research oriented subcultures can hamper quality culture development. 'Leadership' and 'communication' elements have both 'structural/managerial' and 'cultural/psychological' attributes and act as binding elements between the two. Working mechanisms of quality culture comprise commitment, shared ownership, empowerment and knowledge. Associated outcomes are staff and student satisfaction, improvement of the teaching-learning process and learning and development.

**Discussion:** The study findings nuance the picture of quality culture as a monolithic entity characterised by shared values, beliefs, and expectations. Quality culture is a multifaceted, socially constructed, phenomenon which cannot be seen in isolation from the specific context in which it is embedded. There is no such thing as 'the' quality culture and one cannot simply transfer it from one organisation to the other.

**Conclusion:** A quality culture is characterised by a valuing of education, people-oriented focus and emphasis on autonomy and professionalism. Leaders 'drive' quality culture development through resource allocation, clarification of roles and responsibilities, creating partnerships and optimising people and process management. Proficient communication is essential to diffuse strategies and policies, evaluate results and identify values and beliefs. Quality interventions should foster commitment, shared ownership, empowerment and knowledge. Improvement of teaching and learning processes is a main beneficial outcome of devoting to structural/managerial elements. Close staff and student cooperation is exemplary for quality culture and contributes to organisational learning, development and study success.

**References:** European University Association (2006). Quality Culture in European Universities: a bottom-up approach.

Pawson, R., Greenhalgh, T., Harvey, G., & Walshe, K. (2005). Realist review – a new method of systematic

#7E3 (127488)

# **E-Learning to improve patient safety: A prospective cross sectional study**

**Rainer Gaupp\***, *Albert-Ludwigs-University Freiburg, Germany*

*Mirjam Körner*

*Goetz Fabry*

**Introduction:** Patient safety is influenced by a set of interdependent factors on various levels of the healthcare system. Therefore, a systems approach and systems thinking is required to understand and improve patient safety. The use of e-learning technology may help to develop a systems thinking approach in novice medical students, as interactive case studies featuring audiovisual media can be used to visualize systemic relationships in organizations. The goal of this prospective pre-/posttest study was to measure the development of systems thinking in medical students and determine, if an e-learning can be utilized to improve knowledge and attitudes towards patient safety.

**Methods:** 321 third-year medical students were enrolled in a prospective pre/post-test study design. Primary outcome measures were levels of systems thinking and attitudes towards patient safety, both measured before and after the completion of an e-learning course on patient safety, using validated instruments. Secondary outcome measures were the improvement of patient safety specific knowledge through the e-learning course. Paired t-tests were used to calculate mean differences.

**Results:** From the 321 students enrolled in the study, 224 (70%) entered pre- and posttest data. Levels of systems thinking showed significant improvement (53.97 vs. 58.42;  $p < .001$ ) after the e-learning. Student's attitudes towards patient safety improved in several dimensions: After the course, students rated the influence of fatigue on safety higher (6.20 vs. 6.39,  $p < .01$ ), considered patient empowerment more important (5.11 vs. 5.93,  $p < .001$ ) and realized more often, that a zero-error approach is unrealistic (6.14 vs. 6.30,  $p < .01$ ). Complementary to affective learning goals, cognitive learning dimensions improved massively: Knowledge on patient safety improved from 36.27 % correct answers before to 76.45 % after the e-learning course ( $p < .001$ ).

**Discussion:** The development of a patient safety culture in healthcare systems require both the development of declarative and conceptual knowledge, but also the change of values and attitudes towards patient safety. Our results suggest, that many of these aspects, including the affective learning goals, can be fostered by e-learning concepts. Although our data show a significant improvement of systems thinking after the e-learning course, the relatively small effect size suggests, that e-learning content might have to be sharpened towards the systems thinking approach in order to achieve more solid effects.

**Conclusion:** In our data, a specifically designed e-learning course on patient safety led to significantly

improved knowledge on patient safety and changed student's attitudes towards several aspects of patient safety. In future studies we'll analyze the sustainability of such learning outcomes. Furthermore, didactical concepts to foster systems thinking should be evaluated in order to increase effect sizes.

**References:** Taylor-Adams, S., & Vincent, C. (2005). Systems analysis of clinical incidents. The London protocol. (I. C. London, Ed.). London.  
George, P. P., Papachristou, N., Belisario, J. M., Wang, W., Wark, P. A., Cotic, Z., ... Car, J. (2014). Online eLearning for undergraduates in health professions: A systematic review of the impact on knowledge, skills, attitudes and satisfaction. *Journal of Global Health*, 4(1).

#### #7E4 (128426)

##### **Patient (Un)Involvement in the Surgical Safety Checklist**

**Simon Kitto\***, *University of Ottawa, Ottawa, Canada*  
*Rachel Grant (University of Ottawa, Ontario, Canada)*  
*Sherry Espin (Ryerson University, Ontario, Canada)*  
*Oleg Safir (University of Toronto, Ontario, Canada)*  
*Roxanne Ziman (Ryerson University, Ontario, Canada)*

**Introduction:** Surgical safety checklists (SSC) were first developed by the World Health Organization in 2008 as an evidence-based measure to reduce medical errors, increase patient safety, and improve interprofessional communication. The checklist prescribes a routine sequence of events at three critical points in surgery: prior to the induction of anaesthesia (briefing); immediately prior to incision (time out), and; prior to the patient leaving the operating room (debriefing). Although the patient has a prescribed role in the briefing, recent literature suggests less attention is paid to the patient role in the checklist.(1) Furthermore, patients are often not included out of concern for creating unnecessary anxiety.(2) The goals of this ethnographic study were to investigate how the (un)importance of patient involvement in the SSC is perceived amongst different professional members of the operating room team and to explore implications for patient-centred care in surgery.

**Methods:** An ethnographic methodology was used, including approximately 50 hours of observations in orthopaedic surgery and 10 in-depth interviews with operating room staff across surgery, nursing and anaesthesia.

**Results:** Whether or not (and the degree to which) patients should be involved in the briefing was highly contested amongst interviewees, ranging from patients always actively involved to patients having no role in the SSC. Some interviewees suggested patient involvement varied depending on the patient's anxiety. Observational data also found that patients were rarely invited to engage in the briefing.

**Discussion:** Patient involvement in the SSC was notably absent during our observations, and there is a lack of existing literature that explores how patient

involvement may take place in relation to the SSC. Some participants suggested this is due to a concern that involving patients in the briefing could create unnecessary anxiety for the patient; a sentiment which is consistent with the existing literature. However, to our knowledge this concern has only been raised by healthcare professionals, and not by patients themselves. This is consistent with historical assumptions that patients are passive recipients of care. Recent studies have found that patients are often highly amenable to being involved in their own care, while a lack of patient involvement has been associated with poor patient satisfaction.

**Conclusion:** While the desired level of involvement does vary across the spectrum of passive to active depending on the patient, it is important that healthcare professionals remain open to patient involvement. Healthcare professionals should ask patients about their desired level of involvement in SSC rather than relying on assumptions. Although there is an increasing amount of discourse surrounding patient centredness in surgical care, patients' involvement in the SSC is not well understood. We suggest further exploration is needed into patient involvement in the SSC to understand how, when and to what extent patients can be involved in the checklist.

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#### #7E5 (128067)

##### **Competence-based certification in point-of-care ultrasonography**

**Tobias Todsén\***, *Copenhagen Academy for Medical Education and Simulation, Copenhagen, Denmark*

*Jacob Melchior*  
*Charlotte Ringsted*  
*Morten L. Jensen*  
*Christian von Buchwald*  
*Lars Konge*

**Introduction:** Ultrasonography (US) is increasingly used by head and neck surgeons to diagnose patients with neck lesions. However, US is an operator depended image modality that is difficult to reproduce and interpret by others. Competence of the US operator is crucial for reliable diagnostics but no evidence-based certification of head and neck US skills has been developed. We aimed to explore the diagnostic accuracy of US performed by head and neck surgeons and to establish validity evidence based on Messick's framework for an Objective Structured Assessment of Ultrasound Skills, OSAUS, cut score to ensure competence-based certification.

**Methods:** Seventeen physicians with different experience levels with head and neck US were included in an experimental study (11 US novice interns and 6 US experienced surgeons). Diagnostic accuracy and performance in head and neck US were assessed in a test setup including eight volunteered patients with or without lesions of the head and neck. The US performances of the participants were video recorded and assessed by two blinded raters – a radiologist and a head and neck surgeon – using the OSAUS scale. An intra-class correlation coefficient (ICC) explored the inter-rater and inter-case reliability, and a Mann-Whitney test was used to explore if the OSAUS score could differentiate between the groups. A Receiver Operating Characteristic (ROC) was used to establish the optimal OSAUS cut score to set pass/fail standards in head and neck US skills. The Area Under the Curve (AUC) was used to interpret the diagnostic performance of the OSAUS cut score.

**Results:** Results from 128 US cases were available for statistical analyses. The diagnostic accuracy varied among the head and neck surgeons using US in daily patient care (Range: 63-100%). The inter-rater reliability of the OSAUS scores was good both across the 2 raters, at 0.76, and between the 5 cases, at 0.85. A significant difference scores for the US experienced surgeons 3.0 and novices 1.8 was found,  $p < 0.001$ . A ROC curve established a pass/fail OSAUS cut score with lowest overall error rate at 2.8 and the AUC demonstrated that the OSAUS score was highly accurate at 0.90,  $p < 0.001$ .

**Discussion:** We found that the diagnostic accuracy varied according to the US skills of the surgeon and only competent US-operators should draw decisions for treatment. Strong validity evidence for the use of the OSAUS cut score to establish pass/fail standards for assessment in head and neck US competence was established. Our results demonstrate that head and neck surgeons – with a score above the established OSAUS cut score – safe and effectively can use US in an office-based setting.

**Conclusion:** Competence-based assessment can predict physicians' diagnostic accuracy of patients and should be integrated in future US curricula.



**#7F Symposium: Issues in Recruiting, Training, Retaining and Rewarding Clinical Faculty Outside the University and Hospital**

**Location:** MR 111 – P1

**William A. Anderson\*** (Michigan State University, USA)

**Simon Gregory\*** (Health Education East of England, UK)

**Niels Kristian Kjaer\*** (University of Southern Denmark, Denmark)

**Elza Mylona\*** (Eastern Virginia Medical School, USA)

**Peggy A. Weissinger\*** (Georgetown University Medical Center, USA)

**Daniel Webster\*** (Michigan State University, USA)

Medical students are spending less training time in hospitals and more time in clinics and physicians' offices. Delivering quality clinical training in decentralized environments requires not only a well-organized curriculum but also quality clinical faculty to teach and serve as role models. The demand for excellent clinical faculty outside the hospital and university has never been greater.

This symposium will address international issues in recruiting, selecting, appointing, training, supervising, retaining and rewarding clinical physician faculty. Each presenter will briefly address one of the topics and the issues it presents. Also, preliminary data from an October 2015 survey of North American regional medical student training sites will be presented. The remainder of the session (50 minutes) will be devoted to audience discussion of the topics and issues with the goal of identifying "best practices" participants can use to provide quality decentralized clinical training experiences at their medical school.

## 7G Short Communication: Simulation 1

Location: MR 113 – P1

#7G1 (132863)

**Dementia simulation program using head-mounted display is effective for medical students to learn dementia**

*Eiji Kaneko\*, Tokyo Medical and Dental University, Tokyo, Japan*

*Yasuko Abe*

*Kentaro Shimokado*

**Background:** In Japan, 26% of the population is 65 years old or over and the number of dementia patients is increasing. As a method for medical students to understand the physical problems of the elderly people, simulated experience program produced by the Wonderful Aging Club has been used. This time we introduced a new program of dementia.

**Summary of Work:** In the pre-clinical clerkship, 104 medical students, in small groups of 10 people, first experienced physical simulation of the elderly using cataract glasses, earplugs, weight and supporters and then experienced new dementia simulation. In dementia simulation, students wore head-mounted displays to view a video. The video was recorded from the patient's viewpoint. She walked around home searching for the toilet, got confused when she was told to turn off the television, and even forgot that she wanted to go to the toilet. After viewing the video, students discussed about the problems of patients and the measures for them. Students answered the questionnaire after the class.

**Summary of Results:** Students found problems such as the patients required much more time than expected to do simple tasks, forgot common things like toilet location, and easily got confused. They pointed out that the family and caregivers needed to understand these issues. According to the questionnaire, a general evaluation score of dementia simulation was high (4.1 out of 5). Although some students felt sickness using head-mounted display, they could watch the same video using desktop display.

**Discussion:** This program was effective and popular since the students could realize the feeling of patients which could not be experienced by other methods.

**Conclusion:** This dementia simulation program using head-mounted display was effective for students to understand dementia.

**Take Home Messages:** Dementia simulation program using head-mounted display to watch the video taken from the dementia patient's viewpoint is effective for medical students to learn about dementia.

#7G2 (135150)

**Mapping the performance plateau of novices in directed, self-regulated virtual reality surgical simulation training**

*Steven Andersen\*, Dept. of Otorhinolaryngology, Rigshospitalet, Copenhagen, Denmark*

*Lars Konge (Copenhagen Academy for Medical Education and Simulation, Centre for HR, Copenhagen, Denmark)*

*Peter Trier Mikkelsen (Computer Graphics Lab, the Alexandra Institute, Aarhus, Denmark)*

*Per Cayé-Thomasen (Dept. of Otorhinolaryngology, Rigshospitalet, Copenhagen, Denmark)*

*Mads Sølvsten Sørensen (Dept. of Otorhinolaryngology, Rigshospitalet, Copenhagen, Denmark)*

**Background:** Virtual reality (VR) simulation-based training of surgical skills can support directed, self-regulated learning (DSRL). However, in self-directed training the performance of novices often plateaus early and at an inadequate level, suggesting insufficient self-assessment of proficiency. In this study, we wanted to map the performance plateau of novices in VR simulation-based training of a surgical procedure and investigate the role of self-assessment.

**Summary of Work:** Data on the performance of 40 novices (medical students) who had completed repeated practice of the mastoidectomy procedure with DSRL in a VR temporal bone surgical simulator were included. Data were analyzed to map the performance plateau and identify procedures terminated without using all the time allowed.

**Summary of Results:** 19 % of all procedures were terminated early. Practice organization (distributed or massed practice), initial simulator-integrated tutoring and session number did not impact on whether procedures were terminated early. The procedures terminated early were not scored significantly different from procedures in which all the time was used, demonstrating that in general, novices exercised poor self-assessment skills and lacked knowledge on when to stop or how to excel.

**Discussion:** In contrast to our findings, several studies on less complex surgical technical skills have found novices to be able to accurately self-assess. The learning curve plateau has been suggested to relate to novices ceasing cognitive effort once a perceived level of proficiency has been reached. This issue should be considered in surgical skills training using DSRL.

**Conclusion:** Novices had poor self-assessment skills in relation VR simulation training of a complex surgical procedure and DSRL and often terminated procedures early and at an inadequate level.

**Take Home Messages:** Implementing DSRL in VR simulation training of surgical skills needs a strong instructional design with specific process goals, supporting deliberate practice and continued cognitive effort to counter the performance plateau of novices.

#7G3 (135228)

**Safe and Effective Clinical Outcomes clinics in Primary and Secondary Care: students' perceptions of their educational value**

**Robert McKinley\***, *Keele University School of Medicine, Keele, UK*  
M Bartlett  
GP Gay  
IM Laws  
R Kinston

**Background:** Untimed simulated consultation sessions in general practice setting focusing on safe and effective clinical outcomes (SECO) were developed in Otago, New Zealand. We extend the concept to secondary care for final year students. Students make and implement clinical decisions with simulated patients (SPs) in high fidelity settings without observation or interruption. Faculty support is available in the form of 'simulated colleagues'.

Formative feedback is given by SPs on the achievement of pre-determined outcomes from the patient's perspective and by faculty on clinical decisions, medical records and case presentation skills.

**Summary of Work:** We explored students' perceptions of the educational value in both settings. With ethics approval, students were invited to take part in semi-structured group interviews and written surveys immediately after their sessions. Analysis was thematic, the themes arising from the data.

**Summary of Results:** Data from initial pilot studies suggest that the students enjoyed the clinics and wanted more of them in both settings. They identified gaps in their knowledge and recognised that they had had an unprecedented opportunity to take responsibility for clinical decisions and to handle uncertainty as a result of having to manage entire consultations without being able to "play the student card". The fictional contract was powerful. Students found the feedback useful and most had plans to consolidate and implement their learning. The full results for a whole cohort will be available in April 2016.

**Discussion:** These clinics provide opportunities for learning and practicing, in an authentic setting, skills which students need to be prepared for their early clinical practice.

**Conclusion:** These clinics provide opportunities for learning and practicing, in an authentic setting, skills which students need to be prepared for their early clinical practice.

**Take Home Messages:** Students are likely to value and learn from opportunities to manage whole simulated consultations without faculty intervention.

#7G4 (135450)

**Investigating validity and reliability of adaptive simulations for self-directed learning and assessment in the medical consultation**

**Catherine Bruen\***, *Royal College of Surgeons in Ireland, Dublin, Ireland*  
Teresa Pawlikowska (*Royal College of Surgeons in Ireland, Dublin, Ireland*)  
Clarence Kreiter (*University of Iowa Carver Medical School, Iowa, USA*)

**Background:** Assessment in medical education addresses complex competencies and thus requires quantitative and qualitative information from different sources as well as professional judgement from an expert rater. In the past decade, medical education has increased the use of simulation and technology for learning, teaching and assessment (Scalese et al, 2007, 46; Okuda et al, 2009). Performance with real, simulated patients is a key learning modality of undergraduate medical consultation skills. Adaptive simulations with virtual patients are becoming a key feature of technology enhanced learning (TEL) innovation to support learning and assessment at international medical schools.

**Summary of Work:** The authors conducted a study into whether adaptive simulation can produce a valid and reliable measure of undergraduate medical students' consultation skills. The research evaluated the feasibility that adaptive simulations may hold for supporting an aspect of automating learning and assessment by expert raters for medical education using a generalisability (G) study (van der Vleuten & Schuwirth, 2005).

**Summary of Results:** The research was focused on two clinically relevant variables: the structure or process of the clinical consultation narrative and communication skills (Silverman, Kurtz & Draper, 2013). While the G study on the process score produced a moderately significant measure (evidence of true score variance), the results produced by the study on the communication skills variable are highly significant in that they are similar to those obtained with expert raters.

**Discussion:** The automated assessment of decision points in the simulation are of similar robustness to those obtained with expert raters and so this approach and scoring have potential for wider use in automated assessment of medical students.

**Conclusion:** The final result illustrates variance with a scoring method that demonstrates a generalizability score. And thus proves that the scoring method for this study is generalizable across cases.

**Take Home Messages:** The findings indicate that this approach to adaptive simulations has potential as a teaching and assessment tool for the medical consultation, which requires further development and research.

#7G5 (135365)

**Medical team training simulation in a dental care context – a story of success**

*Martin Kardell\*, Clinical Skills Center, Uppsala University Hospital (Akademiska Sjukhuset), Uppsala, Sweden*

*Jim Kaarnavuo*

**Background:** Clinical Skill Centre (CSC) is a training department which all business within the county of Uppsala can use for training and education. It is not very common that emergencies occur during dental treatments. A project was initiated to improve the cooperation, with the Public dental service in Uppsala County, regarding education and skills. The goal of the project was to create a course directed to the Public Dental Service in Uppsala County and the main objective was to allow staff to train on the kind of emergency situations that may arise in connection with dental treatment.

**Summary of Work:** An online course for basic ABCDE and non-technical skills was developed and completed on forehand by all participants. Along with the Public Dental Service and location managers we designed and tested scenarios for this, to us, new context. The simulation was made in-situ at the home clinic of the participants.

**Summary of Results:** An online evaluation was made and the pilot run was very successful. Therefore a standardized course package was developed. The good results resulted in numerous requests from around the area, the course is now implemented in our course catalogue and has now been successfully operated in two more dental clinics.

**Discussion:** When an urgent situation occur it is hard for the personnel to handle this situation. Knowledge of how to handle certain situations are essential for the outcome to be as positive as possible. This method of exercise gives participants the opportunity to practice in a life like environment. Which has never been done before.

**Conclusion:** By identifying departmental needs, we believe that CSC can find new simulation forms where implementation and participation can lead to a lasting simulation work with CRM and with patient safety in focus.

**Take Home Messages:** A good preparation, a holistic view and well prepared in-situ simulation is the key to success.

#7G6 (135327)

**Improving undergraduate experience and increasing programmatic capacity using Simulated Primary Care placements**

*James Leveson\*, King's College London, London, UK  
Russell Hearn (King's College London, London, UK)*

**Background:** The use of whole setting high fidelity simulation in medical education has recognised benefits (Issenberg 2005, Havighurst 2003). Its use for undergraduate teaching in a primary care setting is relatively novel. Providing sufficient numbers of primary care placements for undergraduate is a UK-wide challenge (Boardman 2014, Sturman 2011). We present an exploration of medical student views comparing practice- and simulation-based teaching.

**Summary of Work:** Data was collected from both focus groups and online surveys of students on a primary care placement in their first year of clinical medicine. Thematic analysis was performed using Issenberg's (2005) 12 factors in simulation, which represents a constructivist pedagogical framework aligning well with reported factors that improve learning in a simulated environment. Ethical approval was obtained from the KCL Biomedical and Dental School Research Ethics Committee.

**Summary of Results:** Perceived safety, consistency and alignment of teaching to curriculum material improved learning efficacy in a simulated environment. In addition to existing theoretical frameworks, students identified that experiencing both simulation and real-life programmes was educationally synergistic, allowing them to practice in a perceived safe environment before applying it to real life. Students also reported that the experience reflected positively on a career in primary care. Some students felt that the simulated setting felt too much like an examination and inhibited their learning.

**Discussion:** The results correlated well with previously identified factors that improve simulation in other settings as well as identifying some unusual drawbacks related to the hidden curriculum.

**Conclusion:** This study supports the use of simulation as a part of undergraduate teaching to improve the learning experience with benefits to feasibility of programme delivery and increasing vocation towards primary care.

**Take Home Messages:** High fidelity primary care simulation benefits undergraduate medical students. The simulation experience reflects positively on a career in primary care. This approach adds to programmatic capacity and increases student satisfaction.



## 7H PechaKucha™ 3

Location: MR 114 – P1

#7H1 (133575)

**What is TIPE? Students show and tell it how it is - on an interprofessional programme in Tairāwhiti New Zealand**

**Sue Pullon\*, University of Otago Wellington, Wellington, New Zealand**

**Summary:** What is TIPE? Students show and tell it how it is - an original look at what senior health professional students really get up to on an interprofessional programme in the Tairāwhiti region - a very special part of rural New Zealand. "The inter-professional stuff we did ... with the physio was awesome. I learnt so much about what they did, and it was really fun. I had a day with pharmacy, I learned heaps ... and with nursing" "It was a great experience as I could observe how Māori culture and their spiritual bonding is valued in areas like Tolaga Bay. Through this project I learnt the meaning of water in Māori culture ..." "... this is easily the most beneficial course I've ever done as part of my medical degree. I say this because it's the first time we have been able to integrate all the other professions" "The quality of the [local staff] is excellent. We are comfortable approaching them to raise concerns, and seek clarification. They are very, very supportive of us" "I liked that we were doing a real project... And if it's giving back [to the community], then I think it's great... it does make a difference" Stunning images bring student learning experiences to life...

#7H2 (135652)

**Service Transformed... A focus on Veteran-Centered Care - Taught through Photo-Elicitation**

**Monica Lypson\*, Ann Arbor VA Healthcare System/ University of Michigan, Ann Arbor, MI, USA**

*Kathryn E. Goldrath University of Michigan Medical School Student, Ann Arbor, MI*

*Paula Ross University of Michigan Medical School*

**Summary:** Background: Improving healthcare for veterans has gained attention from the medical community. Curricula content that promotes cultural awareness and stimulates humanistic approaches to healthcare is an essential component of veteran-centered care. The incorporation of visual art into education has increasingly become accepted as a sound pedagogical method to elicit humanism and foster empathy among medical learners. It demonstrates a unique way of learning and provides an avenue to deepen understanding of self, others, and the world. Methods: We used photo-elicitation to provoke thoughtful consideration of the trajectory of U.S. service members (i.e., civilian, soldier & veteran) and elicit perspectives on veterans' healthcare experiences.<sup>1</sup> Six veterans viewed a collection of portrait photographs and offered their thoughts on how to improve healthcare for veterans. Each set of photographs included one photo of a veteran during his or her time in service juxtaposed to a current photo of the same individual taken by a professional photographer. The exercise sought to understand what the participants, as veterans, felt was important to discuss when showing these photographs to future physicians. Findings: Our photographs can help to elicit specific details on how to improve healthcare for veteran patients. With over two million veterans reintegrating into civilian life in the US and more abroad, it is essential that health professionals develop the necessary clinical acumen and communication skills. It is equally important that training programs provide learners with educational opportunities to obtain this knowledge. Photo-elicitation serves as an effective tool for prompting reflection, as viewers are encouraged to consciously acknowledge their internal reactions to the images. The awareness gained from thoughtful observation, followed by articulating specific characteristics of the veterans in each of the photographs, aims to bring the viewer's unconscious biases and beliefs to the forefront and ultimately foster critical thinking applicable to future medical situations.

**#7H3 (136006)**

**Promoting a culture of reflection in a Department of Pediatrics**

**Meghan Treitz\***, *University of Colorado, Aurora, USA*  
**Janice Hanson** (*University of Colorado, Aurora, USA*)

**Summary:** Reflection is essential to professional development and a key component of Kolb's learning cycle. However, many individuals express reservations about reflection activities. Our Department of Pediatrics is working to promote a culture of reflection. We began by incorporating reflection, with storytelling as the basis, into the required advocacy rotation for pediatric residents. Previously identified barriers (time, structure, relevance, meaning) were addressed. Building on small successes, we then incorporated a reflection-on-action project for pediatric clerkship students. To make reflective practices more visible within the Department, we conducted digital storytelling workshops in which faculty, staff and learners created short videos using narratives they wrote and recorded, images, and music. The body of reflection that has been produced provides evidence that we have successfully addressed the challenges. In the last 4 years, our department has generated over 800 written reflections and 27 digital stories. Both residents and students noted appreciation for time and opportunity to think and write about their professional experiences and found that discussions added value. Facilitators for resident and student groups observed consistently meaningful discussions that illustrated the humanistic attributes of the learners. Movie Night shows that meaning can extend to listeners and readers of reflections. Comments from attendees included: "I'm excited and inspired by this project and its potential to create better, more self-aware physicians and healthcare workers". It is possible to engage learners in meaningful reflection, but attention to process is needed, including time, flexibility of format, and individualization for relevance. Broader participation has been gained by offering opportunities for both reflection and sharing/discussing. We have found flexible and varied ways of incorporating reflective practices to broaden the reach of reflection throughout the department. Factors important in promoting a culture of reflection include addressing barriers for reflective practices and involving a wider audience through storytelling with discussion.

**#7H4 (135629)**

**Preparing Japanese medical students for international clinical elective placements using interactive workshops, online videos, and OSCE-style patient encounters**

**James Thomas\***, *Keio University School of Medicine, Tokyo, Japan*

**Timothy Minton** (*Keio University School of Medicine, Tokyo, Japan*)

**Michito Hirakata** (*Keio University School of Medicine, Tokyo, Japan*)

**Toshiaki Monkawa** (*Keio University School of Medicine, Tokyo, Japan*)

**Rika Nakajima** (*Keio University School of Medicine, Tokyo, Japan*)

**Summary:** Many medical students from non-English-speaking countries, including Japan, benefit from participating in international clinical elective placements. Such placements can offer opportunities for students to increase their English proficiency, cultural awareness, communication skills, and medical knowledge. Students are usually required to participate entirely in English; therefore, it is beneficial to prepare students in advance so that they can take full advantage of these opportunities. Currently, there is no standardised program for preparing such students in Japan. We developed a series of interactive workshops, online learning resources and simulated-patient encounters to help 5th year medical students develop skills across a number of core competencies, including: basic medical history taking, physical examination, case presentations, and diagnostic discussion. This presentation will focus on the challenges we faced in developing and adapting the course to the needs of our students, how we overcame such challenges, and our plans for future expansion.

#7H5 (135572)

**Comics in health care - trivialization or cognitive activation?**

*Julia Kathrein Goehler\*, Medical School Berlin, Berlin, Germany*

**Summary:** A prime goal of professional training is the acquisition of professional competence. An essential element of professional competence is knowledge. In order to develop knowledge effectively in the professional field of health care, professional didactics are required that are both oriented towards the learner, the contents and their difficulty-generating properties and empirically substantiated. These professional didactics, in the field of health care in this particular case, should be decisively characterised by a productive presentation and visualisation of the teaching contents, which above all contribute to overcoming difficulty-generating properties. Comics offer an option for the productive and cognitive activating presentation of teaching contents (inter alia Jee & Anggoro, 2012; Versaci, 2001). The visualisation of teaching contents by means of comics in a professional training environment in general and also for the field of health care in particular, i.e. for training nurses and orderlies, has hardly been examined so far with regard to cognitive and motivation psychology. Furthermore, it has not been investigated which contents (e.g. of conceptual and/or procedural knowledge) can be acquired to what extent by means of presenting using comics and which potential comics show for cognitive activation. The presentation points out the potential of comics for cognitive activation based on the following study: The objective of the study consisted of developing and examining domain and target group-specific, educational comics for the subject of diabetes mellitus. The objective was to reveal whether (and if so to what extent) these comics can have a positive impact on the learning and motivation to learn of student nurses and orderlies. The findings of the study reveal that the training comic has more positive effects concerning motivation and knowledge acquisition when compared to the textbook.

#7H6 (135293)

**Orange in the South, Trifoliate in the North: Experiences and Challenges of Teaching Medical Humanities in Asia's Rich Cities**

*Harry Yi-Jui Wu\*, The University of Hong Kong, Hong Kong*

**Summary:** Drawing on the presenter's experiences teaching at Nanyang Technological University, Singapore and The University of Hong Kong, this presentation aims to discuss the questions arise with the urgency of medical humanities education, curriculum development, contextualization of teaching sources and the challenge of course content delivery method. Medical Humanities have become one of many important initiatives since three decades ago along the reform movements of medical education. In Asia, medical schools have been developing such pedagogy by establishing specific taskforces or incorporating relevant syllabus as an integral part of the existing curriculum. However, by simply transplanting the initiative from where it was originated, chiefly in Anglo-American contexts, to Asian countries, queries tend to appear like what is described in the Chinese idiom "one cannot make orange in the South trifoliate in the North": whether a fruit seed would be able to grow as fully as before it was removed from its original environment? For example, the core spirit we aim to deliberate regarding the patient-centered approach in physician-patient relationship might not be fully pertinent in a rather paternalistic society. Moreover, concerning end-of-life agenda, principles of patient autonomy might not apply in the society whereby family members make most of decisions by proxy. In this presentation, a suite of images will be used to showcase how Medical Humanities is delivered in Singapore and Hong Kong as a novel approach to tackle related issues and how it is significant in assisting future doctors to acquire culturally-sensitive competencies that are abreast of developments and changes of their social world.

**#7H7 (135071)**

**Are our medical students achieving cultural competency in both communication and practice as a result of our new innovative Indigenous Health curriculum?**

**Michelle Moscova\***, *University of Wollongong, Wollongong, Australia*  
Scott Winch  
Kylie Mansfield  
Teresa Treweek  
Coralie Wilson  
Karen Fildes

**Summary:** In alignment with the Committee of Deans Australian Medical Schools (CDAMS) Indigenous Health framework, adopted by the Australian Medical Council in 2004, we have developed an innovative approach to teaching Indigenous Health. Core issues integral to developing a comprehensive understanding of Indigenous Health have been mapped to our curriculum and developed across the following domains: health systems; access to health care, history, culture, identity and cross-cultural communication. We have also included in the curriculum, early clinical exposure for students within their first three weeks of study. These placements occur in community and primary health care settings, including Aboriginal Organisations. This project aimed to: i) evaluate whether the new program was effective in meeting our objective of developing culturally competent students and ii) validate the evaluation instrument as a tool to measure whether students have improved in their understanding of Indigenous health across domains that have been mapped to our curriculum. We aimed to measure student knowledge and attitude before and after the delivery of our Indigenous health curriculum. Baseline data from the evaluation instrument was collected from first year medical students at the beginning of their course then again at the end of their first Indigenous health teaching block. In this study, we have evaluated whether students improve in their Indigenous cultural and historical knowledge and begin to develop respectful and empathetic attitudes after cross-cultural encounters in various professional practice settings. A Repeated-Measures Analysis of Variance was used to analyse responses to categorical data and test whether there are changes in students' knowledge and positive attitudes after teaching sessions. Rasch modelling was employed to evaluate the questions and test the validity of the evaluation instrument as a tool for the assessment of Indigenous health knowledge, attitudes and beliefs.

**#7H8 (132989)**

**Learning and Forgetting in Medical Education**

**Juan Cendan\***, *University of Central Florida, Orlando, USA*  
Denise Kay (*University of Central Florida, Orlando, USA*)

**Summary:** Research suggests counter-intuitive associations between passive learning and forgetting. Regardless of presentation format, recall of new information just one day after its introduction can be as low as 25-40%. Concurrently, research suggests that learners are subject to a "cognitive illusion" that distorts the ability to judge how well new material is grasped. For example, after reading a prose passage, learners will generally overestimate how well they understood the subject. Fortunately, there are training approaches that can improve learning effectiveness. For example, students will commonly read text or review class notes several times in a row (massed repetition) until they establish high confidence in the material, actually they would be better served by interspersing other topics (interleaving). Learning can also be enhanced by varying the context in which the material is presented. Re-engagement with the material being studied, through either quizzing or other active retrieval mechanisms (e.g. concept mapping), are additional approaches that enhance long-term retention of new material. While some of these methodologies appear to hinder or complicate learning, research suggest they actually lead to enhanced long-term performance and retention. However, introducing these so-called desirable difficulties is somewhat counter-intuitive and thus, not typical of the study habits for health sciences students or representative of how they consume new information. Students' misjudgment of the effectiveness of their own learning approaches inhibits their motivation to try more effective tactics, such as taking a self-assessment or utilizing an active retrieval system, despite the fact that these methods can yield longer retention. Medical educators are working hard to broaden the range of instructional methodologies, from self-learning modules, to simulation and group learning; this session will review some of the relevant findings from the learning and forgetting literature and present possible research ideas for medical educators who wish to incorporate these findings.



## **71 Point of View 1**

Location: MR 115 – P1

**#711 (133295)**

**Criterion, group and self: disentangling the benchmarks clinicians struggle with when assessing trainees and providing feedback**

**Olle ten Cate\*, University Medical Center Utrecht, Utrecht, Netherlands**

*H. Carrie Chen*

*Christy Boscardin*

*Patricia O'Sullivan*

**Summary:** Assessing trainees in the workplace relies on impressions of clinicians, who rarely are trained in assessment, and working in contexts that cannot be standardized, risking low reliability. However, competency-based education requires better assessment of learners and better accountability for the competence of graduating physicians than current practice. The assessment task that clinicians are charged with when evaluating medical trainees in the workplace has distinct difficulties. One major challenge is that they are often asked to make single outcome judgments about trainees. Assigning a single outcome judgment is particularly difficult when competing reference frames (i.e. criterion and norm) might result in equally valid but conflicting judgments. For example: (i) trainee is not meeting expected standards, but is on par with his first-year resident peers, (ii) trainee is just comparable to her peers, but has shown impressive progress compared to a previous observation, or (iii) trainee exceeds standards, but has shown minimal or no progress over the last several observations. Can one fully express this in a single outcome judgment? One solution to this challenge is to allow clinicians to take a three-reference strategy to the judgment of performance. This may particularly be very helpful when communicating feedback to trainees. This strategy integrates the three distinct approaches to benchmarking: (a) comparison with a standard, (b) comparison with a reference group and (c) comparison with one's personal development over time. There is merit in using information from all three reference frames, and not forcing observers to come with one outcome judgment may therefore be defensible. Explicit recognition of all three in the judgment may allow clinicians to minimize the potential conflict of assigning one single outcome judgment in complicated situations. Balancing which reference frame is emphasized may differ by context, purpose (formative versus summative) and trainee characteristics.

**#712 (133572)**

**Teaching in Medical Education: An Entrustable Behavior or Not?**

**Charlene Dewey\*, Vanderbilt University School of Medicine, Nashville, USA**

*Teri Turner (Baylor College of Medicine, Houston, TX)*

**Summary:** Opinions and Questions: Many faculty members are not familiar with basic teaching principles and they learn through trial and error over years. Given the efforts in faculty development and the leap toward developing competencies for teachers, why don't we have any real defined standards or requirements for training teaching faculty in the form of entrustable professional activities (EPAs) or entrustable teaching activities (ETA)? Teaching is always considered a major mission alongside patient care and research, but little if any requirements exist for faculty members and they are entrusted with learners without any clear assessment of teaching ability. Do we really value education and the teaching role with our current model? We believe we can jump start early faculty members' effective teaching through a required on-boarding and assessment training program that uses a variety of methods including peer-review, simulation, web-based training and OSTEs to prepare teachers for their teaching role. Using this approach we can determine faculty who are exceptional teachers and those who require additional training before entrusting them with learners. Enhancing teaching skills will allow faculty members to better identify their own teaching needs and meet those needs using methods that are easily accessible and effective. It is our opinion that all faculty can be on-boarded, reach a certain level of teaching competence, and then be entrusted with learners. It is also our opinion that if we do this we will support better learning for our students and trainees, and teachers will enjoy teaching more when they feel confident and comfortable in this role. Who Should Attend? Anyone who is interested in thinking about barriers and solutions to elevating the requirements for medical teachers (classroom-based and clinical-based) and developing an on-boarding plan for junior faculty that is simple to apply in various settings.

#713 (134128)

**The looming problem of antibiotic resistance crisis: time to reframe the crisis**

*Laura Bowater\*, Norwich Medical School, Norwich, UK*

**Summary:** The looming problem of antibiotic resistance crisis: time to reframe the crisis. There is a global crisis that is seriously impacting healthcare workers and members of the public; antibiotic resistance. During the golden age of antibiotic discovery, infectious diseases were genuinely believed to be an issue associated with the past. Public health measures that focused on better access to health care, relieving health inequalities and preventing disease were 19th Century approaches. Scientific discoveries of the 20th century had saved the day. This optimism was short lived. The global population continues to face a never-ending conveyor belt of new and re-emerging infectious diseases. But the 21st century has brought an additional challenge the growing problem of antibiotic resistance. To date current teaching on antibiotic resistance in medical curricula tends to focus on the biochemical mechanisms of antibiotic resistance, safe prescribing and better stewardship. The result is that antibiotic resistance has been framed as an issue to be addressed using the biosciences that include biochemistry, microbiology and pharmacology. This is a lost opportunity and fails to address this global problem. The issue of antibiotic resistance is one of the biggest public health issues of our time and it provides the ideal framework to consider and address this issue. In turn antibiotic resistance is a perfect health issue that can underline the relevance of global public health to modern medicine and health care. It is only by addressing the global emerging catastrophe of antibiotic resistance through a public health lens and taking a public health approach that modern medicine may succeed in tackling this crisis.

#714 (134271)

**The Professional Online: The Stranger in a Strange Land**

*Anita Ho\*, National University of Singapore, Singapore, Singapore*

*Nigel Hee (National University of Singapore, Singapore, Singapore)*

**Summary:** In recent years, many medical schools around the world have formally established professionalism education as part of their standard curriculum. The “hidden” curriculum has also become indispensable within professionalism education, with medical educators being expected to role model professionalism values constantly. While the call to prepare future doctors to behave ethically and professionally is not new, what is new is the emphasis on identity formation in the context of the expanding online universe. Role modeling the image of professionalism and values is increasingly challenging in the digital age, especially when cultures and customs across disciplines and generations collide. Given that professionalism is mostly taught within the hidden curriculum, the importance of making instances of responsible online behavior explicitly known and freely accessible cannot be understated. Against the backdrop of hyper-vigilance about our professional image, this presentation explores whether the hidden professionalism curriculum may inadvertently stifle creativity and humanity. We argue that medical educators may have to consider making their online activity and image – and the hidden curriculum in general – more explicit in order to truly embody the values of professionalism. The positive use of social media and its unique features by medical educators may be valuable relational or pedagogical tools in teaching students about responsible online behavior. Curriculum designers may also need to consider the impact of their professionalism curriculum on medical educators.

**#715 (134424)**

**Are Universities training medical students well for public health system future needs?**

**Mariachiara Ippolito\***, *Università degli Studi di Palermo, Palermo, Italy*

**Summary:** 21st Century will be remembered as a period of very fast developments in medical sciences field: technological improvement and research led health workers to obtain more and more opportunities to treat diseases. While health workers and scientists were celebrating a huge number of discoveries, health needs of our societies were quietly changing, under the positive influence of medical progress: occidental medicine goes towards a scenario populated almost only by chronic diseases, with less and less need of acute treatments. These changes will revolutionize the face of our health systems: our countries will always need less hospital workers, thus entailing we need better structured health systems, made up by networks of general practitioners and nurses, to provide chronic patients a widespread coverage. Governments are already planning new health care models, to be more present locally, but what about future health workers? Are Universities preparing medical students properly? Universities in Europe seem not to recognize yet the need of giving students this kind of information, so contributing to create an incompetent and unsuitable medical class. Teachers are still promoting ultra-specialization of their students, deceiving them they will find spots to use this kind of skills and be useful. I'm on my fifth year on medical school, and nobody ever told me that if I really want to help my society fighting future diseases, I'd rather become a general practitioner who takes care of thousands of hearth chronic patients, instead of a hearth surgeon, because patients will need plenty of GP, and just some high qualified and specialized hearth surgeons. Who is supposed to talk about modern health care to medical students? Universities have not just to teach us what to do, but also how to be the best answer for people needs.

**#716 (131669)**

**Urban community-based longitudinal integrated clerkships: could there be one at every medical school?**

**Sarah Mahoney\***, *Flinders University, Adelaide, Australia*

**Krista Maier** (*Seacombe Medical Centre, Adelaide, Australia*)

**Summary:** There are many demonstrated benefits from both longitudinal integrated clerkships (LICs) and community-based, community-engaged clinical placements. Rural community-based LICs are well established in many medical schools, so what is holding back the development of urban community-based LICs? This presentation will describe the requirements and enabling factors for urban community LICs based on the presenter's 6 years experience of developing and expanding this innovative model of clerkship at an Australian University. The program has faced not only the expected financial and organizational constraints, but also entrenched attitudes of both clinicians and medical educators. A political focus on rural communities without also acknowledging the needs of under-served low socio-economic status urban communities exacerbates the financial constraints. Despite the program's proven academic success and popularity significant challenges persist. These challenges will be presented and discussed to assist others who might be considering developing similar programs.

**#717 (128819)**

**Revitalizing Course Evaluation Systems; The Persistent Challenge**

**Abeer Elmannan\*, College of Medicine Qassim University, Buraidah, Saudi Arabia**

**Summary:** Context: Student evaluation of courses has been recognized as an essential part of quality assurance systems. Information obtained from course evaluations is vital for improving course content, teaching methods and the overall course format. The evaluation systems practices however, differ from one institution to another and in many cases suffer from many weaknesses. Challenges: One major challenge is the low student participation rates in course evaluations due to their negative perceptions. Many students believe that these evaluations are not valued by the administration. Another challenge is the misconception among faculty that student ratings of courses are biased, and cannot be used reliably. Reform is needed to change direction towards more positive attitudes about importance of course evaluation among students; to rebuild trust in the evaluation system; to enhance faculty and students motivation to take part in these evaluations; to emphasize that the main purpose is improvement of teaching practices; and to influence institutions to demonstrate more commitment and action towards obtained results. Leadership innovation is also needed to change the existing culture, into a new culture where the emphasis is greatly placed on working collaboratively to improve performance. It has to be clearly communicated to faculty as well as to students that the main focus is the quality of education provided to students, and that the courses delivered should be responsive to their needs. Bringing about change will not be easy, and will require time and joint efforts. A unique opportunity would be learning from others; reviewing available literature to explore lessons learned and to adapt these to our context. Furthermore, we need to encourage and support innovative leadership approaches; to move out of the individualistic mode and work collaboratively; and to strengthen ties between the main stakeholders in this process: the students, faculty & administration.



## 7J Short Communication: Subjects in Curriculum

Location: MR 116 – P1

#7J1 (133251)

**Innovative, integrated, interdisciplinary – a novel approach to genomics teaching in the undergraduate medical curriculum**

**Susie Rebelo Hopkins\***, Medical Education Unit, Faculty of Medicine, University of Southampton, Southampton, UK

Gill Crawford (University of Southampton, Southampton, UK)

Linda Turner (University of Southampton, Southampton, UK)

**Background:** The field of genomic medicine raises complex social and ethical issues that medical students need to explore (1-5). However, the focus of genetics teaching within the undergraduate medical curriculum is often the molecular basis of genetics, testing and gene therapy (1, 4). Many students have trouble identifying key ethical issues associated with genetic cases and demonstrate a lack of understanding of implications for patients and their families of routine genetic tests (1, 5, 6).

**Summary of Work:** Our aims were to develop an interactive session to allow students to explore the biological, social and ethical aspects of genetics contextualised by current guidelines and clinical practice. Six genetic cases with biological questions and role-plays were developed. Each case focused on a different ethical issue and was presented by students in peer groups followed by a plenary discussion with a genetic counsellor. Students' experiences were evaluated.

**Summary of Results:** Thirty-one students participated in the study and twenty-three completed the evaluation questionnaire. All students felt the symposium helped them identify and discuss ethical issues. 96% of the students felt the session helped identify and practise effective communication in a healthcare setting and 95% felt the session helped explore ethical implications of genetic diseases for patients and families. 57% of the students felt the session helped them explain the molecular mechanisms associated with gene therapies.

**Discussion:** Exploring ethical issues of current genomic practice for patients, families and society should be embedded within undergraduate medical education to allow students to identify and consider key ethical issues contextualised by clinical practice and current guidelines (1, 5, 6).

**Conclusion:** Use of case studies, role-plays and peer learning can facilitate this (2, 3).

**Take Home Messages:** Integrated genomics teaching in the medical curriculum can help students understand and communicate the implications for patients and their families of routine genetic tests. Developed resources available.

#7J2 (132332)

**Innovation in medical school: Should we be teaching students computer coding?**

**Caroline Morton\***, Medical Education Research Unit, Imperial College, London, UK

Susan Smith (Imperial College, London, UK)

Tommy Lwin (Imperial College, London, UK)

Michael George (Charing Cross Hospital, London, UK)

Matt Williams (Charing Cross Hospital, London, UK)

**Background:** The ability to construct computer programs ("coding") is a key skill in a digital world. Coding is taught to primary-school children world-wide, but the current generation of medical students usually lack coding skills. Innovative technology such as apps, interactive websites and custom-built research tools are frequently used by patients, healthcare professionals and researchers. However, doctors can understand or write software. We sought to teach medical students to code to help meet this deficit.

**Summary of Work:** We developed a 2-day course to teach self-selected cohorts of medical students basic coding and assessed them with a simple project. We explored in a focus group whether students thought that coding has a place in the undergraduate curriculum.

**Summary of Results:** Course instructors found the students receptive and easy to teach coding and both staff and students considered that they had gained some basic coding skills from the course. Four major themes emerged from the focus group 1) Understanding of coding 2) Medical School's role 3) The future 4) Concept of a fun challenge.

**Discussion:** Students valued the course and identified that they had gained coding skills and an understanding of their potential use. They saw its use for themselves personally (for example, developing a health app). They also saw the potential for healthcare delivery and research if more healthcare professionals understood the language of coding and could collaborate effectively with professional coders. Students identified that learning about coding was different from digital literacy.

**Conclusion:** Students considered that coding skills teaching should be offered as an optional part of the medical curriculum.

**Take Home Messages:** Students are open to and value coding opportunities in medical school.

#7J3 (135269)

**Practical MRI sessions: The road to an in-house facility in the technical medical education program**

*Jordy van Zandwijk\*, University of Twente, Experimental Center for Technical Medicine, Enschede, Netherlands*

*B. ten Haken*

*F.F.J. Simonis*

*R. Burie*

*H.A.T. Miedema*

**Background:** Magnetic resonance imaging (MRI) is an important diagnostic tool in clinical practice that exhibits many technical complexities. Technical medicine students are trained in both understanding clinical outcomes of MRI, as well as its technical principles, possibilities, and limitations. We report how an in-house MRI facility is deployed to teach students both technical and medical aspects of MRI.

**Summary of Work:** An in-house MRI facility was specifically designed for educational purposes. Practical assignment questions were adapted to the capabilities of the MRI system. The introductory lecture, preparation materials, practical instructions and questions, and practical supervision were evaluated by all participating students.

**Summary of Results:** 43 first-year technical medicine master students were the first to undergo the in-house 4-hour during practical sessions. They were (clinically) trained in patient safety and interaction, and (technically) in recognizing and understanding MRI-related artifacts and sequences. Students were highly satisfied with instructions and supervision during the practical session in this set-up, only a small remark was made on the clarity of the preparation materials and assignment questions.

**Discussion:** The main advantage of this set-up is the cost-effective aspect of owning a low-cost MRI system while having a learning experience equal to a hospital setting. Furthermore, this creates the opportunity to supervise multiple groups at once by one supervisor.

**Conclusion:** The opportunity of conducting in-house practical sessions with students has shown great promise. Preparation instructions and assignment questions should be improved to maximize learning experience and to conduct practical sessions more efficient.

**Take Home Messages:** We have taken the first step towards a cost-effective and fully integrated setting in which one supervisor can ideally guide multiple groups of technical medicine students. Additionally, students do not need to be proficient in patient interaction for this training, which would be required before working with clinical patients in more complex environments like hospitals.

#7J4 (132488)

**Promoting ultrasound in undergraduate medical education: an exploration of truth statements and a critical narrative review**

*Zac Feilchenfeld\*, University of Toronto, Toronto, Canada*

*Zac Feilchenfeld, University of Toronto, Toronto, Canada*

*Tim Dornan, Queen's University, Belfast, UK*

*Cynthia Whitehead, University of Toronto, Toronto, Canada*

*Ayelet Kuper, University of Toronto, Toronto, Canada*

**Background:** There are increasing calls for early integration of ultrasound into medical education, beginning in medical school. However, the evidence base underpinning these calls has not been sufficiently examined. In this study we identified the 'truth statements' (discursive rationales) that support the move towards incorporation of ultrasound in undergraduate medical education, and examined the evidence base for these truth statements.

**Summary of Work:** We systematically identified 68 medical education publications containing statements calling for early ultrasound training. We used Foucauldian critical discourse analysis techniques to identify frequently occurring 'truth statements'. We then conducted a critical narrative review to identify supporting evidence that supported these statements.

**Summary of Results:** We identified four dominant 'truth statements': Undergraduate ultrasound training (1) ensures a minimum skill level for patient safety; (2) is necessary because graduates must acquire advanced skills during post-graduate training; (3) improves medical students' diagnostic accuracy and ability to learn physical examination techniques; (4) allows students to see inside a living body, leading to better understanding of anatomy. Despite a systematic search, we found minimal empirical supporting evidence for any of these 'truth statements'.

**Discussion:** We approached this topic from a critical theoretical perspective, and then examined each truth claim within its authors' research paradigms. Our analysis highlights the constructed nature of the discourse promoting early integration of ultrasound in medical education.

**Conclusion:** Early integration of ultrasound in medical education is seen by authors within the field as natural, inevitable, and positive. We have, however, found minimal evidence to support the claims legitimizing this move.

**Take Home Messages:** The push for ultrasound training in undergraduate medical education is rationalized through a set of 'truth statements' that appear in academic publications, creating a sense of legitimacy and consensus. The lack of empirical evidence for these 'truth statements' demonstrates that factors other than research evidence play in propelling curricular change.

#7J5 (135539)

**Seeing is believing: Simulation-based ultrasound imaging in (under)graduate technical medical education**

**Anique Bellos-Grob\***, University of Twente, Enschede, Netherlands

Jordy van Zandwijk (University of Twente, Enschede, The Netherlands)

Erik Groot Jebbink (University of Twente, Enschede, The Netherlands)

Marleen Groenier (University of Twente, Enschede, The Netherlands)

Heleen Miedema (University of Twente, Enschede, The Netherlands)

**Background:** Ultrasound is a relatively inexpensive technology that can easily be applied in clinical practice to optimize diagnostic and therapeutic procedures. Efficient use of ultrasound not only requires basic skills practice but also an understanding of the underlying technological principles of ultrasound and in-depth anatomical knowledge. We report the design of a Dutch ultrasound curriculum extending from undergraduate to graduate technical medical education.

**Summary of Work:** The necessary knowledge and skills were determined by a learning needs assessment. In the undergraduate years, basic theoretical and technical knowledge is offered and students practice live scanning and device handling on phantoms and standard simulators. This allows students to experience ultrasound scanning without the complexity of the human anatomy. A variety of clinical cases supports anatomical diversity and transfer of learned skills. In the first graduate year, advanced theoretical knowledge is complemented with simulator training and hands-on scanning on fellow-students. Only in the final two graduate years, students practice scanning on patients.

**Summary of Results:** Ultrasound knowledge and skill is integrated and assessed across the curriculum. Students learn to apply basic knowledge and practice ultrasound scanning in a safe and controlled environment before practicing on actual patients. Unstructured evaluations by clinical rotation supervisors show that students have an adequate understanding of and skills in ultrasound scanning.

**Discussion:** We experienced that combining theory about technological principles with hands-on practice results in superior ultrasound skills than teaching anatomy and hands-on practice alone.

**Conclusion:** We currently perform a study to investigate the acquisition and application of ultrasound knowledge and skills to validate the design of the curriculum.

**Take Home Messages:** Integration of ultrasound knowledge and skills in a (under)graduate curriculum is feasible. Students have to show proficiency in ultrasound knowledge and skills before actual practice on patients.

#7J6 (133877)

**Enhancing 1st year success in anatomy and physiology for physiotherapy and occupational therapy students**

**Lunelle Pienaar\***, University of Cape Town, Cape Town, South Africa

Amaal Abrahams

**Background:** Students in physiotherapy and occupational therapy are taught anatomy and physiology in 1st year as an important underpinning of their future professions. Within anatomy and physiology students are expected to consume a vast amount of knowledge. At 1st year level we assume that students have the prerequisite foundation knowledge developed in school to build upon.

**Summary of Work:** Given the variation in the South African schooling system we challenge this assumption as a number of students struggle to grasp important concepts within anatomy and physiology. Therefore we are attempting to identify students who are at risk of failing the course and/or enter an extended degree programme. We therefore explored the link between tertiary level Anatomy / Physiology and Grade 12 high school mathematics/Life science.

**Summary of Results:** A Fisher-exact was used to test for association between a performance of <60% in Mathematics & Life science vs performance in Anatomy / Physiology. In 2012 and 2014 with n=113 respectively, an association between mathematics and anatomy/ physiology marks with  $p \leq 0.001$ , and life sciences with  $p \geq 0.005$  were found. The 2013 cohort (n=123) was the only year where life sciences had an association with anatomy and physiology with  $p \leq 0.007$ .

**Discussion:** In all classes analysed we obtained evidence of a strong association between low performances in grade 12 mathematics and a low performance in both Anatomy and Physiology. Surprisingly the association with life sciences which includes human and plant biology were limited.

**Conclusion:** Taken together, we propose that mathematics provides the required analytical, abstract thinking and problem solving skills needed for the understanding of anatomy and physiology.

**Take Home Messages:** The association between mathematics versus anatomy and physiology needs to be further explored. Further attention needs to be given to the school curriculum of life sciences which is thought to form the basis for anatomy and physiology content at tertiary level.

#7J7 (131079)

**3D Anatomy Models and Impact on Learning: A Review of the Quality of the Literature**

*Samy Azer\*, King Saud University, College of Medicine, Riyadh, Saudi Arabia*

**Background:** The aims of this review were to identify studies exploring three-dimensional (3D) anatomy models and their impact on learning, and to assess the quality of research in this area.

**Summary of Work:** PubMed, EMBASE, and the Web of Knowledge databases were searched using the following keywords "3D anatomy", "three dimensional anatomy", "3D virtual reality anatomy", "3D VR anatomy", "3D anatomy model", "3D anatomy teaching", and "anatomy learning VR". The search words were also used in searching eight medical and dental education journals and seven anatomy journals. Three evaluators independently assessed the quality of research by using the Medical Education Research Study Quality Instrument (MERSQI) for quantitative studies.

**Summary of Results:** Of the 94,616 studies identified initially, 30 studies reported data on the impact of using 3D anatomy models on learning. The majority of studies were of moderate quality according to MERSQI scoring. The mean score was 10.26 (SD 2.14, range 6.0 to 13.5). The rater intra-class correlation coefficient (ICC) for total MERSQI score was 0.79 (95% confidence interval 0.75-0.88).

**Discussion:** Most studies were from North America and Europe and mainly from medical and dental schools. However, most studies did not provide strong evidence and were having gaps in their design and hence reported results.

**Conclusion:** The literature provided a variety of 3D anatomy models used in teaching. There was no solid evidence that the use of 3D models is superior to traditional teaching. However, the studies varied in the quality of research.

**Take Home Messages:** More studies are needed to examine the short and long impacts of 3D models on learning using more valid and appropriate tools to assess learning impact and visual-spatial ability.



## 7K Short Communication: Multiple Mini-Interviews

Location: MR 118 – P1

#7K1 (134420)

**Addressing unprofessional behaviour: selecting for values in Multiple Mini Interviews (MMI)**

**Angela Kubacki\*, St George's, University of London, London, UK**

**Background:** Medical schools continue to develop MMI stations to assess non-cognitive, personal characteristics and values. While there is no general consensus in the literature on which characteristics are most desirable, communication, empathy and integrity appear to have been the focus. Building on recent studies, we wanted to develop stations that explored empathy and professionalism with the aim of assessing the candidates' analysis of a situation and expression of values rather than moral judgement.

**Summary of Work:** Working with students, we developed four scenarios to illustrate professionalism issues. These included cheating, non-attendance, inappropriate use of social media and fraud. Each scenario involved two students having a conversation in which one of the issues was raised. We produced four short film clips to be used in 5 minute MMI stations along with a series of trigger questions. We piloted the scenarios with current medical students, candidates applying for entry to a UK medical school (graduates and school-leavers) and prospective medical students in North America.

**Summary of Results:** Qualitative and quantitative data detailing the development of four film based MMI stations will be presented. We are currently undertaking this pilot and early results indicate that developing a new MMI station in this field is resource intensive and problematic.

**Discussion:** Many variables need to be considered in developing scenarios to assess a candidate's understanding of professionalism and their expressed values. Challenges that have arisen include understanding regional accents, use of slang, effect of subtitles and devising effective trigger questions. Future work will include correlating MMI station scores with assessments of professionalism in medical school.

**Conclusion:** A film based situational judgement analysis to assess for communication, professionalism and empathy appears to be very challenging.

**Take Home Messages:** Professionalism and the integrity of our future doctors is a priority that medical schools should address at the selection stage and may be achieved using film-based MMI stations.

#7K2 (132498)

**Sociodemographic characteristics of applicants as barriers and enablers to communication in Multiple Mini-Interviews (MMI)**

**Jean-Michel Leduc\*, Université de Montréal, Montreal, Canada**

**Richard Rioux (Université du Québec à Montréal, Canada)**

**Robert Gagnon (Université de Montréal, Montréal, Canada)**

**Christian Bourdy (Université de Montréal, Montréal, Canada)**

**Ashley Dennis (University of Dundee, Dundee, UK)**

**Background:** MMI are commonly used for medical school admission. This study aimed to assess if age, gender, ethnocultural background, language and socioeconomic status have an impact on performance in MMI, and to explain how these characteristics can act as barriers or enablers when considering MMI as a communication interaction.

**Summary of Work:** This mixed-method study combined data from a sociodemographic questionnaire and MMI scores, semi-structured interviews with candidates and focus groups with assessors. Quantitative and qualitative data were analysed using multiple linear regression and a thematic framework analysis, respectively.

**Summary of Results:** In 2014-2015, 1099 applicants responded to a questionnaire (response rate 93.9%). A multiple linear regression model (adjusted  $R^2 = 0.086$ ) demonstrated that being age 25-29 ( $\beta = 0.11$ ,  $p=0.001$ ), female and a French-speaker ( $\beta = 0.22$ ,  $p=0.003$  in an interaction term) were associated with better scores. Having a parent born in Asia was associated with a poorer performance ( $\beta = -0.12$ ,  $p < 0.001$ ). In 2015, high family income was also associated with a better score. In the qualitative data, participants discussed how maturity and financial support improved life experiences, how language issues could act as a barrier, and how some ethnocultural differences could lead to misunderstandings.

**Discussion:** Findings can be understood through a communication model where station context, applicants' communication styles, life experiences and ethnocultural characteristics can act as barriers or enablers. Good language proficiency seems especially important for successful MMI.

**Conclusion:** Sociodemographic characteristics have a significant impact on applicants' score in MMI and seem to influence the way applicants communicate. Adjustments regarding the use of language in stations could be made to improve fairness. Care should be given to

**Take Home Messages:** Monitoring the impact of sociodemographic characteristics on MMI scores can provide guidance for design, improvement of stations and interviewer training.

#7K3 (135505)

**Using the BioMedical Admissions Test (BMAT) to support shortlisting for multiple mini interviews (MMI)**

*Kevin Cheung\*, Admissions Testing Service, Cambridge English Language Assessment, Cambridge, UK*  
*Sarah McElwee (Admissions Testing Service, Cambridge English Language Assessment, Cambridge, UK)*

**Background:** BMAT is used by several UK and international universities in selection processes for medicine, dentistry and biomedical sciences. BMAT Section 1 (Aptitude and Skills) measures candidates' skills in understanding arguments, problem-solving, and data analysis. Section 2 (Scientific Knowledge and Applications) examines ability to apply scientific knowledge typically covered in non-specialist school science and mathematics courses. Section 3 comprises a writing task requiring test-takers to develop ideas and communicate them concisely. Institutions vary in how they use BMAT scores as part of their admissions process. One potential use is as a criterion (usually in combination with other measures) to shortlist candidates for MMIs.

**Summary of Work:** Two case studies of the relationship between BMAT and MMI performance will be presented. The process of shortlisting for MMI will be described in each case, including the extent to which BMAT scores were weighted in any shortlist decisions. Scores on each section will be correlated with candidates' performance on individual MMI stations and overall. In cases where BMAT has been used cautiously in selection, the potential impact on MMI performance of giving greater weight to BMAT scores will be explored.

**Summary of Results:** It was hypothesised that scores on Sections 1 and 3 would correlate with MMI stations focussed on interpersonal communication, interaction and discussion and problem-solving. Initial analyses indicate this pattern. Section 2 is not expected to correlate strongly with MMI performance, unless the station has a distinct science knowledge element.

**Discussion:** The extent to which BMAT scores correlate with MMI performance will be discussed and the implications for using BMAT scores in different ways for shortlisting presented.

**Conclusion:** Initial analyses indicate that BMAT scores show small but significant correlations with aspects of MMI performance and can support early shortlisting of applicants.

**Take Home Messages:** BMAT compares favourably to other methods for shortlisting candidates for MMIs.

#7K4 (135805)

**Are MMI scores a better predictor for residency matching compared to GPA and licensing exam?**

*Christian Bourdy\*, Université de Montréal, Montréal, Canada*

*Robert Gagnon (Université de Montréal, Montréal, Canada)*

*Jean-François Montreuil (Université Laval, Québec, Canada)*

*Martine Bourget (Université Laval, Québec, Canada)*

*René Houle (Université de Sherbrooke, Sherbrooke, Canada)*

*Miriam Sanstchi (Université de Sherbrooke, Sherbrooke, Canada)*

**Background:** Multiple Mini-Interviews (MMI) are a valid interview process tested in many situations by medical schools since 2006. MMI evaluate the non-cognitive attributes which is a major challenge since selecting suitable medical students is paramount. It is expected that adding a weighting those attributes in association with more traditional cognitive predictors may have an impact on future physicians' choice of practice.

**Summary of Work:** Academic files of all medical students (n=600) admitted to the three Québec francophone Medical school in 2011 and in 2012 was used. Data from pre-admission (GPA, MMI scores), data from medical training years (progress tests), and data from the certification exam of Medical Council of Canada (MCC) were collected to examine their association with residency matching in different programs. Logistic regression analysis was used to estimate the contributions of factor associated to residency matching.

**Summary of Results:** A clear and independent association between MMI scores and residency matching in specialities is observed ( $p < 0.001$ ), while all other predictors (GPA, in training competencies assessment, licensing exam score) show no significant association.

**Discussion:** MMI scores seem to be associated with admission in certain distinct residency programs. It seems that admission in family medicine is less correlated with the MMI scores than expected. Furthermore, the stereotypical view of "less human" and more disease-centred practices in some medical specialty may be questionable. The competency-based approach implemented in Canadian medical schools could be associated with this outcome.

**Conclusion:** Despite lower MCC results, some candidates admitted in speciality appear to compensate through better non cognitive attributes reflected in their MMI performance. This seems to be the best and unique predictor of admission in specialty residency programs.

**Take Home Messages:** MMI seem to be an interesting tool to predict future physicians' choice of practice.

#7K5 (132224)

**Implementing an Empathy Specific Entrance Test for Medical School**

*Mary Jane Platt\*, Norwich Medical School, Norwich, UK*

*Charlotte Salter*

*Gabrina Pounds*

*Pauline Bryant*

**Background:** Using empathy, doctors build and maintain the trust of patients and colleagues. Empathy is a key attribute required of aspirant medical students. However, the expression of empathy is difficult to objectively assess during selection. Drawing on an established classification of emotive and evaluative expression and related empathy-specific linguistic framework, a testing tool to assess applicants' 'empathic performance', suitable for use as a multiple mini interview (MMI station) was developed.

**Summary of Work:** Following extensive development, a Multiple Mini Interview (MMI) station using commissioned video clips were used to elicit the reaction of aspirant medical students and added to the usual MMI circuit. Eight different clips using four scenarios, with either a male or female actor were used on rotation for 600 interviews. Data from interviewers were used to assess the acceptability of the station.

**Summary of Results:** Preliminary analysis demonstrated that the station added a new dimension to the selection process. While 60 (42%) of those assessed scored similar marks on both stations designed to assess empathy, 32 (23%) had markedly different scores.

**Discussion:** Analysis of full interview cycle (March 16), will include relationship with UKCAT-SJT score, interviewee demographics, changes of over time (as awareness of this new style station is disseminated), impact on probability of receiving an offer, and the relationship between the gender of the applicant and the gender of the actor. Any or all of these factors may impact on assessment of empathy.

**Conclusion:** This test has made it possible to assess more directly empathic 'performance' rather than rely on reported (and hence prepared) examples of empathy, thus making assessment of empathy more equitable.

**Take Home Messages:** It is possible to develop an MMI station to assess 'shown' empathy rather than rely on reported examples of empathy.

#7K6 (136374)

**A socio-cultural approach to judgment based assessment in selection**

*Karyn Mossman\*, University of Sydney, Sydney, Australia*

*Chris Roberts (University of Sydney)*

*Annette Burgess (University of Sydney)*

*Koshila Kumar (University of Sydney)*

**Background:** There is little research on how interviewers make judgments in high stakes selection settings. Within the context of an assessment centre to determine entry into specialty postgraduate training, we explored what factors influenced interviewers in making professional judgements during a multiple-mini-interview (MMI).

**Summary of Work:** We used ethnography to gather data through observations of interviewer candidate interactions and interviewer meetings, and interviewer interviews. Data analysis, informed by socio-cultural theories of rater judgement, balanced description and explicit interpretation of the meanings and functions of the interviewers' actions and behaviours.

**Summary of Results:** Three major themes were identified: 'Interviewing by the rules,' 'Coming to a decision,' and 'Growth with experience.' Interviewers were readily socialised into the MMI process, expectations and norms in order to make good decisions, but tended to break these rules when experiencing uncertainty. Interviewers relied on a mix of intuition or gut feeling and analytical reasoning in making decisions. They readily acknowledged that their judgments might be flawed, and found training and interviewer meetings helpful. They expressed a need for a mechanism that enabled them to judge future candidate growth. In making their decisions, interviewers were most informed by reflecting on their own experience as a professional, the outcomes of their previous decisions, and their collective understanding of the expected behaviours of the candidates.

**Discussion:** An ethnographic approach to understanding how interviewers make judgments gives rich insight into professional judgement in the context of high stakes selection.

**Conclusion:** Using a social learning theoretical perspective can inform innovative approaches to interviewer training and selection tool design.

**Take Home Messages:** Interviewers are expert assessors but their perspective that assessment is social learning activity, opens up new approaches to design and quality assurance of assessment tools.

## 7L Short Communication: Social Accountability

Location: MR 119 – P1

#7L1 (134350)

**Transforming Medicine Schools through Social Accountability: an international action research project in 57 Medicine Schools in 17 francophone countries**

*Joel Ladner\*, Rouen School of Medicine, Rouen, France*

*Paul Grand'Maison*

*Dominique Bestiaux*

*Nawar Tewfik*

*Charles Boelen*

*Ahmed Maherzi*

**Background:** In 2010, the Global Consensus for Social Accountability (SA) outlined 10 strategic directions for medical schools to become “socially accountable” ([www.healthsocialaccountability.org](http://www.healthsocialaccountability.org)). The overall objective of the Francophone international action research project on SA was to experiment and assess the relevance, and implementation of a quality approach based on the principles of SA and also to demonstrate the utility as a strategy of choice to improve health system.

**Summary of Work:** On 1st January 2016, 57 medicine schools in 17 French-speaking countries joined the action research project. The first stage of the project was to measure the opinion and perception of different stakeholders. This stage showed that awareness of SA should be reinforced for the stakeholders

**Summary of Results:** The strong participation of students demonstrated a strong interest to SA concepts. The experimentation of pragmatic interventions of SA, with different theme chosen by the medicine schools: the faculty-contract territory, first online health, adaptation training and vulnerable populations. When the medicine schools decided to work on a same theme in a same country, this demonstrated a strong national dynamic on SA. In Tunisia, Madagascar Romania and Moldavia and Haiti, the faculties are national project partners around a common theme.

**Discussion:** Due to the growing interest worldwide for the concept of SA and the increasing demand to collaborate in defining and measuring SA and to support institutions in making the required transformation, a strategic plan covering this period will put emphasis on following priorities: Promotion of accreditation of medical schools, political advocacy for national strategies, establishing a contract between a school and a territory, reorientation of medical education and health research.

**Conclusion:** Experience action research project on SR medical school is an original scale of experience in the Francophone world. Because of the diversity of commitments, the project illustrates obviously the possibility of taking pragmatic actions on SA in communities

**Take Home Messages:** First actions and results of the Francophone project on SA are challenging.

#7L2 (135308)

**Advancing social accountability - a theoretical framing**

*Lionel Green-Thompson\*, Wits University, Johannesburg, South Africa*

*Patricia McInerney (Wits University, Johannesburg, South Africa)*

*Bob Woollard (University of British Columbia, Vancouver, Canada)*

**Background:** Social accountability (SA) is especially important in developing countries where the inequalities experienced in health are mirrored by the unequal social development within countries and between countries. SA becomes the intersection between transformative education paradigms and empowered communities. This study aims to articulate the perspectives of the communities, the partners in education and the students with a stake in health care.

**Summary of Work:** This qualitative study was conducted in the grounded theory tradition from November 2012 - December 2013 amongst the following: • Community: 81 members participated in eight focus groups held in rural and urban South Africa; • Students: final years participated in eleven focus group discussions and • Education partners (12 academics, three health-system managers and an insurance manager) participated in in-depth interviews. These emergent models were interrogated by a national panel of experts in medical education

**Summary of Results:** Three conceptual models emerged: • Ubuntu - reciprocal relationships reflecting the tension between vulnerability of the patient and the power vested in the doctor. • Students' call for intimate education communities characterised by guided reflection. • Transformed professional paradigm focusing on teaching for accountability and choosing social solidarity as a graduate attribute.

**Discussion:** The relationship between communities, student and the learning environment holds opportunities for symbiotic development of engaged professionals. The challenge is to develop learning systems which acknowledge that the curriculum is one process of a complex adaptive system.

**Conclusion:** This study uses a postmodern framing to propose five relationships between ten foundational domains in which action is required to advance social accountability. In order for a health professions school to make an impact on the care of a nation, the faculty

**Take Home Messages:** Social accountability represents a complex response to the nature of problems in health in the twenty first century.



#7L3 (136478)

**Making a difference: a qualitative study of an inter-professional social engagement project**

*Richard Ayres\*, Plymouth Peninsula Schools of Medicine and Dentistry, Plymouth, UK*

*S Stevens*

*R Carter*

*S Regan de Bere*

**Background:** It is increasingly recognised that medical schools have a duty to the communities that they serve and that there are many benefits in student social engagement within those communities. There is also ongoing interest in the value of interprofessional working. We designed and evaluated a social engagement intervention for students from medicine and 9 other healthcare professions. All attachments were within areas of high social deprivation in inner-city Plymouth, UK. We used a conceptual model of benefit derived from the work of MacIntyre<sup>1</sup> and of engagement adapted from Strasser<sup>2</sup>

**Summary of Work:** The project provided 1) interdisciplinary attachments for student volunteers from medicine and nursing disciplines to three community-based providers (two serving the homeless population and one provider of social housing) and 2) an opportunity for students from 10 healthcare disciplines to collaboratively run a whole day health promotion event at a primary care health facility. Extensive qualitative data from student diaries, interviews with students and provider staff and focus groups (face to face and synchronous on-line via Skype) were collected and analysed thematically.

**Summary of Results:** Students gained new insights, knowledge and skills arising from both the community experience and from working with different disciplines. They were able to contribute meaningfully in diverse and sometimes unexpected ways. A number of “internal goods” such as development of deeper relationships, communication of feelings, breaking down of class and professional barriers resulted. There was strong evidence of new learning and clear examples of change of practice resulting from these experiences. Tensions were clear too, such as what students were “allowed” to do when confronted by need.

**Discussion:** The 2 components of the project provided different but complementary experiences which we classified as community-based but with some community-engaged components. It is clear from the data that students greatly valued the often new experience of working with peers from other disciplines. They enjoyed, but were greatly challenged by, working with service users with multiple and complex needs (such as when they were placed with providers working with homeless persons). The data highlights how students, initially “out of their comfort zone” were able to co-create learning and understanding about health with service-users.

**Conclusion:** Philosophically, sending healthcare students into communities represents a radical change of practice for medical and nursing schools and the

“MacIntyre” model provided a very useful conceptual framework for understanding the process, as well as the outcome.

#7L4 (134202)

**Factors influencing course performance of WP students in Glasgow Medical School**

*Nana Sartania\*, University of Glasgow Medical School, Glasgow, UK*

*Helen Sweeting*

*Alison Browitt*

*Neil Croll*

**Background:** Enrollment to Medical Schools does not accurately represent the general population in terms of the socio-economic backgrounds of the students. This is at least partly perpetuated by the challenges of the admissions process. ‘Reach Scotland’ is an important part of the strategy to widen participation in undergraduate medicine and has helped well over 100 pupils from disadvantaged backgrounds gain a place to study medicine since 2012. In this study, we evaluate the course performance of students enrolled as part of the widening participation (WP) initiatives.

**Summary of Work:** Associations between ‘Reach’ students’ demographics, preadmissions measures and performance indicators in years 1-3 were analysed relative to non-WP students and WP students that had not followed the Reach programme. In addition to descriptive statistics and analysis of variance, we obtained qualitative data on students’ opinion of the challenges to progression and their usage of support services which will be discussed.

**Summary of Results:** It was found that WP students generally performed less well in knowledge-based and coursework assessments in years 1, 2 and 3, as compared with students from the ‘Not WP’ control group.

**Discussion:** There were clear differences found in performance of WP students that had participated in the Reach programme or not. This was tentatively attributed to in-school sessions on critical appraisal and creative writing offered by the Reach project.

**Conclusion:** Our results indicate that early outreach support is needed to help widening participation students through the course, raising the issue of adequate resources for universities working with schools with low HE participation rates.

**Take Home Messages:** The Reach programme allows effective engagement with a diverse population of prospective students, however extra support is needed to help them succeed on the course.

#7L5 (134483)

**An Advocacy and Leadership Curriculum to Train Socially Responsible Medical Students**

*David Benrimoh\*, McGill University, Montreal, Canada*  
*Sarah Silverberg (University of Toronto, Toronto, Canada)*

*Ruth Habte (University of Manitoba, Winnipeg, Canada)*  
*Nebras Warsi (McGill University, Montreal, Canada)*  
*Jean-Ahmed Zigby (McGill University, Montreal, Canada)*  
*Lawrence Loh (University of Toronto, Toronto, Canada)*

**Background:** Physician advocacy and leadership is increasingly recognized as an important part of our social responsibility, and many physicians practice advocacy on the patient, institutional and community/population levels. Frameworks, such as CanMEDS, have set out definitions of health advocacy and leadership for medical education. Despite the significant benefits of physician advocacy training, medical curricula do not usually teach practical advocacy and leadership skills to students.

**Summary of Work:** A collaboration of over twenty medical students and professors from across Canada worked over the past year to survey students, conduct curriculum mapping, examine current literature and Canadian practices in order to inform the creation of an Advocacy and Leadership Curriculum (ALC). A guiding principle was that advocacy should occur in partnership with populations served.

**Summary of Results:** A competency- and milestone-based ALC was created and reviewed. CanMEDS-based Learning Objectives, divided into theoretical, skills-based, and application-based categories, form the core of the program. The curriculum prepares medical students for real-world advocacy through longitudinal projects, interdisciplinary work, and community-based service learning. Engagement of other health professionals and physician advocates to act as advocacy preceptors is central to the curriculum.

**Discussion:** Given resource constraints, the ALC should be implemented by weaving it into existing curricula, through skills workshops, and by training staff to act as advocacy preceptors. Teaching in leadership, communications, health law, policy, and health systems should be interdisciplinary, rigorous, and applied. Projects resulting from the ALC will improve medical school social responsibility and must be sustainable and undertaken through community partnerships.

**Conclusion:** The result of a wide collaboration, the ALC serves as a model for the training of socially responsible medical students who are conversant in advocacy and leadership techniques, able to advocate with patients and populations and within institutions.

**Take Home Messages:** The ALC will prepare medical students for their role as physician advocates.

#7L6 (132982)

**Medical education and social accountability: The role of medical schools in reducing health disparities**

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*Zehava Yahav*  
*Jacob Orkin*  
*Yaacov Bachner*  
*Nadav Davidovitch*

**Summary of Work:** An online survey among 9,000 physicians who graduated from all medical schools in Israel during May-June 2011. The survey included measures about community orientation, social accountability, place of work (center vs. periphery), etc. Data was analyzed using uni-variate and multi-variate analyses.

**Discussion:** This study emphasizes the important role of medical education in reducing health disparities by directing graduates to work in the periphery and to be more involved in community programs. As BGU medical school is located in the southern periphery of Israel, and its curriculum focuses on community and social medicine, its graduates were found to be more involved in social and community medicine.

**Conclusion:** These insights are crucial when considering changes in the medical schools' curriculum and implementing a long-term national plan for reducing health disparities.

**Take Home Messages:** Social medicine and basic science research-oriented educational goals serve positive aspects in the development of the professional physician and can be developed in a complementary manner.

#7L7 (136067)

**A Model for Medical Application Courses: Widening Access to Student Preparation**

**Culadeeban Ratneswaran\***, *Barts and The London School of Medicine and Dentistry, London, UK*

*Jameel Mushtaq (SGUL, London, UK)*

*Christina Reshekaron (Barts, London, UK)*

*Joerg Steier (KCL, London, UK)*

**Background:** There is a growing trend of private entities offering premedical school application courses financially out of reach to poorer socioeconomic groups. This leads to a successful medical school application skew towards the richer and better trained. To address this, students co-ordinated a pilot philanthropic medical school application conference, featuring an outreach programme to less affluent communities.

**Summary of Work:** The conference was based on a peer assisted learning (PAL) teaching method and incentivised speakers by developing organisational, communicational, teaching and presentation skills, avoiding a financial motivation. The itinerary included: life as a doctor and medical student, the medical application process, medical communication skill, ethical and also personal statement writing workshops. A social media feed and a website was created providing a social hub for students, as well as endorsing affiliated charities.

**Summary of Results:** On a scale of poor, indifferent, good and excellent: 87.5% of attendees (n=50) rated the course as excellent and 12.5% rated it as good. Tutors (n=8), on a scale of 1 (poor) to 5 (excellent), reported significant improvements in teaching confidence (2.8 to 4.4,  $p<0.01$ ) and public speaking (3.2 to 4.3,  $p<0.05$ ); 100% rated overall enjoyment of the course as excellent. In addition, two British Lung Foundation Research travel awards have been established for the European Respiratory Society and the American Thoracic Society conferences.

**Discussion:** Our results demonstrate that a collaborative teaching conference model incorporating medical student PAL tutors provides significant benefits to pre-medical students and also tutors.

**Conclusion:** Encouraging courses with this philanthropic model allows for a lost cost, high quality session that may help reduce an unfavourable trend that negates lower socioeconomic persons from successful medical applications

**Take Home Messages:** A philanthropic PAL medical application course improves teaching skills of tutors and may negate a socioeconomic bias for successful medical applications.

## 7M Short Communication: Communication Skills

Location: MR 120 – P1

### #7M1 (134802)

How reliable and valid is the assessment of communication competencies in a multi-disciplinary OSCE?

**Nicole Deis\***, Medical Faculty Mannheim, Heidelberg University, Mannheim, Germany

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Katrin Schüttelz-Brauns (Medical Faculty Mannheim, Heidelberg University, Mannheim Germany)

**Background:** It is common knowledge that communication skills can be taught and learned (Langewitz et al, 2004; Silverman et al., 2005). At Mannheim Medical Faculty a longitudinal communication curriculum was developed and implemented. The curriculum starts with role play seminars in the first two years and is continued from third to fifth year by seminars with simulated patients. To reach constructive alignment we established one communication item per station in a multidisciplinary OSCE in the fifth year.

**Summary of Work:** We wanted to find out if our assessment of communication is reliable and valid. Cronbachs  $\alpha$  was calculated to estimate the reliability of the communication item. To estimate the external validity of the communication curriculum we used a validated global rating scale (Berlin Global Rating, BGR; Scheffer 2009). In ten of twelve stations we correlated the OSCE-checklist communication item with simulated patients' global ratings on BGR.

**Summary of Results:** The reliability of the communication item was adequate (Cronbachs  $\alpha$  = .77). The correlations ranged from  $r = -.043$  to  $r = .562$  with a median of  $M = .319$ . We found small correlations for four stations ( $r = .129$  to  $.299$ ) and moderate correlations for another four stations ( $r = .317$  to  $r = .436$ ). For one station we found large correlations ( $r = .507$  to  $r = .562$ ).

**Discussion:** Our idea was to implement the assessment of communication as one item of each station in a multidisciplinary OSCE in order to represent real life settings where knowledge, skills and competencies are required simultaneously, instead of planning one or more communication stations exclusively.

**Conclusion:** Our results suggest that not all of our OSCE-stations are equally suited for the assessment of communication competencies.

**Take Home Messages:** We recommend the integration of communication items in OSCE checklists

but it is important to keep the specificities of the stations in mind.

### #7M2 (134345)

How does the conceptual structure of empathy of Japanese medical students change by communication skills training?

**Daisuke Son\***, International Research Center for Medical Education, Graduate School of Medicine, the University of Tokyo, Tokyo, Japan

Ikuo Shimizu (Shinshu University, Matsumoto, Japan)

Hirono Ishikawa (The University of Tokyo, Tokyo, Japan)

Muneyoshi Aomatsu (Nagoya University, Nagoya, Japan)

Jimmie Leppink (Maastricht University, Maastricht, Netherlands)

**Background:** Physicians' empathy for patients is a critical competency for patient care. Nevertheless, Aomatsu et al. (2013) suggested that communication skills training in an examination context (e.g., OSCE) might inhibit the emotive aspect of empathy in Japanese medical students. Therefore, this study examined how the conceptual structure of empathy changes with communication skills training among Japanese medical students.

**Summary of Work:** Using the Japanese version of the Jefferson Scale of Empathy (JSE, two factors: Cognitive Empathy and Emotive Empathy, henceforth CE and EE) (Kataoka et al., 2009), we measured self-assessed empathy among 270 fourth-year Japanese medical students (three universities), by asking pre/post-training ratings right after OSCE examination. We analyzed the relation between CE, EE, and a Willingness to show empathic behavior (W) factor from new questionnaire and the change of these factors using structural equation and multilevel modeling.

**Summary of Results:** Pre-training and post-training correlations were 0.80 and 0.73 for CE-EE, 0.72 and 0.66 for CE-W, and -0.20 and -0.05 for EE-W. Pre/post differences in correlations as well as in actual scores were not statistically significant. However, students who had completed three medical interviewing training sessions scored significantly higher than students with less experience.

**Discussion:** These findings from a large sample from different universities shed new light on the conceptual structure of empathy among Japanese medical students, and its change with communication skills training. Future studies, using the same and different methods (e.g., objective measures, longitudinal, intervention), could follow up on this study to examine which factors (e.g., medical interviewing experience, specialization, culture) may influence this structure.

**Conclusion:** The current study did not detect significant changes in the conceptual structure of empathy with communication skills training. However, we did find that medical interviewing experience may have a positive relation to CE, EE, and W.



**Take Home Messages:** Self-assessed empathy may to some extent increase with medical interviewing experience.

#7M3 (134918)

**WebRolePlay: a novel online tool for peer-practice and -assessment of interpersonal skills**

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*Dennis Novack*

*Gregory McGee*

**Background:** Evidence demonstrates that a doctor-patient relationship of trust, respect, and understanding improves the patient's adherence to treatment recommendations, and results in better physical and emotional outcomes (Stewart M. Cancer Prev Control. 1999;3:25-30.) Most medical schools teach physician-patient communication skills to create effective therapeutic relationships with patients. However, students' opportunities for enhancing their skills through practice and feedback are limited by the expenses of faculty time and the cost of standardized patient activities. A method that would allow for structured practice, coaching and feedback between students could greatly augment current teaching programs.

**Summary of Work:** We propose to build WebRolePlay as a further development of our existing WebPatientEncounter (WPE) technology. WPE is a web-based technology that facilitates remote audio-visual encounters between learners and Standardized Patients (SPs), who represent a medical case scenario. The learner is provided with interpersonal tasks (e.g., "providing bad news," "smoking cessation counseling,") that are performed during the encounter, with the SP simulating a real patient. During the encounter, the SP carefully observes whether the learner employs certain skills effectively, and, on a prepared scoring list, notes the learner's degree of proficiency with these interpersonal tasks (i.e., complete, incomplete, not at all). The encounter and scoring times are recorded, allowing specific feedback on the encounter. For feedback after the encounter, the SP becomes a coach, providing objective structured feedback enhanced by recordings from the encounter, plus prepared video vignettes that role model best behavior; (e.g., "This is what you did when I started crying, [play recording], and this is what an expert would have done in this situation," [play video vignette]). See <http://webcampus.drexelmed.edu/webosce/>.

**Summary of Results:** We have no data on WebRolePlay yet, but we do have strong data on WebPatientEncounter, its precursor. Two research studies show the effectiveness of using WebPatientEncounter to improve residents' skills in breaking bad news (Medical Teacher 2010; 32: e381-e390) and substance abuse detection and counseling (Acad. Med. 2015 Mar; 90(3):345-54). In 2013, WebPatientEncounter received the Science Center's

QED award. It has been licensed to Kynectiv in 2015 under the name CommSim (<https://www.kynectiv.com/platforms/commsim>)

#7M4 (136250)

**Assessment of doctor-patient communication: students, standardized patient and faculty perspectives**

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**Background:** Doctor-patient communication is defined as the ability to transmit effective verbal and non-verbal messages, in a climate of respect, commitment, trust and empathy. Objective Structured Clinical Examination (OSCE) has been considered the gold standard for assessing interpersonal clinical skills, including communication.

**Summary of Work:** A study was performed to explore the perceptions of students, standardized patients and faculty, regarding OSCE's effectiveness for education and assessment of communication skills. Eleven items were designed to analyze:

1)communication skills education, 2)communication assessment, 3)non-verbal communication and 4)written communication. A 5-level Likert scale was used, in which 1 stands for total disagreement and 5 for total agreement. The instrument was based on Mexican Association of Colleges and Schools of Medicine [AMFEM by its acronym in Spanish] and CanMeds competence frameworks for communication skills. The survey was applied to a sample of 47 participants.

**Summary of Results:** The instrument was validated in its internal structure with a Cronbach's alpha of 0.660. Four factors were derived using principal component analysis, Varimax rotation was applied to obtain more clarity in the structure. The overall media was 3.93. The media in communication skills education was 4.29, in the communication assessment 4.28, non-verbal communication is 3.58, and written communication 3.58. The results that were above 3 were catalogued as acceptable.

**Discussion:** OSCE was considered by participants as an educational strategy for doctor-patient communication. It was also considered as a valid tool for the assessment of this competency. Participant considered that it is no easy to assess non-verbal communication through OSCE examination.

**Conclusion:** The study provided valuable information for curriculum and instructional design regarding communication skills. The complexity of interpersonal competences requires a profound reflection about who should be the expert for debriefing students on their perf

**Take Home Messages:** It is possible to intensify training of standardized patients to homologate

perceptions with faculty members; nevertheless, real patients will not have this training and will always judge this skill.

#### #7M5 (135449)

##### **Assessment of communication skills at the medical faculties in Germany – Where are we right now?**

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Erika Fellmer-Drueg  
Nadja Ringel  
Maryna Gornostayeva  
Carmen Weiss

**Background:** The value of doctor-patient communication is increasingly recognized. Consequently, it has become mandatory to assess communication skills within the final state examination in Germany since 2012. On this basis, a project supported by the Federal Ministry of Health aims to facilitate the integration of communication skills into medical curricula. An analysis of current state at the medical faculties in Germany was conducted to identify potential gaps and strengths regarding teaching and assessment of communication skills. Since assessment drives the learning process, the presentation will focus on this part.

**Summary of Work:** First, for each communication-related assessment, structural characteristics were acquired (e.g., assessment formats). Second, it was specified which communication-related learning objectives of the “National competence-based learning catalogue of medicine” were explicitly assessed.

**Summary of Results:** Data from 32 out of 36 medical faculties in Germany were collected. Preliminary analyses with data from 30 faculties revealed that almost all faculties (27 out of 30) have at least one obligatory assessment of communication skills (4-5 on average). The most common format is paper-pencil tests (42% of assessments), followed by objective structured clinical examinations (OSCEs, 38%). Regarding the latter, 19 out of 30 faculties have at least one obligatory OSCE assessing communication skills. Finally, it was found that a much smaller proportion of learning objectives are assessed as compared to being taught, whereby general rather than specific communication skills are assessed.

**Discussion:** Preliminary findings revealed that some sort of assessment of communication skills is realized at almost all medical faculties.

**Conclusion:** Future developments should focus on a more extended usage of practical formats (like OSCEs) to assess actual communication behavior as well as a broader and more balanced coverage of communication skills categories.

**Take Home Messages:** A basic assessment of communication skills in medical studies is in place, but needs to be extended regarding practical formats and assessment of specific communication skills.

#### #7M6 (136016)

##### **Using CAT to assess communication skills in undergraduate medical students**

**Giselle Myer\*, Universidad Católica del Norte, Coquimbo, Chile**

Claudia Behrens, Coquimbo, Chile  
Amelia Hurtado, Santiago, Chile  
Soledad Armijo, Santiago, Chile  
Paula Parra, Concepción, Chile  
Veronica Morales, Santiago, Chile  
Rosario Fernandez, Santiago, Chile

**Background:** Communication skills represent an important dimension of medical competency. The Communication Assessment Tool (CAT) is a validated instrument for patient’s assessment of physician’s communication skills in a clinical setting, where passing score has been set as a 58% of excellent scores. However, to our knowledge there is no published data for the use of CAT in an objective structured clinical exam (OSCE) for undergraduate medical. The purpose of this study is to establish initial benchmarking data for the use of CAT in OSCEs.

**Summary of Work:** A formative OSCE was designed with a circuit of 12 stations, where communication skills was assessed by using CAT. The SP training was standardized across the universities.

**Summary of Results:** One hundred twenty six recently graduated medical students volunteered from seven medical schools to take the exam (26% of the universe); 55.1% were women. The average proportion of excellent score was 41.3% (S.D.= 17.4, range 5.8 – 91.5%). The proportion of students who got more than 58% of excellent scores was 18%. There was no gender difference. The attributes best evaluated were “respectful relationship” (49.9%), “active listening” (45.9%) and “clear language” (45.3%). Lowest ratings were “encouraging the patient to ask questions” (25.6%), “involving the patient in decisions as much as he/she wanted” (21.2%) and “checking out the patients understanding of the matter in discussion” (29.6%).

**Discussion:** In our data, the percentage of “excellent” was lower than described in literature in a clinical setting with real patients. This could be due to poor clinical experience of junior doctors and more stringent criteria from SPs compared to real patients.

**Conclusion:** The use of CAT as a tool for assessing communication skills in a formative OSCE was feasible and rendered useful data. In the analysis by item, the highest and lowest results obtained coincide with that described in the literature.

**Take Home Messages:** The cut-off reported is not applicable as a passing score in our study.

## 7N Short Communication: Student Engagement

Location: MR 121 – P1

#7N1 (134803)

Does it sound scary that medical students obtain 50% of the decision making votes at the faculty committees?

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Andrea Daniela Maier, University of Copenhagen, Faculty of Health and Medical Sciences, Denmark

Jørgen Kurtzhals, University of Copenhagen, Faculty of Health and Medical Sciences, Denmark

Thomas Fahrenkrug, University of Copenhagen, Faculty of Health and Medical Sciences, Denmark

Freja Dalsgaard Olsen, University of Copenhagen, Faculty of Health and Medical Sciences, Denmark

**Background:** According to the law of the University of Copenhagen students should be represented on the Faculty committees. At the Faculty of Health and Medical Sciences students are involved in both establishment, development and management at different levels - administrative, policy decisions and academic content. We have examined how vital the student engagement is to our faculty's development and our process towards the university of tomorrow.

**Summary of Work:** Students are – alongside faculty – involved in vital decision-making processes. From corrections of courses and curriculum as well as the hiring of course leaders/faculty staff to accreditation processes and formulation of policy guidelines students play a part. We have both quantitatively and qualitatively explored a series of cases where student were involved in course development). This serves as an example for the entire student involvement and engagement process.

**Summary of Results:** Course evaluations and results from surveys indicate that student involvement and engagement have a measurable effect on both the quality of education development and the quality of decisions made by executives.

**Discussion:** To effectively implement student engagement in a curriculum some key elements need to be fulfilled: 1) an open environment for student organization (supported both economically and politically) and 2) a formalized process for the students' involvement (eg. a certain number of student seats on school boards etc.). This means yielding power and opening for discussion and a bottom-up perspective.

**Conclusion:** Creating and nurturing student involvement and engagement is profitable both from an economic and educational viewpoint. From a faculty point of view, the formalizing of students engagement gives a smooth implementation of decisions affecting the student

**Take Home Messages:** Start formalizing student involvement. This will subsequently allow for a buildup

of skilled and empowered student involvement for the benefit of the individual university and the society as a whole.

#7N2 (136207)

Staff - Student Conversations: Changing Culture And Empowering Students Through Appreciative Inquiry

**Michelle Marshall\***, University of Sheffield, Sheffield, UK

Deborah Murdoch Eaton

**Background:** Despite conventional methods of hearing students' opinions, including through Students' Representatives and formal evaluations, we were aware of some dissatisfaction, reflected in the National Student Survey results (2014). We needed to review how we engaged with the wider student body to manage expectations and address perceptions of the educational culture and climate. We sought to understand how to enable more independence as self-directed learners, resilience for the challenging workplace through opportunities to achieve potential and articulate pride in themselves and their medical school.

**Summary of Work:** Invitations to participate in small group conversations were extended to randomly selected students. Groups of <8 were allocated by course level to groups facilitated by experienced staff and Medical Society student representatives. An Appreciative Inquiry (AI) approach using questions that envision the future to foster positive relationships and build on the potential of a person or organization was used.

**Summary of Results:** 380 students (30% of the total cohort) participated in 8 rounds of discussions which were perceived wholly positively by students and staff. Sessions were lively, engaging with interactive discussions articulating and sharing ideas reflecting the strengths and experiences of studying in Sheffield. Visioning identified areas for further development and innovation. The NSS score for overall satisfaction increased from 82% to 97% in 2015.

**Discussion:** AI approaches facilitated a change in culture, evidenced by students expressing heightened engagement, empowered to make changes on personal and organizational levels. Individual students expressed that they had been given a voice beyond formal evaluations.

**Conclusion:** A positive impact on student engagement using an AI approach allowed exploration of personal and organizational potential. Identification of what is "good" as well as "what can be done better" allowed a shift in approach from problem identification to one

**Take Home Messages:** AI conversations between staff and students facilitated positive articulations on educational experience.

#7N3 (132823)

**Community Engagement and the Social Responsibility of Medicine; a unique Service Learning program facilitating students as 'agents of change' in the world**

*Ruth Margalit\*, Sackler Faculty of Medicine, Tel Aviv, Israel*

*Chen Raviv*

**Background:** The pedagogy of Service Learning directs students to participate in service activities that address societal needs, enhance professional skills through practice and reflection, and increase the sense of civic responsibility. The Service Learning Academy developed with student and community leaders, long-term projects in an interprofessional collaborative environment intending to prepare students as 'socially responsible agents of change' in the current workforce environment.

**Summary of Work:** Five long-term "legacy projects" were established to provide mentoring, education, screening, and treatment to various populations: Bridge to Care for recently resettled refugees; EMPOWER for individuals affected by domestic violence; Do JuSTice addressing sexually transmitted infections for incarcerated individuals (adult and youth). Decreasing the Donor Deficit working to recruit minority donors to the donor registry 'Be The Match', to reduce health disparities. Finding a Voice providing medical care and a vehicle for the homeless to be heard by the Omaha community. All projects were designed to increase proficiencies such as: clinical and communication skills, cultural competency, leadership, and teamwork.

**Summary of Results:** Student participation was documented with impact determined from critical reflections and other evaluation tools. Over 1500 students engaged with over 10,000 community members and over 40 faculty mentors in all five projects.

**Discussion:** Community-Campus partnerships established through the integration of Service-Learning pedagogy, provided students ample opportunities to develop interprofessional collaborations, leadership skills, interpersonal communication, and advocacy skills. Challenges remain in the integration of this pedagogy into the formal curriculum.

**Conclusion:** Service Learning pedagogy can be implemented to help health-profession students in fulfilling the responsibility as active, informed players in democracy, engaging with communities to address civic challenges and be 'agents of change' who are morally aware

**Take Home Messages:** Service Learning programs, built on authentic engagement with communities and with students as colleagues and leaders, can be transformative to all participants.

#7N4 (133630)

**Student initiatives, more than just a partnership? - The development of high quality resources instigated by French students and its impact on learning methods**

*Quentin Del-Valle\*, Lyon Est Faculty of Medicine, Lyon, France*

*Zoe Boulot*

*Alexandre Mader*

*Jerome Etienne*

**Background:** Student engagement is important for a curriculum's quality (ASPIRE). At Lyon Est Faculty of Medicine, it has taken an original turn: students are not only partners, but instigators of educational innovation. Before 2013, teachers used to provide their Powerpoint presentation as a learning resource and students created a shared-notes system, to improve their lectures' understanding. As years went by, they organised a more effective system: notes were taken by students for each lecture, proofread, printed and handed out to all students weekly.

**Summary of Work:** In 2013, students transformed this organisation into a collaborative project with the Faculty. Within two years, quality resources that combined teachers' expert assessment and students' way of thinking were created to help the learning process. Today, these resources are continuously reviewed, improved, and then handed out to students at the start of each semester.

**Summary of Results:** This vast project has had a major impact on students' learning and teachers' methods. Making official resources available to students beforehand has given teachers space for experimenting and developing new teaching techniques involving students as active learners (e.g. flipped classrooms).

**Discussion:** Evolution does not happen at the same pace depending on the individuals, requiring students and teachers to remain flexible and open-minded.

**Conclusion:** Though challenging for both students and teachers, this project has improved the curriculum's quality. Who better than students to say what students need? Student-initiated projects have made possible the coherence between teachers' aims and students' need

**Take Home Messages:** By expressing their needs, students participate in educational innovation. Combining students' way of thinking and teachers' expertise is a possible avenue for excellence in a curriculum. Teachers, let yourselves be surprised by students' ideas!



#7N5 (134228)

**Rewarding student engagement in France: an official acknowledgment to promote student participation in projects and develop their non-academic skills**

*Alexandre Mader\*, Lyon-Est Faculty of Medicine, Villeurbanne, France  
Quentin Del-Valle  
Zoé Boulot  
Jérôme Etienne*

**Background:** In France, medical students are graded and ranked each year, mostly on their academic skills. This process does not facilitate the development of the skills suggested by CanMEDS competency-based framework throughout the curriculum. In order to develop non-academic skills, Lyon Est Faculty of Medicine created a structure to promote student initiatives: tutoring; creation of learning resources, etc. By participating in these initiatives, students develop their non-academic skills (teamwork, collaboration...). To stimulate student involvement even more, the Faculty rewards students' engagement.

**Summary of Work:** Since 2013, students can develop ideas with the Faculty's support, creating a dynamic that helps many projects emerge. Rewarding students who took the time for these projects is a form of recognition of the skills they have acquired. Students are evaluated by their peers and themselves on the level and quality of their involvement. This evaluation enables them to progress in the overall class-ranking which students chose their clerkship rotations each year.

**Summary of Results:** After this recognition was formalised, the number of students participating in projects increased massively, going from a few dozens, to more than 300, leading to many more students developing non-academic skills. Moreover, this dynamic has created a radical change in students' attitude. Sharing ideas, knowledge and note cards, or helping each other out now seems more natural.

**Discussion:** Although it may not be the best way to promote the development of skills such as teamwork, communication, and professionalism, this method has shown its effectiveness.

**Conclusion:** Facilitating, promoting and rewarding student engagement has increased the number of students engaged in projects, and encourages them to develop non-academic, and necessary skills.

**Take Home Messages:** Rewarding student engagement, through higher academic ranking is an innovative way to promote it, and encourages students to participate in projects that will develop skills they need to become better physicians.

#7N6 (135226)

**Students as regular module board members in the undergraduate medical curriculum at Charité Berlin**

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**Background:** Students' participation is an important pillar in the strive for excellence in medical education, both as a reflection of the academic democratic culture and as an approach to enhance student centeredness in teaching and learning. Here, we report on the role and impact of students as regular members of the module boards in the new integrated, outcome-based undergraduate medical program at Charité – Universitätsmedizin Berlin.

**Summary of Work:** The new program consists of 40 modules, each is lead by a module board consisting of three faculty teachers (representing basic science, clinical-theoretical and clinical-practical disciplines) and one student. The module board is in charge of the cyclic review of the preceding module run and its improvement for future runs. This is done together with the module-planning group that meets at the end of each semester. In addition, all student module board members have a meeting bi-weekly.

**Summary of Results:** Twenty students serve currently as module board members and fulfill three major roles. First, as communicators, channeling information between students and other parts of the faculty, such as informing students about the module's concept. Second, as curricular developers, actively involved in the ongoing development of the module. Their input is based on different sources of students' feedback. Third, as a group of student module board members, which develops curricular concepts, discusses problems concerning different modules and administers itself, including recruitment.

**Discussion:** Student module board members participate as equal partners in the curricular development process of the new Charité curriculum. A major strength is that they are experts of the whole curriculum from planned to taught, learned and hidden curriculum.

**Conclusion:** They are able to provide valuable feedback beyond written and oral evaluation and communicate the development process through different channels effectively.

**Take Home Messages:** Students participating as regular module board members have a major impact on the development and improvement process of a curriculum.

#7N7 (135861)

**Application of International Cooperation in  
Promotion of International Medical Students'  
Congress**

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Medical University of Warsaw, Warsaw, Poland*

*Pawel Sobczuk*

*Pawel Bartnik*

**Background:** Warsaw International Medical Congress (WIMC) is an event aimed at students of medical sciences willing to present their research, expand scientific network and develop skills crucial for their future career. The Congress is organized by students and for students. For the last 12 years the congress has been a platform for exchanging ideas and sharing different points of view for participants from various countries. The number of visiting students from abroad has been gradually rising.

**Summary of Work:** In order to reach the highest possible number of potential participants among foreign students a wide promotion is required.

**Summary of Results:** There were 24 Ambassadors of 11th WIMC. In the academic year 2014/2015 our team was present during student conferences in 8 countries ready to recommend our event and answer every question. As a result almost 40% of abstracts submitted to 11th WIMC in 2015 were sent by students representing universities from 29 countries. Among all registered participants 25% were students from abroad. Some of them took a long journey from Malaysia, India, Indonesia or Canada.

**Discussion:** A huge role is played by Congress Ambassadors who spread information about the event at their universities. Ambassadors are provided with promotional materials, arrange local informational meetings and keep their colleagues updated. Another method of sharing information about WIMC is possible due to established partnerships with other medical student congresses and conferences. Promotional stands during conferences abroad are a direct way of contacting the target group.

**Conclusion:** Cooperation with Ambassadors and the network of student conferences is effective in reaching future participants among foreign students of medical sciences.

**Take Home Messages:** The number of international participants of the Congress depends on the organizational efforts throughout the year.

## 70 Short Communication: eLearning Resources/Social Media

Location: MR 122 – P1

#701 (126642)

### Movies of medical content in medical education

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*Jehona Krasniqi (Faculty of Medicine, University of Pristina, Kosovo)*

*Sofia Ribeiro (University of Maastricht, The Netherlands)*

*Jorune Suipyte (LSMU, Kaunas, Lithuania)*

*Kristina Filipova (Plovdiv, Bulgaria)*

*Wojciech Stefan Zgliczyński (School of Public Health - Centre of Postgraduate Medical Education, Warsaw, Poland)*

**Background:** E-learning has become an inseparable element of curriculum for many doctors-in-training and professional development for specialists. We focused our research on one component of e-learning, namely educational medical movies (MM). The purpose of this study was to assess the role of MM in clinical training.

**Summary of Work:** Over 150 people (among them 45 specialists, 39 junior doctors, 57 medical students) from 49 countries were interviewed via an on-line questionnaire. 12 questions were designed to identify e.g. how often do they watch MM or if MM are useful before exams. Several interviewees expressed, in their own words, how MM impact their knowledge and influence teaching/learning.

**Summary of Results:** Nearly all of the respondents watched at least a few movies of medical content in the past (<2% said "never"). 85% replied they used free on-line platforms with MM, flagging them as a dominating source. Animations with virtual models and expert interviews ("talking heads") were two preferred MM types (selected by 46% each). Surgical interventions were also of interest (selected by 42%).

**Discussion:** Respondents were encouraged to express their opinion on e-learning and MM in the comments section. A junior doctor shared concerns that although useful, MM may go "out of hand" if available to patients. One student applauded a lecturer recording her presentation and sharing it. More ideas were noted.

**Conclusion:** Most of the participants agreed that e-learning should become a fundamental pillar of modern medical education. MM are perceived as perfectly complementary with books, lectures and clinical practice. Internet constitutes the main source of MM through vari

**Take Home Messages:** Increasing number of both medical students and healthcare specialists engage in e-learning in the form of watching MM. This happens mostly at home but more and more frequently in classrooms. Clinical teachers should consider using movies and recording methods as tools to assist their work.

#702 (135220)

### New opportunities for learning: using 3D software in the pathology classroom

**Aigul Sapargaliyeva\***, *Kazakh National Medical University, Almaty, Kazakhstan*

*Arman Mukushov (MedicalMedia and SOMNIUM, Kazakhstan)*

*Yevgeny Yenin (National Surgical Research Centre, Kazakhstan)*

*Oleg Zayratyants (Moscow State Medical and Stomatological University, Russia)*

*Gulnara Mambetova (City Bureau of Pathology, Kazakhstan)*

*Artyom Popov (MedicalMedia and SOMNIUM, Kazakhstan)*

**Background:** To help undergraduate medical student learn Pathology, staff of pathology department collaborated with a software company in the development of a 3D interactive application for pathology seminars. The program is structured around 10 modules: students get an opportunity to assess the surface of the organ, to investigate its cut surface, to magnify it, to look at the organ under different angles (modeling). During the second stage of the task students should select microscope slides that correlate with the pathological process in question. At the end of the task the program evaluates the students.

**Summary of Work:** The program represents an interesting learning tool for students with limited previous exposure to Pathology and it allows to deepen students' knowledge both during classroom teaching hours and during independent study. To see if the program can achieve our ambitious goal we conducted a survey.

**Summary of Results:** We asked 15 students and 4 instructors to participate in the pilot of the program. The participants were asked to model transmural myocardial infarction in 3D and then to select histological slides that corresponded to the pathology. Students were asked to fill in the questionnaire to evaluate the program (and its components), to express their opinion about the potential applications of the program and to provide any additional comments.

**Discussion:** All respondents mentioned that the program could represent an alternative to the written or oral classroom test (and a tool to prepare for pathology seminars). Students found the first stage of the test more challenging compared to the second part.

**Conclusion:** According to the students, modeling of the pathological process allows to observe it in 3D and, therefore, to visualise it. We believe, that the wide collection of pathological processes allows to individualise and objectify the system of assessment.

**Take Home Messages:** Moreover, from our point of view development of such tools allows to work with a new generation of students, who use new technologies in their everyday life.

#703 (132093)

**Unprofessional behaviors in the use of social media by medical students and healthcare professionals in Japan**

*Yoko Moroi\*, Fukushima medical university, Center for medical education and career development, Fukushima, Japan*

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*Akiko Sugawara (Fukushima medical university, Center for medical education and career development, Fukushima, Japan)*

*Kazunobu Ishikawa (Fukushima medical university, Center for medical education and career development, Fukushima, Japan)*

**Background:** Social networks, blogs, and other forms of communication online has created the ability for medical students and healthcare professionals to communicate and share information quickly and to reach a large group of people. However, unprofessional behaviors such as divulging patient privacy and confidentiality seems to be increasing.

**Summary of Work:** Using three popular internet search engines, we searched unprofessional behaviors using internet by students and healthcare professionals in Japan from 2005 through 2014. Results of the retrieval were classified according to student's department, profession, the context of case, punishment and type of social media such as Twitter / Facebook.

**Summary of Results:** Eighteen cases (8 students and 10 professionals) were retrieved. Nine cases represented patient privacy violations, 6 practical jokes, 3 profanities, and 2 cheats. Punishments; 3 out-of-school suspension, 3 admonitory warning, 1 expulsion and 1 punitive dismissal. Type of social media; 6 Twitter, 5 Facebook, 2 blogs, 2 Japanese SNS and 2 others.

**Discussion:** Patient privacy violations were mostly made by health care professionals, while cheats were by students. Practical jokes and profanities were made by both students and professionals.

**Conclusion:** Through using several combination of keywords in medicine and healthcare, we first revealed the recent status of unprofessional behaviors in the use of social media in Japan. We also analyzed the characteristics of these cases although there might be unre

**Take Home Messages:** Development of ethical education program in the use of social media should be essential for students and for healthcare professionals to prevent a variety of future unprofessional behaviors.

#704 (133907)

**Relationship of Social Network Site Dependence and Depression among Medical Students**

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*Airada Saipanya (Chiang Mai University, Chiang Mai, Thailand)*

*Anawat Wisetborisut (Chiang Mai University, Chiang Mai, Thailand)*

**Background:** Online social network site (SNS) use is common among medical students. A relationship between SNS use and depression still remains controversial. This study was conducted to evaluate the association between SNS dependence and depression among medical students.

**Summary of Work:** A cross-sectional study of medical students at the Faculty of Medicine, Chiang Mai University was conducted. Information of demographic status, SNS use and depression was gathered by a self-answered questionnaire. SNS dependence was defined by modified DSM-IV criteria. Depression was classified by the Patient Health Questionnaire (PHQ-9).

**Summary of Results:** From 1480 medical students, 1101 students (74%) were included in the analysis showing SNS-dependent users were common in female ( $P < 0.001$ ), during the pre-clinical years ( $P < 0.001$ ) and those who used SNS more than two hours/day ( $P < 0.001$ ). After adjustment for possible confounders (gender, college year, GPA and income), SNS dependence showed an association with depression (aOR 2.2, 95% CI: 1.5 - 3.4).

**Discussion:** A robust relationship between SNS dependence and depression was found among medical students. One possible explanation was that SNS dependence may lead to more time spent online and less time in face-to-face interactions; eventually, this might initiate depressive symptoms. On the other hand, people with depression might switch their interactions with other people and isolate themselves to online SNS, which lead to SNS dependence.

**Conclusion:** SNS dependence was associated with depression among medical student. The likelihood of SNS dependence increased with more time spent on SNS.

**Take Home Messages:** Medical students should be informed regarding how to use SNS properly. Self-monitoring for SNS dependence is encouraged.



#705 (134781)

**Quiz-App "WhitecoatClash" to engage students in self-testing and spaced learning**

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**Background:** Despite the robust evidence that 'practice testing' and 'distributed practice' are among the most effective learning techniques to acquire and retain factual knowledge (Dunlosky, 2013), these evidence-based educational methods are still sparsely used by students. The ubiquitous smartphone with a quiz-App might stimulate the engagement in self-testing and breach the often observed pattern of postponing study behavior.

**Summary of Work:** The popular App "QuizClash" was adapted for the educational setting of a first year undergraduate medical education course. This App "WhitecoatClash" provided in a game format multiple choice questions with direct corrective feedback and an algorithm to adapt the presented questions to the users' responses. The use was voluntary and in an out-of-class setting. Based on the log files of the use of these quizzes, we examined if the combination of mobile-learning (smartphones) and gaming (quiz) was able to increase the repetition and spacing of self-tests over the length of the course. With questions of already validated questionnaires (Tao Zhou, 2011) we evaluated students' perceptions for factors that affect 'continuance usage'.

**Summary of Results:** The already high use of similar web-based self-tests in former years didn't change with the introduction of the App, but the perseverance in using self-tests increased during the second half of the semester. This was in line with the high scores on factors that predict continuance in use of the App. There were also indications that earlier incorrect answered questions were repeated more often, although this didn't improve the scores of the end-of-course test.

**Discussion:** Quizzes and other course activities should be well tuned and the optimal ratio interstudy-interval: retention-interval should be considered to achieve better learning outcomes.

**Conclusion:** Quiz-Apps like "WhitecoatClash" have the potential to tempt students to engage in self-testing and spaced learning,

**Take Home Messages:** The combination of mobile-learning and games is an interesting way to implement test-enhanced and spaced learning in medical education.

#706 (133673)

**Mobile learning in medical education – it's about student learning, not about technology**

*Eeva Pyörälä\*, University of Helsinki, Faculty of Medicine, Helsinki, Finland*

*Kalle Romanov  
Taina Joutsenvirta  
Teemu Masalin  
Heikki Hervonen*

**Background:** Mobile technology is rapidly expanding in medical education. The Faculty of Medicine in Helsinki took a mobile turn in 2013 by providing the 1st year students with iPads. Simultaneously, a research project was started to examine how students integrated iPads in their studies and how they developed into mobile learners.

**Summary of Work:** The iPad project started as a collaborative project by teachers, students, experts in e-learning and medical education. Action research approach was chosen for examining the spiral development process of mobile learning in three student cohorts (540 students) along their study years. The research data consist of questionnaires, interviews and observations.

**Summary of Results:** Students need support in study use of iPads, in making notes and using relevant applications. They study collaboratively, both face-to-face and in social media. Teachers and students have developed together strategies for integrating iPads into PBL tutorials, and today students challenge clinical teachers to incorporate iPads in clinical learning environment.

**Discussion:** Action research has provided an excellent approach for studying the developmental cycles of the rapidly expanding phenomenon of mobile learning. The iPad project has together with students and teachers launched, evaluated and modified the study use of iPads, fit-for-purpose mobile learning strategies in various contexts in medical education.

**Conclusion:** Mobile learning is much more than a student with a mobile device. Students, teachers, experts in e-learning and medical education can collaboratively foster study use of mobile technology, applications, digital learning materials, and engage students in a

**Take Home Messages:** Mobile learning is dynamic and collaborative. It takes the whole medical learning community to make it flourish.

#707 (133545)

**Promoting Collaboration by Innovating Multimedia Access for Faculty**

**Adam Hain\***, *Western University of Health Sciences, Pomona, USA*

*Tim J. Wood, Western University of Health Sciences, USA*

**Background:** This short communication will discuss innovation in the way medical faculty access and incorporate multimedia into flipped and online courses. As a result of investments in staff creativity and active learning technologies, a multimedia repository was created that is open-source, customizable, and facilitates social collaboration. Learning objects in medical education have shown potential in aiding educators and lowering development costs. Open educational repositories, both in and outside of medical education, are similarly beneficial collective resources. Additionally, repositories can provide uses beyond storing varied learning objects; one of these is enabling social cooperation among course authors.

**Summary of Work:** To facilitate effective use of multimedia, a repository was initially created for learning objects within the participating institution. Next, guidance to outside repositories were provided along with usage considerations. In addition to media access, encouragement of cross-discipline collaboration was a goal. This included promoting innovation in shared course development by purchasing eLearning software and training faculty in its use. Faculty development resources and resulting faculty work were also hosted in the repository for collaboration and feedback.

**Summary of Results:** Results of qualitative faculty evaluation were positive, encouraging further development. Cross-profession collaboration was achieved through ongoing facilitated participation.

**Discussion:** Navigating the current multimedia landscape can prove overwhelming to the busy clinician and faculty member. When the complications of copyright are added, many inadvertently violate copyright or forgo using media altogether. This project intended to eliminate those barriers, enacting recommendations to support faculty development in multimedia, and provide a platform for collaborative interaction.

**Conclusion:** Similar projects need not be technically onerous and can be replicated at other medical universities.

**Take Home Messages:** Repositories for multimedia and collaboratively created faculty work are within reach and can increase the availability of open education resources in the community, while also cultivating the creativity of individual institutions.

## 7P Short Communication: Assessment: Written & Computer-Based

Location: MR 123 – P1

#7P1 (133845)

**Development of learning analytics based on computer-based assessments in basic medical education**

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*Na Jin Kim*

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*In Ae Park*

*Nani Kwon*

*Hye In Lee*

**Background:** The computer-based tests (CBTs) are main assessment tools for medical students in basic medical education program of the Catholic University of Korea, College of Medicine. Although we have cumulated tremendous amount of data on the server, we did not have a chance to use the data other than individual examination feedbacks. We designed this study to get useful teaching and learning information which is not feasible by individual test results.

**Summary of Work:** For 6 years, we collected 48927 test questions used in 395 examinations and the numbers are still increasing. We manually categorized the items into 3 groups (new item group, similar item group, and same item group) and compared their difficulty indices, discrimination indices, and reliabilities. We also made the relationships between the test questions and learning outcomes to re-organize the test results by learning outcomes. This facilitated quality control of each assessments and building assessment portfolios of individual students across 4 years of learning.

**Summary of Results:** Compared to the difficulty index (mean, 82.2) and the discrimination index (mean, 0.22) of the new item group, the difficulty index of the same item group was increased (mean, 97.3) and the discrimination index was decreased (mean, 0.16). However, the indices of the similar item group were not significantly affected. Building the relationships between the items, the test results and learning outcomes helped monitor and manage of each assessments. It also generated individual assessment portfolios showing trends in competency changes of each students across 4 years of basic medical education. It facilitated helping failing students in early phases.

**Discussion:** Because the assessment results keep being accumulated in the CBT servers, the data in the server may be a valuable source to build assessment portfolios of individual students. By analyzing assessment portfolios in terms of learning outcomes, it is possible to detect and help students who are failing.

**Conclusion:** Item re-use significantly compromises the indices of difficulty and discrimination. Re-using question items is highly discouraged and should be

monitored for proper student evaluation. Re-organizing test results by competencies facilitates producing learning outcomes.

**Take Home Messages:** The learning analytics of computer-based assessments are valuable tools for managing basic medical education.

#7P2 (133527)

**Test-enhanced learning with key features: video-versus text-based questions**

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*Nikolai Schuelper (Göttingen University Medical Centre, Göttingen, Germany)*

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*Tobias Raupach (Göttingen University Medical Centre, Göttingen, Germany)*

**Background:** According to the retrieval hypothesis, repeated testing is more effective than repeated study in terms of knowledge retention. This randomised cross-over trial investigated whether video-based key feature (KF) exams are associated with better learning outcome than text-based KF exams. In summer 2015, fourth-year undergraduate medical students attended 10 electronic seminars during which they completed KF exams in internal medicine.

**Summary of Work:** Presentation format alternated weekly between video- and text-based questions. Student performance was assessed in a 28-item KF exit exam at the end of term and a retention test 5 months later. In contrast to a previous study that solely used text-based items in the exit exam and the retention test, these exams contained text as well as video KF items (n = 14 each) in this study. The primary outcome was student performance taking into account presentation format during the training phase. In addition, students were asked to join focus group discussions aimed at eliciting self-perceived learning processes and outcomes.

**Summary of Results:** A total of 93 students participated. In the exit exam, there was a significant difference favouring items previously tested with video KF over items tested with text KF (76.2%±19.4% vs. 72.4%±19.1%; p=0.04). However, the effect was less pronounced in the retention test (69.2%±20.2% vs. 66.4%±20.3%; p=0.13). Students preferred video-based over text-based items.

**Discussion:** Further research is needed to assess how the technical implementation and quality of the video material influences these effects.

**Conclusion:** Video KF only have a short-term advantage on student learning compared to text KF.

**Take Home Messages:** Given the small differences observed in this study, a critical appraisal of using video-based exams (also considering economic aspects) is warranted.

#7P3 (134018)

**Are written end of system formative assessments predictive of performance in summative assessment?**

*Ray Fewtrell\*, University of Liverpool, Liverpool, UK  
John Jenkins (University of Liverpool, Liverpool, UK)*

**Background:** The aim of this study was to assess the ability and value of the written end of system tests to predict students' performance in end of year summative assessment. In 2014 a new undergraduate curriculum introduced at Liverpool University. Eight systems were introduced in years one and two, consisting of two to three weeks of learning followed by an end of system online multiple choice question test. Instant written feedback was provided on completion of the test with an expert lead feedback sessions based on cohort performance on the test.

**Summary of Work:** Data for individual students was collected for: end of system tests (n=8), midpoint formative written paper (n=1) and summative written papers (n=2). Linear regression was used to assess the accuracy of the end of system and formative midpoint assessment in predicting the student performance on summative assessments. Individual student data were used to compare performance on: end of system versus summative, end of system versus midpoint formative and midpoint formative versus summative. The student performance on the individual end of system tests was compared to the system question performance within summative assessments.

**Summary of Results:** The combined end of system tests provided a more accurate predictor of student pass/fail performance in the summative assessment than the midpoint formative assessment. There were significant correlations between individual end of system performance and system questions within the summative assessment.

**Discussion:** This study aligns with the findings of Taras (Taras, 2009) that formative assessment provides a feedback loop for students to gauge their areas of learning for summative assessment. This study reinforces the literature regarding small multiple points testing be an accurate test of student knowledge (Wilkison, 2007) allowing assessors to make a more accurate judgement on student performance than with a single large assessment.

**Conclusion:** The findings of this study demonstrate that end of system tests are more predictive of overall performance in summative assessments than a single midpoint formative assessment. End of system tests provided a good indication of students learning within each

**Take Home Messages:** end of system formative written assessment are more predictive on summative performance than a large scale formative written assessment.

#7P4 (133947)

**Reasons for High Dropout Rate of Medical Thesis Projects: A Questionnaire Survey among Supervisors at a Large German University Hospital**

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*Felicitas Richter (Department of Radiology at Charité – Universitätsmedizin Berlin, Germany)*

*Ralitsa Valchanova (Department of Radiology at Charité – Universitätsmedizin Berlin, Germany)*

*Marc Dewey (Department of Radiology at Charité – Universitätsmedizin Berlin, Germany)*

**Background:** A large proportion of medical students do not complete their doctoral dissertations. In an earlier survey, we elucidated the student perspective to find out how the situation can be improved. To complement these data, it is of interest to also know the supervisors' perspective.

**Summary of Work:** From January to March 2014, we conducted an online survey among the staff qualified for supervising medical theses at Charité – Universitätsmedizin Berlin, Germany. A total of 3653 potential medical thesis supervisors were identified and invited to participate in the online survey, 29% completed the questionnaire. The results are presented using descriptive statistics. The reasons for termination of medical dissertations projects given by supervisors are compared with the results of the earlier survey among medical students using the chi-square test.

**Summary of Results:** The majority of supervisors considered themselves to be highly motivated and to offer adequate supervision. On the other hand 87% of supervisors stated that the faculty did not prepare them well for supervisory role. Lack of timeliness of doctoral students and personal differences ( $p=0.024$  and  $p=0.001$ ) were given as the main reasons for terminating thesis projects. Students mentioned methodological problems and difficult subjects as critical issues ( $p=0.001$  and  $p<0.001$ ). Students felt ill prepared for the statistical part of their research; 49.5% stated that they never received statistical assistance, whereas 97% of supervisors claimed to help their students with statistical analysis.

**Discussion:** The results of our two surveys indicate that both medical students and supervisors feel ill prepared for what is expected of them in the process of a medical dissertation. The discrepancies in the reasons given for the termination of thesis projects by supervisors and students appear to point to a lack of communication and different expectations regarding student involvement in scientific research.

**Conclusion:** Our complementary surveys provide a good basis for measures that might be taken to lower dropout from medical thesis projects: one the one hand, formal courses are required to prepare medical students for doing research and to prepare supervisors for their

**Take Home Messages:** Structured preparation of both supervisors and medical students appears to be the



foremost promising measure to ensure that more medical students complete their dissertation projects.

**#7P5 (134268)**

**Validity and Feasibility Evidence for Use of Multimedia Vignettes in a Neuroscience Examination**

**Jerry Swanson\***, Mayo Medical School, Rochester, MN, USA

Ilene Harris (University of Illinois at Chicago, Chicago, IL, USA)

Dorthea Juul (American Board of Psychiatry and Neurology, Buffalo Grove, IL, USA)

Rachel Yudkowsky (University of Illinois at Chicago, Chicago, IL, USA)

**Background:** Multimedia (MM) recordings of patients are used widely in medical schools to provide authentic representations of clinical phenomena. Multiple-choice questions (MCQ) using MM clips can provide reliable assessments in medical school clerkships and licensing examinations. The purpose of this study was to develop a test using MM to enhance clinical correlations in a pre-clerkship course.

**Summary of Work:** A 50-question computer-based exam with 25 MM vignettes (2 questions/vignette) was developed and administered to 50 medical students at the conclusion of a Year One neuroscience block (course). Each vignette portrayed a patient's findings or history; questions were blueprinted to course content including neuroanatomy/localization, diagnosis, neurophysiology, neurochemistry, neuropharmacology or neuropathology.

**Summary of Results:** Seven poorly performing items were deleted in the final scoring. The mean raw score on the remaining 43 items was 37.92 (88%) with a standard deviation of 3.34 (7.7%). Cronbach's alpha was 0.66. There was moderate correlation between this test and the standard 100-item MCQ final test.

Forty-seven of fifty (94%) students completed a survey regarding the test and responses were analyzed using qualitative methods. Students overwhelmingly indicated that the MM questions realistically reflected the clinical context in which they will function as physicians and were appropriate for assessment.

**Discussion:** A MCQ test utilizing MM was developed for pre-clinical medical school courses. A MM test provides an authentic, clinical context for basic science questions and provides students with experience with these types of questions before they take high-stakes licensing tests.

**Conclusion:** Validity evidence supports using MM items as an assessment component in a neuroscience course. The results support the development of multimedia vignettes tests for assessments in preclinical courses.

**Take Home Messages:** MM vignette tests can be effectively developed for assessment in pre-clerkship courses with high acceptance among students and faculty members. Medical teachers should consider the use of such tests in pre-clerkship courses.

**#7P6 (132895)**

**Setting Local Standards on the International Foundations of Medicine® (IFOM®) Clinical Science Examination Based on Purpose and Context**

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Raja Subhiyah

Beth Gallagher

Brownie Anderson

Enrique Medoza

**Background:** The NBME® International Foundations of Medicine® (IFOM®) program provides medical schools internationally with tools for measuring examinees' understanding of the medical sciences. The IFOM Clinical Science Examination (CSE) assesses the medical knowledge and understanding of clinical science considered essential for the provision of safe and effective patient care. IFOM CSE is administered in multiple languages under standardized conditions.

**Summary of Work:** IFOM CSE is used for a variety of purposes by various types of institutions. Medical schools use IFOM for formative and summative assessment, curriculum evaluation and international benchmarking. Post-graduate programs use IFOM for selection of graduates for training. Ministries of health/education use IFOM as part of assessment for regional certification.

**Summary of Results:** The standard setting studies produced local standards that were appropriate for the particular use of IFOM CSE in each location. The standard setting process and resulting standards are discussed.

**Discussion:** Given the different uses of IFOM, it was not surprising that different standards were set by the three IFOM users.

**Conclusion:** Facilitating the selection of appropriate local standards using content-based procedures has enabled IFOM users to experience the benefits of a high quality, internationally focused exam with a performance standard that is appropriate for their purpose and

**Take Home Messages:** Standards for performance need to reflect the purpose and context of the exam.

#7P7 (135894)

## Implementing Online Marking Software

*Lydia Crow\*, University of Edinburgh, Edinburgh, UK*

**Background:** Following a pilot in 2014/2015, the University of Edinburgh MBChB programme rolled out online marking throughout all five years of the programme in 2015/2016. The online marking software chosen was PebblePad.

**Summary of Work:** So far, in the region of 8,000 assignments have been submitted to PebblePad by over 1,000 students. There are currently over 600 members of staff marking online.

**Summary of Results:** The priority for 2015/2016 was to engage staff and students with the process of a new online submission tool (for students) and online marking (for markers). This was a significant departure from previous practices for the majority of courses, and the move to online marking received a mixed response from staff, the majority of whom were clinicians rather than University staff.

**Discussion:** There were a variety of difficulties to be overcome. All requirements were reviewed by the Project Team to establish how best to handle the assessment within the PebblePad software. The methods of assessment used throughout the year included: submission and marking of case reports, monitoring of professional skills online forms, compilation of clinical skills workbooks, compilation of a final portfolio for consideration by viva examiners.

**Conclusion:** The project as a whole was successful, though the support offered to both staff and students to support the roll-out of online submissions and marking has not been insubstantial. The MBChB programme is in the process of reviewing, improving and expanding

**Take Home Messages:** The wholesale move to online marking has been a significant undertaking, but there are many benefits of students receiving their feedback online.

## 7Q Short Communication: Continuing Professional Development 2

Location: MR 124 – P1

#7Q1 (136033)

CME development project in Russia

**Zalim Balkizov\***, *Association of Russian Medical Societies for Quality, Moscow, Russia*

Guzel Ulumbekova

Tatiana Semenova

Victor Stupin

**Background:** Additional professional education is a very important issue in the Russian Federation. On a 5 years time, all physicians have to perform 144 hours (or 1 month) rotation on physicians improvement medical institution. However current system is outdated and doesn't bring to participants new skills and knowledge, quality of educational programs is questionable, many issues with industry influence

**Summary of Work:** Pilot project on CME implementation was conducted in 12 regions of Russia. In the scope of the project participants who are primary care physicians should collect 144 hours of educational activity of which 108 are provided by educational institutions and 36 by professional societies. Educational activities in the project are presented by Live educational events and e-Learning activities.

**Summary of Results:** 496 participants who are primary care physicians took part in the project. All participants successfully completed formal part of the curriculum (108 hours in educational institutions) 244 have collected more than 36 credits for activities provided by professional societies with average sum of 47 credits, 130 participants collected less than 36 credits with average sum of 17 credits, 122 participants didn't collect any CME credits from professional societies.

**Discussion:** CME activities for physicians should contain vary of delivery methods. Among participant 1/3 reported low skills of using computers and lack of internet access. More live educational events are needed to cover all educational needs. At the same time computer literacy courses should be included in the curriculum as optional part.

**Conclusion:** Overall pilot study was successful. The opportunity to include educational activities provided by societies in CME and ability of physicians to plan individual educational pathways has been demonstrated

#7Q2 (133510)

Classifying eConsultations to Inform Continuing Professional Development (CPD) Planning

**Douglas Archibald\***, *University of Ottawa, Ottawa, Canada*

Erin Keely (*University of Ottawa, Ottawa, Canada*)

Clare Liddy (*University of Ottawa, Ottawa, Canada*)

**Background:** The Champlain BASE system (eConsult) is a web-based service that allows a primary care provider (PCP) to submit a patient-specific clinical question to a specialist. As of December 31st 2015, over 11400 eConsultations have been processed. 937 primary care providers (PCPs) are registered and 84 specialty services are available.

**Summary of Work:** 2478 questions in the eConsult service database (from April 15, 2011 to January 31st, 2015) of the seven most consulted specialty services were deductively analyzed by clinical champions using a modified version of the Taxonomy of Generic Clinical Questions.

**Summary of Results:** Overall our classification allowed us to show that 867 (35%) questions focused on diagnosis; 617 (24.9%) management; 600 (24.2%) treatment, and about 250 (10.1%) questions were not classifiable. There was also variability by specialty. 152 (38.6%) of questions to Obstetrics/Gynecology were about management compared only 23 (13.6%) to Psychiatry. In 867 diagnosis questions 374 (43.1%) a referral was originally contemplated by the PCP but avoided compared to only 12 (1.4%) questions in which there no particular benefit to using eConsult. Of the 867 diagnosis questions 395 (45.6%) PCPs were able to confirm a pre-planned course of action; and 448 (51.7%) diagnosis questions led to an additional course of action by the PCP.

**Discussion:** The great variety of clinical questions illustrates the diverse conditions encountered in primary care. Questions collected through an eConsultation can provide a valuable and unique source of information on the true learning needs of practicing clinicians and responses received have demonstrated a change in behavior which is a key attribute of CPD.

**Conclusion:** It is feasible to use eConsultation questions to categorize self-identified knowledge and practice needs.

**Take Home Messages:** Leveraging behavior changing clinical questions may facilitate planning CPD events and inform the development of future learning.

#7Q3 (134892)

**Continuing Education / Professional Development in Challenging Circumstances: Low-Resource Settings**

**Helena Filipe\***, *International Council of Ophthalmology, Department of Ophthalmology of Hospital of the Armed Forces, Lisbon, Lisbon, Portugal*

**Heather G Mack** (*International Council of Ophthalmology, University of Melbourne, Melbourne, Australia*)

**Karl C Golnik** (*International Council of Ophthalmology, University of Cincinnati, Cincinnati Eye Institute, Cincinnati, USA*)

**Background:** Physicians undertaking Continuing Medical Education / Continuing Professional Development (CME/CPD) in low-resource settings face multiple challenges accessing CPD materials.

**Summary of Work:** Ophthalmology has a proud history of promoting high standards of patient care through education. The International Council of Ophthalmology (ICO) dates back to 1857 when 150 ophthalmologists from 24 countries convened in Brussels for the first World Ophthalmology Congress. Participants in the Congress founded the ICO in 1927 in Scheveningen, Holland. The ICO represents 141 national ophthalmic societies and subspecialty groups, many of which are in low-resource countries.

**Summary of Results:** ICO educational materials are examples of online, free, multilingual and multimodal CPD activities considering low-resource settings. Among the many resources relevant to CPD are: • Curriculum for CPD • Conferences for Ophthalmic Educators • On-line Centre for Ophthalmic Educators • Regional training centres (Cameroon, Beijing China, Ibadan Nigeria and Ljubljana Slovenia) • Online clinical teaching material • Rubrics for surgical skills' assessment • The ICO Guide to Effective CPD/CME • ICO examinations • Position paper on CPD

**Discussion:** The Internet can be used to disseminate regionally suited educational material including databases of CPD presentations, clinical interactive modules and tutor led online courses. Besides live educational experiences, the ICO provides a wide range of free online resources for CPD to low-resource Ophthalmological Societies and their members.

**Conclusion:** ICO offers free multimodal CPD educational resources for ophthalmologists performing CPD in low-resource settings. ICO can also provide customised assistance for societies aiming to develop their own structured CPD plan.

**Take Home Messages:** -Low-resource settings present additional challenges for clinicians to develop an effective CPD program. -Free access to comprehensive CPD educational resources is fundamental. - The ICO aims to meet these needs.

#7Q4 (135911)

**In-service training for family doctors: Croatian experience**

**Mladenka Vrcic Kegljevic\***, *Department of Family Medicine, Medical School, Zagreb University, Croatia, Zagreb, Croatia*

**Hrvoje Tiljak**

**Background:** Vocational, speciality training (ST) for family doctors (FD) in Croatia started in 1960. But, it has always been possible to work as a FD without ST. Facing the process of joining the EU, ST was intensified by the Project: "Harmonisation of Croatian Family Medicine with European standards introducing speciality training". The Project started in school year 2003/04 and the main aim was that all working family doctors (FD), younger than 50-years, should finish ST until 2015. Because that more than 1.500 FD are waiting for ST and many of them are experienced, the three ST schemes were introduced: Program A, full program for young doctors, Program B, partly in-service and Program C, almost completely in-service ST. All of them should pass the same type of final exam. The aims of this study were to evaluate the programmes in terms of the number of the trainees and assessment outcomes.

**Summary of Work:** The data on the number of trainees due to the ST programmes were obtained from the archive of Department of Family Medicine, Zagreb Medical School, and the organiser. The number of specialists in FM was obtained from the Croatian health statistic yearbook.

**Summary of Results:** During the nine-year period, 751 trainees finished ST, while it was planned to involve 1350 of them, 55.6% of achievement. The best results were achieved in the in-service Program C, 83.3% of planned number, than in Program B, (52.2%), and the less in Program A, only 50.0% of planned number. The percentage of specialty trained FD in Croatia increase in almost 20%; in some Counties more and in others less.

**Discussion:** During the presentation we will discuss the obstacles of in-service ST program.

**Conclusion:** The results clearly indicated that the best results are achieved at in-service Program C.

**Take Home Messages:** Our experience at in-service ST could help those countries with a large numbers of FD not having ST.



#7Q5 (135821)

**Use of technology in educating frontline healthcare professionals in remote locations in India**

*Shrutika Girdhar\*, Bodhi Health Education, Gurgaon, India*

*Deachen Spalzes (Bodhi Health Edu, Leh, India)  
Abhinav Girdhar (Bodhi Health Edu, Gurgaon, India)*

**Background:** Ladakh is the northern most part of India subject to harsh geographic and climatic conditions. To put in perspective it is an area measuring 86,000 square kilometres at an altitude of over 5,000 meters. The frontline health care professionals are the only healthcare providers to the people of this region.

**Summary of Work:** Bodhi Health Education worked with the Health Department Leh to provide technology based refresher training to frontline healthcare professionals (HCPs) in maternal & child health. The training is provided in 2 out of 6 blocks in Ladakh. The choice of blocks was based on the remoteness from Leh which is the main city of region. Modules in maternal and child health were provided to the learners on a smart phone/tablet application. The key feature of the content was that it was in local language with local illustrations. The application was so designed to enable non tech savvy users to become familiar in short time.

**Summary of Results:** A methodology of pre training assessment and post training assessment was deployed. The sample size consisted of 50 HCPs. A minimum of 23 percent increase in scores was observed with the maximum going to 49%.

**Discussion:** The key criteria for such interventions is scalability. Upon scalability is when the benefits of such interventions would be seen. The success of public health programs lies with the will trained frontline healthcare professionals.

**Conclusion:** Mobile based training offers a valuable alternative for continuous skill and knowledge improvements for HCPs providing care in difficult areas. These offer the following a) Anytime, anywhere training b) Decreases dependence on physical training sessions c

**Take Home Messages:** Customized eLearning solutions are needed for deeper penetration, making learning engaging and useful. These are further important where population largely depends on the frontline health staff and there is a scarcity of doctors.

#7Q6 (132573)

**The Impact of inPractice Africa, a reference and learning resource for African clinicians**

*Anton La Grange\*, Foundation for Professional Development, Pretoria, South Africa*

*Veena Pillay*

**Background:** The program provides continuing professional development certificate programs, practice guidelines, and drug reference information, as well as referral clinical support. inPractice Africa is also available as downloadable apps for tablets, Smartphones, and Windows PCs. Accredited curricula offered through inPractice Africa consist of learning modules to complete in any order, and when all are successfully completed you receive your program certificate. CPD credit is also offered for each learning module.

**Summary of Work:** In contrast to traditional e-learning that relies heavily on the internet, inPractice Africa is a unique resource that is flexible and adaptable to a variety of settings and is not contingent on internet connectivity. This allows the resource to be used in the most rural settings and brings the same learning to all practitioners regardless of setting. The inPractice Africa platform combines point-of-care resource technology together with continuing medical education features to deliver tools and resources for clinicians in limited-resource settings.

**Summary of Results:** Having trained primary care medical professionals in Africa is a critical priority for the care and treatment of its people; from lifetime care and treatment of HIV/AIDS to the emerging crisis of non-communicable diseases, more trained practitioners are needed. Since roll out in July 2013, participating clinicians have positive changes in their practice and impact on over 500,000 patients. With continued growth and expansion of the platform, this impact will continue to multiply.

**Discussion:** A robust tracking and reporting mechanism was installed into the platform. It tracks the progress of all participants and allows us to run complex reports on how participants are using the resources available. inPractice integrated electronic evaluations into each module of the program. Here are a few key learnings from the evaluation report:

551,959 - Number of patients that clinicians claiming credit reported will benefit from their participation;

**Conclusion:** The inPractice Africa model puts traditional e-learning on its head. It turns the equation around and asked how does a busy clinician want and need to access information easily and quickly. How do they want to learn? The answers were clear; quick reference

**Take Home Messages:** The platform provides resources and training to African clinicians. As the platform grows and expands, it will have an exponential effect on building the skills of clinicians and patient outcomes. It will reach farther and faster which ultimately will have a great impact on the patients that our clinicians are serving.

**#7S Conference Workshop: Didactic Dilemmas: How to handle differences in competence level in classroom education (135878)**

Location: MR 127 – P1

**Nynke van Dijk\***, Academic Medical Center - University of Amsterdam, Amsterdam, Netherlands

**Bernadette Snijders Blok\***, Academic Medical Center - University of Amsterdam, Amsterdam, Netherlands

**Background:** When teaching students and residents, teachers are frequently confronted with didactical dilemmas. Examples of these dilemmas are: - You observe that some of your students seem to have forgotten about information that they recently studied. What should you do? Repeat parts of earlier classes, or continue? - Within your class you observe there are large differences in the competency levels of students? Would you stimulate the best students to work together, or would you mix students with different levels? How can you make sure that both the weaker and the best students profit from your classes optimally? And where do you put the bar? During these kinds of dilemmas teachers often choose their actions intuitively. In this workshop we approach these and other didactic dilemmas from a scientific perspective. What did studies show about the effects of various approaches and what does this mean for the activities of a teacher in these kinds of situations? Per dilemma we discuss the evidence and practical approaches.

**Structure of Workshop:** During this workshop you will participate actively and experience the consequences of classroom interventions for students. Short presentations of studies on the subject will be alternated with practical assignments and information regarding classroom activities.

**Intended Outcome:** After this workshop you will be able to handle didactic dilemmas regarding differences in levels of competence in your classroom in an evidence-based manner.

**Who Should Attend:** Teachers, students and educationalists with an interest in both evidence based education to guide their practical approach towards classroom education.

**Workshop Level:** All levels

**#7T Conference Workshop: Competency-based Clinical Supervision: Now or Never (135400)**

Location: MR 128 – P1

**Tabassum Zehra\***, Aga Khan University, Karachi, Pakistan

**Rukhsana Zuberi\***, Aga Khan University, Karachi, Pakistan

**Background:** Clinical Supervision has a vital role in postgraduate training programmes and is considered a fundamental part of clinical professional training. There is a need for defining 'effective' or 'good' supervision highlighted in the literature. The term originated in allied health with conflicting definitions. Similarly, the implementation of clinical supervision across specialties remains patchy. Clinical supervision is now moving towards competency-based supervision. The workshop will focus on the development of a working defining clinical supervision and identifying a framework of clinical supervision using the outcomes of ACGME, CanMEDS, and College of Physicians Surgeons Pakistan. The workshop will provide an opportunity to revisit the roles of a clinical supervisor for the novice supervisors providing the experience supervisors with an additional knowledge and skills related to clinical supervision in practice.

**Structure of Workshop:** 1. Participant Introduction: 5 mins; 2. Introduction to supervision skills: benefits and expectations 20 mins; 3. Clinical Supervision- Issues 20 mins (interactive); 4. Defining Clinical supervision- 15 mins Group work; 5. Discussion 10-15mins; 6. Competencies and outcomes in clinical supervision 30mins Group work; 7. Discussion 10-15mins; 8. Conclusion 10 mins.

**Intended Outcome:** 1. Brainstorm benefits and expectations about supervision; 2. Brainstorm the issues and their solutions in clinical supervision; 3. Develop a framework of supervision competencies/outcomes; 4. Develop a framework of effective clinical supervision.

**Who Should Attend:** 1. Clinician Educators; 2. Faculty in Health Professions Education; 3. Residency Directors; 4. Residency Coordinators; 5. Nursing faculty; 6. Psychologists; 7. Residents.

**Workshop Level:** All levels

## #7U Conference Workshop: Students as educators: preparation, use and outcomes (135202)

Location: MR 129 – P1

*Richard Hays\**, University of Tasmania, Hobart, Australia

**Background:** Health professional students are increasingly recognised as a source of valuable contribution to education roles. This can be informal, involving student societies preparing parallel curriculum sessions for examination revision, or formal, where the institution provides guidance and appoints students as tutors in some capacity within the mainstream program. With appropriate training, students can provide near-peer supervision, mentoring and facilitation of learning in a range of small group learning situations, including PBL, CBL and skills training. In some cases, students are used in admissions interviews and in formal assessment of other students. Many institutions also include students on management committees as a form of leadership development. The latter is usually either shared peer-assessment or assessment of more junior students as simulated patients in OSCEs or, occasionally, as junior OSCE examiners. This workshop aims to facilitate sharing of experiences from programs that have developed specific preparation for students as educators

**Structure of Workshop:** A 10 minute presentation summarising potential roles and model of engagement of students as educators; 45 minute small group session exploring key issues; and a plenary large group debriefing session to share experiences and key discussion points.

**Intended Outcome:** Shared experience from a variety of models and some consensus on how best to prepare and deploy student educators.

**Who Should Attend:** Educators and students from institutions where students are engaged as educators, or where this initiative is under consideration.

**Workshop Level:** Intermediate

## #7V Conference Workshop: P-values, Perils, and Pitfalls: A Quick and Handy Introduction to Resolving Common Statistical Analysis Dilemmas (133259)

Location: Mr 130 – P1

*Jimmie Leppink\**, Maastricht University, Maastricht, Netherlands

*Kulamakan Kulasegaram\**, University of Toronto, Toronto, Canada

**Background:** Statistical analysis is a widely used research tool with a long history in health professions education (HPE) scholarship. However, misconceptions and myths (as well as general distaste in discussing statistics) abound. This workshop introduces a new way to think about statistics based on how the research question and design can serve to identify appropriate statistical approaches and resources. In short, our goal is to make thinking about statistics accessible.

**Structure of Workshop:** The presenters will frame possible questions (including questions brought by attendees) and common designs followed by identifying frequent but ignored statistical dilemmas in HPE (e.g. repeated testing). Attendees will then be guided in recognizing common statistical errors in selecting or applying tests that can lead to misleading conclusions. The presenters will present a series of decision trees and rules that can help participants apply statistical tests properly. The workshop will conclude with shortcuts for everyday statistical problems such as calculating effect size estimates required sample size, and multiple comparisons.

**Intended Outcome:** Participants will be able to identify how questions, designs, and outcomes dictate statistical analysis. Participants will also be able to recognize common statistical mistakes as well as the effective shortcuts and tools to address them.

**Who Should Attend:** Educators, researchers, students, and general AMEE members looking to demystify statistical analysis and acquire an applied, contextualized understanding are welcome. Prior experience in statistics is helpful but not necessary. Attendees are encouraged to bring their own questions for discussion.

**Workshop Level:** Introductory

## #7W Conference Workshop: Showing excellence in student engagement in your medical school (132623)

Location: MR 131 – P1

*Lisa Adriaansen\**, University Medical Center Utrecht, Utrecht, Netherlands

*Margot Weggemans\**, University Medical Center Utrecht, Utrecht, Netherlands

*Marijke van Dijk\**, University Medical Center Utrecht, Utrecht, Netherlands

**Background:** In 2015 University Medical Center Utrecht in the Netherlands won the AMEE ASPIRE-to-Excellence Award for student engagement. The school is happy and proud, and is eager to share what student engagement means in Utrecht and how we prepared for the award.

**Structure of Workshop:** 1. With the audience we will explore what student engagement means and what forms and shapes it can take. 2. Next, we will explain the various ways students are engaged with education at UMC Utrecht 3. in small groups, current student engagement experiences and opportunities in the participants' own schools will be explored, how to expand it, and what to achieve with student engagement following up on the features discussed in the introduction. 4. in a plenary round-up we will collect and share ideas and will wish each other good luck in a future application.

**Intended Outcome:** Participants will gain inspiration about how students can engage with the educational program and can play important roles in development and delivery of education. They will learn what it takes to prepare for the award.

**Who Should Attend:** Ambitious students and teachers who feel engaged and would like to explore their chances to obtain the AMEE Aspire to Excellence Award for student engagement.

**Workshop Level:** Introductory

## #7X Conference Workshop: Demystifying scoping reviews: Best practices and applications in health professions education (132470)

Location: MR 132 – P1

*Aliki Thomas\**, McGill University, Montreal, Canada

*Meredith Young\**, McGill University, Montreal, Canada

*Steve Durning\**, Uniformed Services University of the Health Sciences, Bethesda, USA

*Stuart Lubarsky\**, McGill, Montreal, Canada

**Background:** Consider the following research questions in health professions education (HPE): How is professional identity formation conceptualized in the HPE literature? What is known regarding educators' use of research findings in HPE? We argue that scoping reviews may be best suited to answer questions such as these, and should be considered an important methodological tool in an HPE scholar's research armamentarium. Unfortunately, scoping reviews are perhaps mistakenly viewed as less "scientific" than other types of methods commonly used to synthesize large bodies of literature (e.g. systematic reviews). Workshop objectives include: 1) Describe scoping reviews, 2) Present the advantages and disadvantages of scoping reviews in the context of HPE; 3) Illustrate the steps involved in scoping methodology; and 4) Share lessons learned and practical suggestions for those considering conducting scoping reviews.

**Structure of Workshop:** 1) Plenary presentation (20 minutes) a) Description of scoping reviews; b) Review of advantages and disadvantages of scoping methodology; c) Illustration of methodological steps using examples from a published scoping review in HPE; d) Lessons learned and practical suggestions. 2) Large group discussion period (15 minutes). 3) Small group facilitated discussions (60 minutes): Participants will discuss research questions that may be appropriate for scoping methodology. They will be encouraged to bring questions from their own work, or identify new questions building on what had been presented so far in the workshop. 4) Wrap-up from small group discussions and concluding remarks on the applications of scoping reviews in HPE (25 minutes).

**Intended Outcome:** Upon completion of the workshop participants will be able to: 1) Define scoping reviews; 2) Generate a question that can be answered using scoping methodology; and 3) Outline a preliminary plan for conducting a scoping review for a question of interest.

**Who Should Attend:** Level of audience: beginner to intermediate. HPE researchers, graduate students and anyone considering scoping review as a synthesis methodology.

**Workshop Level:** Intermediate



**#7Y Conference Workshop: From Course Objectives to Entrustable Professional Activities: Developing Test Blueprints for Assessments that Matter (130682)**

Location: MR 133 – P1

**Mark Raymond\***, National Board of Medical Examiners, Philadelphia, USA

**Claire Touchie\***, Medical Council of Canada, Ottawa, Canada

**John (Jack) Boulet\***, Foundation for Advancement of International Medical Education and Research, Philadelphia, USA

**Background:** Entrustable professional activities (EPAs) require critical competencies that span the cognitive, affective, and psychomotor domains. This workshop addresses the design of test blueprints that provide a scaffold between course objectives (e.g., milestones, EPAs) and the assessment tools that can provide evidence of a learner's mastery of those objectives.

**Structure of Workshop:** A combination of lecture, discussion, and small group activity: • Lecture and discussion topics include: the role of learning objectives in deciding what to assess; samples of test blueprints and their key characteristics; a toolbox of assessment methods and a framework for determining an optimal method for different assessment purposes. • Small group activities allow participants to create sample blueprints for (start-up materials provided) and then develop rationale for their choice of assessment methods.

**Intended Outcome:** Participants will: (a) recognize the role of learning objectives, milestones and EPAs in deciding what to assess; translate expected learning outcomes into a useful test blueprint; (b) evaluate the suitability of various assessment methods for evaluating different learner outcomes (EPAs; milestones); (c) create an assessment toolbox by matching assessment method (e.g., MCQ; essay; OSCE) to intended outcome (breadth of knowledge; critical thinking; procedural skills).

**Who Should Attend:** • Basic science and clinical faculty who develop classroom or clinical assessments. • Academic administrators who oversee curriculum design or faculty development. • Medical educators and educational support staff who wish to learn more about assessment design.

**Workshop Level:** Intermediate

**#7AA Conference Workshop: Demystifying professional support: a practical four box approach to students/doctors in difficulty (133299)**

Location: M 215 + 216 - M2

**Helen Goodyear\***, Health Education England in the West Midlands, Birmingham, UK

**Taruna Bindal\***, Alexandra Hospital, Redditch, UK

**Background:** Professional support is an important part of any training programme. It begins with the educational supervisor and local educational provider with referral more centrally to professional support units if there are issues despite these interactions. Medical students and doctors of all grades experience the same life events as patients and need help and support during difficult times to prevent them being unsuccessful in their career.

**Structure of Workshop:** A highly interactive workshop which will consist of an introductory presentation outlining a four box model of issues faced and types of support available. The importance of adverse life events and how these may affect people will be categorised and explained. Early symptoms which may indicate getting into difficulty will be illustrated. This will be followed by working in small groups looking at anonymised case scenarios. Workshop attendees will also have the opportunity to share cases with the group that they have dealt with as part of their practice.

**Intended Outcome:** By the end of this workshop participants will 1) be able to recognise patterns of behaviour which may indicate a student/doctor is experiencing difficulties 2) understand a four box model to classify issues requiring professional support and appreciate the impact of adverse life events and 3) have a deeper understanding of types of support that can be given.

**Who Should Attend:** Healthcare professionals who would like to look in more depth and gain insight into student and trainee support and how to help get people back on track.

**Workshop Level:** Intermediate

**#7BB Conference Workshop: Five Techniques to Develop Safer Healthcare Professionals, Safer Practices and Safer Hospitals (132819)**

**Location:** M 211 + 212 – M2

**Sophie Vaughan\***, St George's University of London, London, UK

**Jonathan Round\***, St George's University of London, London, UK

**Background:** Medical error is a leading cause of mortality and morbidity. Causes are individual and systemic. Individual causes are primarily cognitive and error prevention strategies must address cognitive processes. Systemic causes make errors easier and safe decision harder. Both are amenable to analysis, understanding and intervention. This workshop demonstrates and allows participants practice in educational techniques designed to make individuals and departments safer.

**Structure of Workshop:** Introductions and purpose of session 5 mins; Technique 1 - Understanding Error 15 mins (interactive game with video); Technique 2 - Anatomy of Error – learning when error occurs 15 mins (small group task); Technique 3 - Predicting individual error with a dashboard 15 mins (individual task with discussion); Technique 4 - Mapping safety; 15 mins (small groups with interactive demonstration); Technique 5 - Developing a learning culture 10 mins (seminar based demonstration); Discussion 10 mins; Feedback 5 mins.

**Intended Outcome:** At the end of the workshop, participants will have a clear and practical understanding of the roots and types of medical error, and also be able to apply these practically to clinical scenarios. Those present also have acquired several transferable skills that can be used in their own teaching, and an awareness of how they can develop safer departments.

**Who Should Attend:** No prior knowledge of patient safety or medical error is needed, just a desire to avoid unnecessary adverse outcomes for patients.

Participants should be teachers familiar with running tutorials and seminars

**Workshop Level:** Intermediate

## 7CC Posters: Interprofessional Education 2/Cultural competence

Location:

#7CC01 (134148)

**The Initial Clinical Experience (ICE): A Novel Approach to Interprofessional Education through Early Immersion in Healthcare Teams**

**Joseph House\*, University of Michigan School of Medicine, Ann Arbor, USA**

Jacob Cedarbaum (University of Michigan Medical School, Ann Arbor, USA)

Fatema Haque (University of Michigan Medical School, Ann Arbor, USA)

Angela Sullivan (University of Michigan Medical School, Ann Arbor, USA)

Michelle Daniel (University of Michigan Medical School, Ann Arbor, USA)

**Background:** Although the practice of medicine is increasingly team-based, few curricula deliberately expose learners to longitudinal interprofessional education (IPE) in clinical environments early in their medical school careers. The goal of this course was to expose students to patients, healthcare professionals, and healthcare teams during the first year of medical school.

**Summary of Work:** In 2015-16, the Initial Clinical Experience (ICE) was launched to provide learners with an immersive, longitudinal exposure to health professionals in clinical practice. Students are assigned to a clinical setting and work with one of the multiple health professionals at that site going every other week for their first year.

**Summary of Results:** 168 first-year students were placed at one of 18 sites where they “actively observed” members of healthcare teams including nurses, physical and occupational therapists, social workers and pharmacists. Following each session, students engaged in reflective exercises and received feedback. The course included a classroom-based session to introduce different healthcare professional roles.

**Discussion:** Identifying participating clinical sites for student placements presented an initial logistical challenge. Scheduling of the multiple learners, sites, and health professionals required assistance from outside the medical school. Other obstacles came up regarding transportation and time to get to sites. Early feedback has been largely positive.

**Conclusion:** Students may not fully realize the value of ICE until their clinical years. One student noted, “I found myself paying a lot of attention to the roles of the physician assistants, pharmacists, paramedics, nurses, and social workers. I am 100% sure I would not have done that had I not been in ICE.”

**Take Home Messages:** As medical schools around the country look to infuse team-based, interprofessional learning in their curricula, the ICE course provides a replicable template. Plans to introduce learners from other health professions into the clinical environment,

and include them in classroom-based simulations are now underway.

#7CC02 (135493)

**Evaluation of interprofessional education with FILE – Freiburg Questionnaire for Interprofessional Learning Evaluation**

**Marianne Giesler\*, (Competency Centre for Evaluation in Medicine Baden-Wuerttemberg, University of Freiburg, Germany), Freiburg, Germany**

Stefan Bergmann (Competency Centre for Evaluation in Medicine Baden-Wuerttemberg, University of Freiburg, Germany)

**Background:** Interprofessional collaboration is considered a promising approach to meet the challenges of an increasingly complex health care system. Hence, the WHO calls for the development of interprofessional education in medical studies. In evaluating interprofessional courses in Freiburg, we found that there is currently no valid German tool for evaluating interprofessional teaching. The RIPLS, a questionnaire broadly used internationally, turned out to be not applicable because of its unstable factor structure and partially unacceptable subscale reliabilities [1]. Thus, we developed the Freiburg Questionnaire for Interprofessional Learning Evaluation (FILE).

**Summary of Work:** We assembled a large pool of items to reflect the dimensions knowledge, teamwork, professional identity, and roles and responsibilities. Experts from different professions selected 21 items corresponding to these dimensions. In order to analyze the questionnaire we surveyed 217 medical students and students from other health care professions visiting interprofessional courses. Responses were factor-analyzed using principal axis factoring followed by varimax rotation. Cronbach's alpha was computed to determine the internal consistency of each subscale. Pre- and post-test subscale scores were compared by paired t-tests.

**Summary of Results:** Three factors were identified: relevance of interprofessional learning and collaboration, interprofessional role perception and teamworking ability. The internal consistencies of the corresponding subscales were .90, .78 and .69. All subscales post-test scores were significantly higher than the pretest scores.

**Discussion:** The FILE's factor structure is similar to the one intended by the RIPLS. Its subscales are reliable and may be used to evaluate differences in student's perception and attitudes towards interprofessional learning before and after visiting interprofessional courses.

**Conclusion:** Further work is necessary to validate the scales amongst a larger population.

**Take Home Messages:** The evaluation of interprofessional education is possible with FILE.

#7CC03 (134227)

**Collaborative decision making and team outcomes:  
Mediating role of shared purpose and voice**

*Wee-Shiong Lim\*, Tan Tock Seng Hospital, Singapore,  
Singapore*

*Yu-Han Ong  
Keng-Teng Tan  
Issac Lim  
Mark Chan*

**Background:** There is an urgent need to understand how interprofessional collaboration occurs across a range of practice settings (Institute of Medicine Report, 2015). This mixed-methods study examines the predictors which mediate the combined impact of shared leadership (SL) and transactive memory system (TMS) on self-reported satisfaction and effectiveness in a geriatrics interprofessional team.

**Summary of Work:** Using tertile cutoffs of locally validated scales of TMS and SL, we classified 112 team members (86% response rate) into 3 groups: 1) High SL/High TMS (n=18); 2) Low SL/Low TMS (n=23); and 3) Intermediate (n=71). We compared open-ended qualitative responses between the 3 groups to elucidate factors which promote collaborative decision making. Using self-reported outcomes of satisfaction with geriatrics work and ability to perform effectively, we built linear regression models to compare between the three groups adjusting for age, gender, interprofessional role, number of IPTM attended, and factors identified in qualitative analysis.

**Summary of Results:** Two differentiating themes emerged in the high SL/TMS group: 1) shared purpose, namely common understanding of team objectives to ensure a focus on collective goals; and 2) voice, namely degree to which team member have a say in the final discharge plan. Compared to the low and intermediate groups, high SL/TMS group scored significantly higher for satisfaction and self-effectiveness outcomes ( $p < .01$ ). After adjusting for shared purpose and voice, satisfaction and effectiveness outcomes in the high SL/TMS group were no longer significant.

**Discussion:** Our study underscores the over-arching importance of interprofessional team members sharing a common purpose which transcends individual professional identities, and of giving voice to different professional groups so that they can actively participate in and influence the decision making process.

**Conclusion:** We explicated the critical elements of shared purpose and voice in promoting SL and TMS in collaborative decision making for the betterment of team outcomes.

**Take Home Messages:** Shared purpose and voice are critical antecedents of good team outcomes.

#7CC04 (135148)

**"Am I ready to be an interprofessional healthcare practitioner?"- Health professions students' collaborative care experiences in the primary healthcare setting**

*Diantha Soemantri\*, Department of Medical Education  
Faculty of Medicine Universitas Indonesia; Coordinator  
for Integrated Curriculum of the Health Sciences  
Cluster, Universitas Indonesia, Jakarta, Indonesia*

**Background:** Exposing healthcare students to primary care settings to learn about interprofessional collaborative care is considered to be one of the educational strategies to equip students with interprofessional collaborative practice (IPCP) competency. In 2015, the Health Sciences Cluster, Universitas Indonesia organized an interprofessional course for 290 4th year nursing and public health students. The study is aimed to assess students' perceptions toward their own professions and other healthcare professionals after completing the interprofessional course.

**Summary of Work:** Groups of students were distributed to 15 primary healthcare settings and each of them was assigned with a specific task, either a clinical case, family home visit or community service project (Bridges et al., 2011), that required an interprofessional approach. Using the Interdisciplinary Education Perception Scale/IEPS (Luecht et al., 1990), with 18 statements and a 6-point Likert scale, students' perceptions were captured at the end of the course.

**Summary of Results:** A total of 168 students (57,9%) responded to the IEPS. Overall, the results demonstrated that students have positive perceptions toward their own and other healthcare professions, with mean score ranges from 4.05 to 5.19. The statement with the highest mean score is "individuals in my profession need to cooperate with other professions".

**Discussion:** The results indicated that students have positive perceptions and awareness that healthcare practitioners need to work with each other. It is expected that the positive perception can then be translated into a teamwork ability to provide safe and optimum patient care.

**Conclusion:** A 'hands-on' interprofessional program positively influences healthcare students' perceptions toward interprofessional approach.

**Take Home Messages:** Students' exposure to a real practice setting is important for IPCP development.



#7CC05 (131721)

**Considering clinical protocols and guidelines: what lessons for IPE?**

**Mark Barrow\***, *University of Auckland, Auckland, New Zealand*

*Sue Gasquoin, Unitec Institute of Technology, Auckland, New Zealand*

**Background:** Interprofessional collaboration is enhanced if professionals are able to work across discursive boundaries. While interprofessional education interventions may encourage this the practice environment may militate against the implementation of understandings developed in educational settings.

**Summary of Work:** Interviews with doctors and nurses highlighted differences between each professions' views of clinical protocols and guidelines. This prompted us to conduct a critical discourse analysis of a number of clinical guidelines and the systems which guide their development and approval. We then considered what this might mean for those charged with delivering interprofessional education.

**Summary of Results:** Protocols exemplify a neo-liberal discourse where the objects of care are positioned as clients or consumers amenable to standardised aliquots of diagnosis and care justified on the basis of scoring systems and a 'scientific' evidence base. They also suggest flattened structures, a democratising discourse where all professional voices are equal.

**Discussion:** Nursing identity relies on experience, holistic views of patients and collective approaches to practice. Medical identity is based on craft-based development of expertise associated with distinctive and sometime idiosyncratic responses to a patient's needs. This means each comes to protocols with different 'agenda' and that protocol may reinforce disciplinary boundaries.

**Conclusion:** The collectivist and democratic discourses of protocol development do not seem to carry through to their implementation and utilisation. Instead, protocols appear to act as objects that reinforce discursive boundaries between the groups. Understanding this may assist in improving interprofessional training and enhance boundary crossing.

**Take Home Messages:** Critical discourse analysis allows researchers to illuminate ways in which artefacts like clinical protocols might be understood by different health professionals. The analysis suggests that widely used protocols may militate against interprofessional collaboration. Understanding the discursive role protocols play might help educators design more effective IPE programmes.

#7CC06 (134637)

**SBAR as an interprofesional communication tool: Beyond conveying information to a framework for thinking**

**Sin Yi Lee\***, *Tan Tock Seng Hospital, Singapore, Singapore*

*Lijuan Dong*

*Yonghao Lim*

*Chee Lien Poh*

*Wee Shiong Lim*

**Background:** Though the Situation-Background-Assessment-Recommendation (SBAR) tool is widely endorsed for use in urgent clinical settings, its applicability in non-clinical scenarios and amongst non-clinicians remains relatively unexplored. We examined the perceptions of clinicians and administrative professionals towards adoption of SBAR as an interprofessional communication tool beyond urgent clinical settings.

**Summary of Work:** We studied 20 (67%) clinicians and 10 (33%) administrative professionals who participated in an Interprofessional Leadership Program. The SBAR interactive module comprised role-plays of non-urgent clinical and non-clinical scenarios, followed by group discussions about their experiences when applying SBAR. Participants completed a post-course survey, comprising 5-point Likert scale and open-ended questions. We performed mixed-methods analyses of quantitative and qualitative data.

**Summary of Results:** Although administrative professionals had lower prior usage of SBAR compared with clinicians [Mean(SD):2.1(0.88) vs 3.65(1.35);  $p < 0.01$ ], both groups endorsed SBAR as being beneficial in organizing information in complex situations and conveying information in a clear succinct manner. Thematic analysis identified three critical factors for successful adoption of SBAR beyond urgent clinical settings: (i) contextual sensitivity, including time constraints, complexity of problem to be solved, and other party's familiarity with SBAR; (ii) person-centredness, emphasizing a two-way responsive communication that incorporates communication strategies such as active listening and clarification questions; and (iii) conduit of communication that organizes thinking and permits flexibility in selecting and sequencing the SBAR components.

**Discussion:** Both clinicians and administrative healthcare professionals value SBAR as a versatile framework of thinking, rather than a rigid step-by-step communication tool per se. Our results pave the way for future curriculum design that harnesses SBAR's relatively untapped potential as a versatile interprofessional communication tool beyond urgent clinical settings.

**Conclusion:** Beyond providing a reliable model for conveying information, SBAR offers a pliable framework for organizing thinking and facilitating context-sensitive and person-centred communication to accommodate dynamic communication situations across different settings.

**Take Home Messages:** SBAR provides a framework for thinking beyond an information-conveying tool.

#7CCo7 (135092)

**The effectiveness of holistic patient care and inter-professional training for dietitians**

**Ching-Shiang Chi\*, Tungs' Taichung MetroHarbor Hospital, Taichung City, Taiwan**

Pei-Rong Li (TTMHH, Taichung, Taiwan)

Ann-Chen Tung (TTMHH, Taichung, Taiwan)

Cheng-Fan Wen (TTMHH, Taichung, Taiwan)

**Background:** In recent years, the multidisciplinary care team began including dietitians, which was why it's important to train dietitians have the ability to cooperate with the care team. Interprofessional education (IPE) is one way to enhance the clinical care quality of dietitian, implementation modalities including large lecture and practical exercises. The purpose of this study was to analyze the effectiveness of practical exercises for holistic patient care.

**Summary of Work:** A protocol of holistic patient care and inter-professional education was implemented from June 2014 to November 2015 in pediatric department. The protocol includes 4 phases, pre-conference, conference, post-conference, and learning/observation feedback. The questionnaire contains 12 items, and each item was divided into five scales. Pre- and post-tests were performed before phase 2 and after phase 4, respectively. Differences were considered statistically significant when  $P < 0.05$ .

**Summary of Results:** Total number of participate dietitians were 18. All items in the pre- and post-test showed statistical significance,  $p < 0.05$ , in addition to "Patient-centered interprofessional education with body, mind and spirit" and "the definition of safety culture". Subjects were further allocated into two groups based on dietitians with/without qualifications of holistic patient care teacher. It was showed different statistically significance in four items between two group. The overall average satisfaction for the training protocol was 95.8%.

**Discussion:** This study should be further included data collection about that provides insight into how IPE affects changes in health care processes and patient outcomes. The result would provide better evidence of the impact of IPE on professional practice and healthcare outcomes.

**Conclusion:** The practical exercise of holistic patient care for could effectively promote dietitians to understand the concept of holistic health and mode of procedures.

**Take Home Messages:** The clinical staffs felt satisfied and agreed with practical training which closer to the truth could promote them to understand the concept of holistic health and mode of procedures.

#7CCo8 (134509)

**Cultural adaptation and validation of the Japanese version of the Interprofessional Facilitation Scale (IPFS)**

**Junji Haruta\*, University of Tsukuba Hospital, Tsukuba, Japan**

Hiroshi Nishigori

Raoul Breugelmans

Kiyoshi Kitamura

**Background:** Effective interaction and shared learning among professionals necessitates interprofessional facilitation skills. In this study, we aimed to produce a Japanese adapted version of the Interprofessional Facilitation Scale (IPFS) and to validate it for use with healthcare professionals in Japan.

**Summary of Work:** The original 18-item IPFS (Sargeant, 2010) can be used to enhance interprofessional facilitation skills. We developed the Japanese version of the IPFS according to the guidelines for cross-cultural adaptation (Beaton, 2002). Three translators and a subject matter expert confirmed its face and content validity. Exploratory factor analysis was performed to explore the underlying structure of the items.

**Summary of Results:** The study participants consisted of 165 healthcare professionals. The translated items were amended during back-translation and expert reviews. In exploratory factor analysis, we obtained two factors with good internal consistency (Cronbach's alpha  $> 0.8$ ). These factors were labeled as follows: 1. Encouraging interprofessional interaction, 2. Respect for each profession.

**Discussion:** The original factor "Encouraging interprofessional interaction" was divided into two factors in this study. These seem to be affected by Japanese culture; most Japanese might understand that "facilitation" can encourage relationships, apart from respect for others. To achieve a more robust construction of the factors and to scrutinize the relationships between each factor, further investigations will be needed with the present Japanese version of the IPFS.

**Conclusion:** We developed the Japanese version of the IPFS for healthcare professionals. Different factors of the original study might be affected by Japanese healthcare professionals' perspectives of facilitation.

**Take Home Messages:** This study is the first to perform a cultural adaptation and validation of the Japanese version of the IPFS.

#7CC09 (126842)

**Introduction of Interprofessional learning concept in faculty development**

*Jiun-Lu Lin\*, MacKay Memorial Hospital, Taipei, Taiwan  
Chun-Chih Peng  
His-Hsien Hsu*

**Background:** The interprofessional collaboration can be fulfilled not only in clinical practice but also in clinical teaching and learning. A workshop was held to develop an interprofessional learning environment for clinical teachers, including physicians and other health professionals, to exchange the experience of clinical assessment techniques and execution methods.

**Summary of Work:** A workshop "Interprofessional Education of Clinical Evaluation Activities and Tools" was held in MacKay Memorial Hospital, Taipei, Taiwan. The background of the participants was quite diverse, included physicians, nurses, medical laboratory scientists, dietitians, pharmacists, occupational therapists, physical therapists and respiratory therapists. Experience sharing of how to establish a professional-specific assessment and evaluation system was conducted.

**Summary of Results:** High satisfaction was observed just after the workshop. The participants reflected that they learned from each other about how to identify the special need of clinical evaluation in different health professionals and organize the professional-specific evaluation activities.

**Discussion:** The most valuable part in the interprofessional learning is that clinical teachers found they themselves can be the resource of each other in creating a better way to do clinical evaluation. Institutional commitment and support will be the propulsion to maintain the positive faculty interaction.

**Conclusion:** Interprofessional learning in the field of clinical evaluation give hospital faculties the opportunity to do reflections on how to organize distinctive evaluation process by the special need of each health professional.

**Take Home Messages:** Introduction interprofessional learning concept in the faculty development is valuable and encouraging.

#7CC10 (134538)

**The Impact of interdisciplinary teaching on Administration of Aerosol Drug Therapy**

*Kun-Ta Lee\*, Taipei Medical University Shuang-Ho Hospital, New Taipei City, Taiwan*

*Wu Chia-Li  
Li Ya-Ting  
Feng Po-Hao  
Su Chien-Ling*

**Background:** Administration of aerosol drug therapy is an universal treatment in chronic obstructive pulmonary disease (COPD). However, inappropriate use of inhaler devices is a common problem even in chest medicine ward, and poor compliance may reduce bronchodilator therapeutic effect. We hypothesize that the therapeutic outcome of preparation of aerosol drug therapy is improved by training nurses guided by respiratory therapist.

**Summary of Work:** Interdisciplinary teaching program was executed in chest medicine ward. We made a checking list of the skills of inhaler devices and all participates received tests before and after the education intervention by respiratory therapists for inhaler technique.

**Summary of Results:** The correct rate of the using skills for inhaler devices improved significantly in pMDI (44% vs 89%), DPI (34% vs 100%) and respimat device (28% vs 100%) after introducing this program in 16 nurses. We also recruited 15 patients with COPD were treated with inhalation devices and re-instructed by these trained nurses. All these patients had received evaluations of the skills of inhalation devices before and after re-instruction. Patients' practice skills were improved obviously after education intervention in pMDI (33% to 86%), DPI (20% to 90%) and respimat device (28% to 86%).

**Discussion:** We make sure that all of the nurses own knowledge of correct technique is up-to-date, and ask patients to show us how they use their inhaler devices, give verbal instruction accompanied with handout forms, and repeat instruction regularly in their daily nursing care. And we implemented a successful education program of inhalation devices for nurses and the excellent outcome was examined in the terminal users (patients).

**Conclusion:** Though the application of interdisciplinary teaching, respiratory therapist can help nurses to understand drug aerosol therapy, and provide patients well-trained education.

**Take Home Messages:** We believe that make interdisciplinary teaching as a culture in clinical medicine in Taiwan, which can increase bronchodilator effect and physician-patient relationship.

#7CC11 (132181)

**Effect of Holistic Patient Care Conferences on Quality of Patient Care**

**Ying-Chi Hu\***, *Tungs' Taichung MetroHardor Hospital (Nursing Department), Taichung, Taiwan*

*Yu-Ting Chu*

*Ching-Shiang Chi*

**Background:** The focus of holistic patient care education is the patient-centered care that emphasizes the concept of a whole person, whole family, and whole team and promotes patient safety and quality of care. Through the holistic education, inter-professional staffs may increase the respect to patients' and their families' values and improve the safety culture and quality of care.

**Summary of Work:** From April 2015 to December 2015, a protocol of holistic patient care and inter-professional education and learning was implemented in our hospital. A total 248 inter-professional staffs participated in 23 holistic patient care conferences in a small group. Patients and families were invited to join the individual conference. Pre- and post-tests were performed before and after the session. Comparisons between the two tests were analyzed using the t-test. The cutoff significance was a p value of 0.05.

**Summary of Results:** After these education sessions, staffs improved their knowledge, attitude and skill of teamwork in all 13 measuring items,  $p < 0.001$ . When evaluated the knowledge and application of 'Team Strategies and Tool to Enhance Performance and Patient Safety', participants' scores were raised from 3.13 to 4.49 and improved 21.80% of Team STEPPS for holistic patient care.

**Discussion:** A holistic medical education is focused on the patient-centered care. Inter-professional education via holistic patient care conferences can enhance knowledge, attitude and skill of teamwork. It improves the medical staff-patient relationship and understanding of the expectation of patients and the families as well as the collaboration among inter-professional members.

**Conclusion:** This holistic education enhances the knowledge, attitude and skill to our inter-professional staffs for patient safety and quality of care.

**Take Home Messages:** The small group conferences are effective method for inter-professional holistic patient care education.

#7CC12 (133668)

**Promoting and Assessing Cultural Competency in a clinical setting among Medical Students at Weill Cornell Medicine-Qatar (WCM-Q)**

**Huda Abdelrahim\***, *Weill Cornell Medicine-Qatar, Doha, Qatar*

*Maha Elnashar (WCM-Q, Doha, Qatar)*

*Ziyad Mahfoud (WCM-Q, Doha, Qatar)*

*Stella C. Major (WCM-Q, Doha, Qatar)*

**Background:** A cultural competency-training module was implemented at WCM-Q including a formative culture OSCE for medical students to explore their ability to communicate effectively in a clinical cultural setting.

**Summary of Work:** Pairs of medical students encounter two SPs depicting different cultural scenarios. Each student interviews and observes her/his peer. All parties rate the interviewer. Scores are measured using a 5 point 1 (least)- 5 (most) Likert scale on 12 items, followed by a three way debriefing session. Comparisons for each question plus total scores and the totals between student, peer and SP were done using paired t-test.

**Summary of Results:** 53 students participated: 52.8% Arabs, 20.8% Asians & 26.4% dual nationalities. Overall, students' performance is rated high (4.2). Students rated their intercultural communication poorer than peers, but were in agreement on the other two parts. Students' questions indicated gaps in clinical curriculum on integrating cultural aspects in clinical training. Students reported opportunity of learning while observing their colleagues.

**Discussion:** OSCE is a "powerful teaching tool for cultural competence". Our findings raised important questions about the curriculum gaps, and the challenges in cultural/ clinical encounter. Students as observers in the OSCE could be considered as a teaching tool in cultural competence education.

**Conclusion:** The cultural OSCE heightened key gaps in students' communication skills.

**Take Home Messages:** Cultural OSCE can facilitate students' reflections, peer discussions and highlight gaps in students' cultural communication competencies.



#7CC13 (134734)

**Call for Cultural Sensitive Education on Underprivileged Minority's Health Issues: A Case Study on Aboriginal Drinking in Taiwan**

*Yi-cheng Wu\*, Hsinchu Mackay Memorial Hospital, Hsinchu, Taiwan*

**Background:** The prevalence of alcohol-related diseases among aboriginal people in Taiwan increased dramatically in recent half century. Since 2012, Hsinchu Mackay Memorial Hospital has been carrying out an outreach programme to assist aboriginal communities in Wufeng, where the prevalence of drinking problems has been extremely high. However, the plan still results in poor outcomes.

**Summary of Work:** I have been conducting ethnographic fieldwork in Wufeng since 2012. During this time I have collected data on aboriginal drinking including year-long participant observation in psychiatric clinical sessions, focus groups, interviews with participants of the intervention programme, local leaders, medical practitioners, and observation of aboriginal everyday life practices, traditional rituals and festivals.

**Summary of Results:** The difficulties of medical intervention for drinking problems largely resulted from the gap between indigenous understandings of illness and modern medicine. Local medical practitioners, may still regard them selves lacking of expertise on this specific issues, and expects more medical resources to shift in. Currently, the aboriginal areas still rely on certain plans held by the government and local hospitals to fulfill the medical resources, as well as public scholarships to train more indigenous medical students. However, drinking problems were not eventually solved. Local medical staffs still take ambiguous attitude on identifying drinking as whether indigenous culture or pathological behaviours.

**Discussion and Conclusion:** Problematic drinking among aboriginal people cannot be seen as merely a medical issue, but a more complex agenda with social, cultural and historical causes. The poor outcomes of medical interventions revealed both lacking of cultural competence training for current medical practitioners.

**Take Home Messages:** Policy makers should not only aim at increasing medical resources, more importantly, improving cultural sensitive and cross-disciplinary education for medical students and practitioners should be more fundamental tasks.

#7CC14 (134357)

**Ethnicities Fair: the relations between health and society**

*Elaine Rossi Ribeiro\*, Faculdade Pequeno Principe, Curitiba, Brazil*

*Leide Sanches*

*Ivete Palmira Sanson Zagonel*

*Priscilla Dal Prá Campos*

*Izabel Cristina Meister Coelho*

*Guilherme Murta*

**Background:** The undergraduate medical course of Pequeno Príncipe Faculties has a very new module inside its innovator curriculum, entitled "Community-Education Integration" (IEC), Community based-learning, in which the objectives leads to profound reflections on the concept of society and the individual as a social being, beyond the comprehension of the socio-anthropological and ecological dimensions in the determination of the health-disease process

**Summary of Work:** To report the experience of teaching using an Ethnicities Fair in order for students may understand the relations between health and society configuration apart from its ethnical differences. In order to this task, students groups presented during one afternoon, in practice, seven different ethnicities with its traditions, local habits, language, health system, health and disease concepts, the process of getting sick and die and other behaviors that includes many questions involving articulation of race / ethnicity on health

**Summary of Results:** This year, the groups formed by eight students presented cultural ethnic details of the following people: Brazilian, Arabs, Haitians, German, Chinese, Italian, and Russian. The professors responsible for the IEC module stimulated considerations of each group related of cultural factors and the influence on the health-disease process.

**Discussion:** The presented pedagogical action showed that the student runs after realistic data showing both the beauty as the stigmas of each ethnic group, promoting a very playful and consistent learning.

**Conclusion:** It was possible to consider the Fair Ethnic as an activity that encouraged reflections provided better understanding of the interrelationship between cultures with the health-disease process.

**Take Home Messages:** The students were able to identify cultural differences and the real meaning of health for each ethnic group. Besides that, the student attitudes as a professional in the future where could find ethnic differences during the process of diagnosing, treating, promoting and rehabilitation in health.

#7CC15 (130864)

**Facebook as the course platform for the delivery of cultural competence curriculum from the pre-graduation to graduated students in health profession**

*Li-Chun Chang\*, Chang Gung University of Science and Technology, Tao-Yuan, Taiwan*  
*Li-Ling Hong*

**Background:** The number of immigrant residents is gradually increasing in Taiwan, which leads to multi-cultural stimulation and impact on Taiwan society. Improvement of multicultural health care service is a life-long learning process for professionals, requiring a training course not only aiming to provide cultural knowledge but also strengthen care-providers' cultural competencies.

**Summary of Work:** This study mainly used social network Facebook as its course platform for the delivery of multicultural care course. The framework of the curriculum was consisted of four dimensions, including multicultural knowledge, awareness, self-confidence, and skill. Three months of basic curriculum was offered to the healthcare professionals at six months before graduation. After assessment, a transitional course was offered to the graduates.

**Summary of Results:** A total of 13 materials were developed at the basic course stage. 173 participants in the experimental group and 160 in the control group completed the baseline assessment. Compared to the control group, the course intervention significantly improved the performance of the experimental group on the knowledge and skills dimension.

**Discussion:** After graduation, the transitional course with real cases as the main theme significantly improved the self-confidence and awareness towards health care of multicultural populations. The results indicated that, compared to the control group, the course intervention significantly improved the performance of the experimental group on the knowledge dimension. After graduation, the transitional course with real cases as the main theme significantly improved the self-confidence and awareness towards health care of multicultural populations.

**Conclusion:** Students from healthcare demonstrated a gradually decreased ability in providing multi-cultural care over time after graduation. Pre-graduation education serves as an effective tool to improve students' multicultural care competency. However, the enhancement of awareness, self-confidence levels, and skills requires real-life case study and sharing.

**Take Home Messages:** 1. Facebook could serve as the life-long learning platform for continuing professional curriculum among health care professionals. 2. The teaching materials for improving cultural competence through FB need to tailor for pre-graduate and post-graduate student regarding to their care experience in clinical setting.

## 7DD Posters: Diversity

Location:

#7DD01 (127388)

**Include us: Patient diversity in a diagnostic radiography and radiotherapy undergraduate degree programme**

*Zainab Hussain\*, University of Liverpool, Liverpool, UK*

*Bridget Porritt*

*Vicki Pickering*

*Bev Ball*

*Flora Al-Samarraie*

*Cath Gordon*

**Background:** Health and Care Professions Council (HCPC) standards require radiographers to be aware of the impact of culture, equality, and diversity on practice and to practice in a non-discriminatory manner. Following a curricula review a new module was developed as part of the undergraduate diagnostic radiography and radiotherapy degree programmes.

**Summary of Work:** This module was developed to advance students' awareness of patient centered care and also included diversity and culture. Students received teaching in workshops from minority community groups and service users. It was also apparent the programmes were attracting increasing numbers of black minority ethnic students.

**Summary of Results:** The module was highly evaluated by service users, students and staff. Students reported the module made them think differently about themselves and the challenges faced by many patients. It was evident the module allowed students to benefit from their own cultural and social capital. Students also commented that often their own communities were invisible in the profession and education.

**Discussion:** As well recognising the diversity of patients and patient centered care the module has also diversified the curricula and provided professional role models to students from minority groups e.g. black and ethnic minorities, disabled, lesbian, gay, bisexual transgender. This was highly valued by students.

**Conclusion:** The delivery of content has also added to the blended learning approach, developing the skills and support patients require with consideration of diversity. Student diversity is also valued by recognizing the students own social and cultural capital in learning, teaching and assessment.

**Take Home Messages:** Including service users and health professionals with expertise in diversity is essential for credible and meaningful outcomes for patients and students.

#7DD02 (130629)

**The effect of tuition fees on medical student demographics**

*Ines Lolosidi\*, Manchester Royal Infirmary, Manchester, UK*

*Nicholas Charalambous*

*Robert Willmore*

*Kanchan Sharma*

**Background:** In 2012 English Universities raised tuition fees from £3,290 to £9000 per annum. A medical degree is 2 years longer than a BSc, thus medics will be most impacted financially. The question arises: will increased fees affect student demographics and tomorrow's doctors?

**Summary of Work:** A cross sectional study was carried out on medics at the University of Bristol in 2013: 1st years paying increased fees (n=153). 2nd years paying lower fees (n=156). Students were surveyed to assess socioeconomic backgrounds and attitudes. Null hypothesis: Tuition fees have no influence on demographic between students.

**Summary of Results:** Parental occupation demonstrated a trend towards more 1st years with doctors as parents. Employment during university showed 2nd years participating in significantly more paid work. Importantly 12.9% of 2nd year students (postgraduates in particular) would not have applied with increased fees. Qualitative data showed concerns regarding the effect on applicant types and fear of making medicine a more elitist profession.

**Discussion:** Students reported that increasing fees wouldn't have affected their decision as this was offset by guaranteed employment. However, they grossly overestimate future earnings and underestimate loans. Poorer students receive bursaries so are unaffected by fee rises. It seems postgraduates are discouraged from applying (pay upfront fees) with less students intercalating.

**Conclusion:** Steps need to be taken to ensure that those studying medicine are from a diverse background maintaining depth in the medical profession. Funding should be more accessible and better advertised; greater support should be provided to postgraduate students with all applicants being educated about the true financial costs of study.

**Take Home Messages:** (1) Applicants are from polarised backgrounds (high and low socioeconomic backgrounds) decreasing diversity of students. (2) Students are less likely to undertake academic work/be postgraduates. (3) Applicants are ignorant regarding financial burden of study.

#7DD03 (132851)

**Gender differences in specialty choice among Chinese medical students**

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Liu Yang (Fudan University, Shanghai, China)

Difan Zheng (Fudan University, Shanghai, China)

Can Wang (Fudan University, Shanghai, China)

Yanni Lai (Fudan University, Shanghai, China)

**Background:** Chinese medical students' career choices will make a profound impact on the future workforce in the healthcare system which serves the largest population in the world. However, there is still a lack of understanding of both the gender differences in their specialty preference and what factors play a decisive role in their specialty choosing.

**Summary of Work:** The specialty choices of all 648 medical students from six consecutive classes (Class 2012-2017) in an eight-year MD program in Fudan University Shanghai Medical College, a leading medical school in China, were analyzed. A questionnaire covering 22 influencing factors was delivered to 112 medical students from a same class (Class of 2017) who just made their specialty choices one month before they completed this questionnaire.

**Summary of Results:** Among 648 students (male=283, female=365), most male limit their specialty choices to surgery (64%), internal medicine (12%) and orthopedics (12%). Female students' specialty choices are distributed broadly: internal medicine (35%), surgery (14%), ophthalmology (9%), OB/GYN (8%). Pediatrics (n=10), ENT (n=7), pathology (n=4), rehabilitation medicine (n=3), psychiatry (n=2) and family medicine (n=0) are "unpopular specialties". Interestingly, students who choose "unpopular specialties" are mostly female. Comparing the top 10 influencing factors, male students showed a more utilitarian view on choosing specialty, while female students paid more attention on work-life balance and career fulfillment.

**Discussion:** The gender differences may be explained by the different social roles/expectations. Appropriate interventions are needed to improve the attraction of "unpopular specialties".

**Conclusion:** Significant gender differences in specialty preference are observed among Chinese medical students. It may be associated with different social roles/expectations.

**Take Home Messages:** Significant gender differences in specialty preference among Chinese medical students is associated with many complicated reasons such as different social roles/expectations.

#7DD04 (132890)

**Mind Your Language: Improving the medical student experience of non-English consultations**

**Rebecca Farrington\***, University of Manchester, Manchester, UK

Enam Haque (University of Manchester, Manchester, UK)

Sabia Dayala (University of Manchester, Manchester, UK)

Dr Rachel Lindley (University of Manchester, Manchester, UK)

**Background:** Diversity teaching is gaining importance in medical education. A barrier locally has been GP consultations in non-English languages. Tutor training was installed (Haque et al 2011) and a new student teaching pilot was created. The aims of the pilot were to improve the GP learning environment, attitudes to these types of consultations and knowledge of cultural competence.

**Summary of Work:** 6 students and 4 practices were recruited. Practices provided a morning placement, focusing on discussion on the local population and active learning during consultations. Students then had a group debrief in medical school, to reflect on their experience and receive cultural competence teaching. Students provided written and focus group feedback, and tutors written feedback.

**Summary of Results:** Students were positive about the placements, including improved awareness of patient health beliefs, but wanted to explore cultural differences more. They also wanted more chances to consult, and better translation from the GP. The debrief sessions provided a safe environment to discuss sensitive issues, but was not felt to adequately cover cultural health beliefs or provide deeper diversity awareness. Tutors felt that there was more impact for students than for them, but did see the value of the training.

**Discussion:** The students attending the sessions gained a lot from the experience, and it gave them a more positive attitude to these practices. However the group was self-selected and the opportunity was limited to a small number. The tutors also did not feel it had any impact on the practice.

**Conclusion:** This pilot has shown a method to improve student attitudes to non-English consultations and knowledge of cultural competence.

**Take Home Messages:** Combining experiential learning with group teaching can enhance diversity teaching. Reference Haque E, Lindley R (2011) Mind Your Language Protocol, Community Based Medical Education Team, Manchester Medical School, University of Manchester.

<http://www.medicine.manchester.ac.uk/cbme/tutornotes/mindyourlanguage.pdf> (Accessed 31.1.16)



#7DD05 (133665)

**Hidden Curriculum Factors Influencing Female Students to Choose Surgery as a Career**

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*Hend Faraj*

*Shahad Albaloul*

*Abdulla Alabduljaleel*

*Mohammad H. Jamal*

**Background:** Studies demonstrated that there is a decline in applicants to surgical programs worldwide. Part of the decline is thought to be due to the rise of female students in medical schools. Prior to 2012 there were equal seats for both genders at Kuwait Medical School, but a lawsuit won at the Kuwait Constitutional Court abolished the seats per gender policy resulting in a rise in female students. The purpose of this study is to assess hidden curriculum factors that are unique to female students in an Islamic society regarding specializing in surgery.

**Summary of Work:** A cross sectional study was performed in the only Medical School in Kuwait. All students from their second year to final year were surveyed using an anonymous self-administered questionnaire and the Zuckerman-Kuhlman personality questionnaire.

**Summary of Results:** Four hundred and sixteen out of 689 participated in this study. Being a female surgeon was perceived as unique by 75%. While 43% of them viewed that being a surgeon will negatively affect their marriage chances, 34% were neutral. Two thirds of participants do not believe that surgeons face religious and ethical challenges in dealing with the opposite sex. Hijab was not thought to be a negative factor influencing a career in surgery. Out of the 5 personality types (impulsive sensation seeking, neuroticism-anxiety, aggression-hostility, sociability and activity) there was a correlation between activity personality type and choice of surgery ( $p \leq 0.003$ ).

**Discussion:** One would think that social and religious factors would play major rule in influencing women to specialize in surgery in a conservative Islamic society. We have shown that the frequently reported factors influencing career choice is what influences women in our society to pursue a career in surgery. In particular the dress code, prayer times and fasting are not thought to contraindicate a career in surgery.

**Conclusion:** Multiple factors affect female Arab medical students' choice in pursuing surgery as a career in an Islamic society with no impact of religious duties and social restrictions.

**Take Home Messages:** The hidden curriculum factors in Islamic countries are similar to those reported globally.

#7DD06 (133874)

**Experiential learning or academic tourism – a student experience from Lao People's Democratic Republic**

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*Suan Phaik Khoo (International Medical University, Kuala Lumpur, Malaysia)*

**Background:** International service learning is designed to link academic demands with well defined community needs, but there are growing concerns that tourism is becoming a dominant motivation for student involvement. Such concerns may be allayed by analysis of student reflection on learning expectations and outcomes following a community-based learning experience.

**Summary of Work:** A total of 26 health professions students spent one week to rural Laos as part of a programme launched by a UN-driven initiative. They were involved in community health projects. A thematic analysis of their written pre-visit expectations and reflective reports was conducted using the Nigel Kings template method.

**Summary of Results:** Twenty student submitted their report. Ranking of themes revealed students focused on their involvement and own learning interests. They were challenged by organisational issues, communication with the villagers and cultural diversity. Only a minority reflected on community benefit and factors that ensured continuity of their service.

**Discussion:** Students involved in 2-4 weeks abroad programmes rather than one week can gain meaningful experiences. Joining an organisation with an ongoing presence will allow them to bond with the host community. An ongoing presence and development of a sustainability plan will maintain benefits to the community in the long run.

**Conclusion:** Students critically reflected on their own learning, communication challenges and to some degree on the best interest of the communities. However, they failed to reflect upon the need for sustained commitment.

**Take Home Messages:** Guidelines for international service learning must stress the over-riding importance of sustained benefit to the community during student recruitment and preparation. An ongoing presence of the sending institution must be considered.

#7DD07 (134220)

**Collaborative Approaches to Advancing Diversity of the Applicant Pool**

*Carol Elam\*, University of Kentucky College of Medicine, Lexington, USA*

*Paula Arnett*

*Joyce Achenjang*

*Lainey Mattox*

*Margaret McConnell*

*Sherry Spragens*

**Background:** A thoughtful effort toward broadening participation in medical school calls for a clear definition of students underrepresented in medicine, and a focused strategy for outreach into underserved communities to attract applicants. At the University of Kentucky College of Medicine (UKCOM), underrepresented students are identified by race and ethnicity, geographic origin from underserved areas, and economic and educational disadvantagedness.

**Summary of Work:** The primary responsibility of an admissions office is to organize and implement a process for screening and selecting candidates for entry into the medical program. A secondary, but equally important responsibility is to develop and offer pipeline programs to expand the applicant pool. Considering both staffing and budgetary constraints, it is advantageous to partner with stakeholders who embrace the goal of expanding the numbers of underrepresented students in medicine.

**Summary of Results:** Medical student-initiated collaborations include the Ambassadors program: educational and mentoring outreach to high school students, and UKMED: a day-in-the life experience for college students. Our regional medical training site offers Boot Camp: a week-long residential program addressing application preparation. Three Medical College Admission Test preparation programs are directed by regional health education centers. Taken together, these efforts have led to the matriculation of over 40 underrepresented students to UKCOM over the past 6 years.

**Discussion:** Collectively these programs are at the core of UKCOM's integrated efforts to develop a pipeline of students underrepresented in medicine and improve their competitiveness for admission. They demonstrate an institutional and regional commitment to diversity.

**Conclusion:** Partnering with stakeholders can create an effective and targeted approach to recruiting and matriculating students from various demographic, geographic, and socioeconomic groups to enrich the educational and experiential environment of our medical school classes.

**Take Home Messages:** Creating collaborations with medical students and regional educational programs based in underserved areas enhances recruiting and preparation of prospective applicants and extends outreach efforts beyond the admissions office.

#7DD08 (134644)

**Measuring homophobia in healthcare: medical students' knowledge and attitudes towards homosexuality**

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**Background:** Physicians' attitudes towards homosexuality can influence quality of care and have important effects on patients' wellbeing. Moreover, not discussing homosexuality during medical course favours sexual prejudice. This study aimed to explore medical students' attitudes towards homosexuality and their knowledge on the subject along their medical education.

**Summary of Work:** An online anonymous questionnaire was sent to all undergraduate medical students enrolled at the Faculty of Medicine-University of Porto in December 2015. Students were asked to complete the Multidimensional Scale of Attitudes toward Lesbians and Gay Men and a Homosexuality Knowledge Questionnaire. Descriptive statistics, ANOVA and multivariable logistic regression were used in the analysis. Statistical significance was settled at  $p=0.05$ .

**Summary of Results:** 509 completed survey responses were considered. Male gender, heterosexuality, religiosity and having fewer homosexual friends were factors associated with less positive attitudes towards homosexuality. Medical students showed higher levels of attitudes related to "Modern Heterosexism" than other traditional forms of prejudice such as "Proximity Rejection" or "Homosexuality Pathologization". Progression in the medical course, desired medical specialty or exposure to LGBT patients had no effect on prejudice. Nevertheless, students who knew more about homosexuality tended to hold less stigmatizing attitudes and progression in medical course was significantly correlated with higher knowledge scores.

**Discussion:** Although medical students show a residual level of traditional homophobia, attention should be given to its major prevalence among male and religious students and also to modern forms of prejudice. Attitudes don't seem to be discussed during medical training, and knowledge can be a way to improve them.

**Conclusion:** Medical education should create opportunities for students to recognize and understand their own biases on sexuality issues and avoid negative attitudes that can jeopardize healthcare and doctor-patient relationships.

**Take Home Messages:** Modern expressions of sexual prejudice should be discussed during medical courses, potentially enhancing the inclusiveness of healthcare settings.

#7DD09 (134648)

**Hospital Immersive Week for M2 students: Combining Hospital Medicine, Diversity and Simulation**

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*Toufic Khariallah, (UICOMP, Peoria, IL, USA)*

*Matthew Jager, (UICOMP, Peoria, IL, USA)*

*Meenakshy Aiyer, (UICOMP, Peoria, IL, USA)*

**Background:** Since 1910 Flexner Report, the 2+2 model has been the standard in US undergraduate medical education curricula. Introductory courses to clinical medicine have been developed to facilitate transition into clerkship rotations. Hospital medicine and society continue evolving and diversifying. Innovative education is needed to facilitate successful transition into an increasingly diverse clinical practice. Integration of cultural concepts and communication skills are important to subsequently engage patients and diminish health care disparities.

**Summary of Work:** We developed and implemented a curriculum that included hospital rounds, group discussions and simulation. Topics included: motivational interviewing, organizational diversity, cultural competence, health literacy, EMR and visual literacy. Practice of basic procedures and communication skills with standardized patients using low and high fidelity simulation were included. Educational methodologies used were direct observation, peer evaluation and feedback, simulation-based experiences, experiential learning and self-reflection.

**Summary of Results:** All sessions were evaluated on the learning objectives using Likert scale (1-5). 14-question final evaluation results ranged from 3.75 to 4.90. Simulation sessions scored the highest with procedures at 4.55 and communication skills at 4.65. Overall, medical students stated that the week helped increase knowledge (4.85) and skills (4.60) necessary for M3 year.

**Discussion:** We were successful assessing the feasibility of preparing M2 students to work alongside hospital providers and care for patients in an increasingly diverse and complex society. Hospital immersion week, with all its components, was widely accepted and elicited positive reviews.

**Conclusion:** Curriculum that allows early exposure of medical students to hospital setting will help with the transition into complex and diverse healthcare system. In addition, diversity encompasses much more than race, ethnicity or gender. Diversity and its dimensions should be adopted to create physicians that can provide the best patient care beyond any boundaries.

**Take Home Messages:** Implementation of a curriculum that includes topics of diversity and hospital medicine is feasible and worth considering as our population and healthcare delivery systems continue to evolve.

#7DD10 (134866)

**Racial/ethnic bias among medical students in New Zealand**

*Donna Cormack\*, University of Auckland, Auckland, New Zealand*

*Ricci Harris*

*James Stanley*

*Cameron Lacey*

*Rhys Jones*

*Elana Curtis*

**Background:** Medical education can play an important role in advancing health equity. Despite recognition of the potential for clinician racial/ethnic bias to influence health care, research with medical students is limited. The Bias and Decision-Making in Medicine study was undertaken to assess racial/ethnic bias towards Māori (indigenous) and New Zealand (NZ) European (dominant ethnic group) among medical students in New Zealand.

**Summary of Work:** All NZ final year medical students in 2014 and 2015 were invited to participate (n=888), with data collected in an anonymous web-based study. The study included implicit racial/ethnic bias measures (two Implicit Association Tests), explicit racial/ethnic bias measures, and two chronic disease vignettes with randomly assigned patient ethnicity. Levels and patterning of racial/ethnic bias were assessed.

**Summary of Results:** 302 medical students responded. The study found 'moderate' implicit preference (mean d-score=0.39) for NZ Europeans and 'slight' implicit bias (mean d-score=0.20) towards associating NZ European patients as more compliant than Māori. Racial/ethnic bias for NZ Europeans was also shown for explicit measures (warmth, ethnic preference, compliance, competence). Explicit and implicit measures were weakly or not correlated, and relationships between participant characteristics and racial/ethnic bias inconsistent. In the vignettes, racial/ethnic bias (e.g. beliefs) by patient ethnicity was less evident.

**Discussion:** This is the first study of racial/ethnic bias in a medical student population in New Zealand. While we found pro-New Zealand European racial/ethnic bias in this student cohort, it likely reflects wider societal narratives about racial/ethnic groups.

**Conclusion:** This study provides novel information on medical student racial/ethnic bias in New Zealand. Medical education has the potential to contribute to addressing racial/ethnic bias among medical students, and to broader anti-racism interventions and strategies.

**Take Home Messages:** Racial/ethnic bias is evident in final year medical students in New Zealand. It is important to examine racial/ethnic bias in other medical student year groups. Medical education should consider and address racial/ethnic bias.

#7DD11 (135206)

**Medical students' and teachers' perspectives of training environment in cultural diversity**

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*Jer-chia Tsai (College of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan)*

*Yenko Lin (College of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan)*

**Background:** Taiwan's diversity has made cultural competence training in medical education a pressing issue. In order to identify the problems of current cross-cultural care competence (CCC) education, this study investigated CCC training environment throughout different stages of Taiwanese medical program through students' and teachers' perspectives.

**Summary of Work:** The study conducted generic questionnaires with 1,650 medical students of different stages of medical training (1113 valid responses) at two Taiwanese medical schools and another comparable teachers' questionnaire with 250 teachers (201 valid responses). We also invited 35 students to participate in focus group interviews. The quantitative data, analyzed with SPSS, and the qualitative data, transcribed, encoded and then analyzed with the Grounded Theory were cross-examined to triangulate the findings.

**Summary of Results:** The findings showed the respondents believed that CCC was not explicitly and sufficiently addressed in the curriculum, and this had possibly contributed to their lack of readiness for cross-cultural care. Students generally found they were unprepared for taking care of patients who speak different languages, hold different health beliefs, distrust health-care system, and are from different ethnic or socio-economic backgrounds. The interview respondents generally expected to learn from clinical exposure in later stages, but were unsure if there would be enough clinical opportunities to learn diversity.

**Discussion:** The results showed the problems of CCC education environment: 1. lack of role modelling, 2. lack of integration of CCC into courses throughout different stages, 3. hit or miss teaching at clinical stage, though clinical exposure was seen as the best way to learn CCC.

**Conclusion:** The study helps identify the problems of CCC education in medical education and suggest that comprehensive goals and effective faculty development program for pedagogy need to be provided.

**Take Home Messages:** An explicit inclusion of a spiral CCC training framework in the Taiwanese medical curriculum is necessary to better prepare students for the myriad of clinical situations.

#7DD12 (135569)

**Diversity of Cultures - Diversity of Opinions: International Students' Perceptions of Their Educational Environment**

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**Background:** The aim of this research was to find out about the differences in the ways of learning of people originating from different cultures in order to improve the quality of teaching in culturally diverse groups. There were also examined students' needs towards teachers, their attitude to cheating during exams or to plagiarising. The research was also aimed to work out if there are basic cultural differences concerning the requirements imposed on students for coming late for classes or skipping classes.

**Summary of Work:** The survey was carried out on undergraduate MD, DMD and pre-medical students. Finally, 61 surveys and 3 focus group interviews were carried out with the participation of 24 students.

**Summary of Results:** Foreign students: - prefer diverse, sometimes distinct methods of teaching, - have different experience concerning the role performed by the teacher in the process of teaching and at the same time have distinct expectations towards teachers, - differ both in understanding the notion of "plagiarism" as well as what sanctions should be imposed in case they are found guilty of plagiarism, - have different experience of sanctions for cheating during exams, coming late for classes or skipping classes.

**Discussion:** The surveys carried out show similar tendencies concerning the differences in the ways that people from different cultures learn, which have been noticed by culture researchers. However, in contrast to research done earlier, the present surveys focus solely on students of medical subjects who begin their education in Poland.

**Conclusion:** The results gained in the survey will contribute to informing appropriate educational units on how to adjust methods of teaching to the needs of foreign students.

**Take Home Messages:** The long - term goal is the improvement of the quality of academic environment and through this improvement of learning efficiency of culturally diverse students.



#7DD13 (135631)

**West Papua Indonesia students' reflection about how to deal with diversity**

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**Background:** West Papua is a new province in eastern part of Indonesia where many peoples came from other Indonesian islands. Starting 2014, a new medical school was established in this province. The students came from various ethnics and background, with half of student were from ethnic Papua, and the rest were from other ethnic. We conduct a study to explore perspective of 2nd year students about how to deal with diversity.

**Summary of Work:** Students were introduced to the concept about culture, cultural competency and diversity through series of interactive lectures. Elaborating the knowledge by discussing each cultural background and beliefs related to health from their hometown, and applied it through appreciating art craft from different culture. At the end of this topic students were asked to write self-reflection.

**Summary of Results:** There are 32 students: 13-ethnic Papua, 5-multi-ethnic, and 13-other ethnic who live in Papua. Theme raised by ethnic Papua were they aware of diversity, understand that other ethnics have different customs and beliefs, and they have to adapt. They also think that they were too shy and lack of confidence. Students from multi-ethnic were get use to diversity, they know that they have to adapt with other and need skills to do that. Students from other ethnics think that other ethnic had different characteristic that they should be careful to deal with.

**Discussion:** People in West-Papua were not used to study in higher education. According to the process of cultural competency the students from Papua were at lower phase of cultural awareness, while other ethnics were tend to stereotyping people according to their understanding. Students' came from multi-ethnic family tend to deal with diversity easier.

**Conclusion:** Our study showed that 2nd-year students from different ethnic in Papua were in the early process of cultural competency.

**Take Home Messages:** Effort still need to be done to develop cultural competency.

#7DD14 (135873)

**Diversity of Discrimination in Medical Schools: An international student approach**

*Cargi Orkun Kilic\*, Lithuanian University of Health Sciences, Kaunas, Lithuania*

*Jonas Montvidas  
Benedikt W. Pelzer  
Suleyman D Polat*

**Background:** Discrimination and Harassment is a common phenomenon in Medical Schools and Hospitals. Nevertheless little is known about the diversity of discrimination and its impact on future career plans of medical students.

**Summary of Work:** In total 365 participants from 25 countries completed the survey, 248 female (68%) and 114 male (31%) students with the mean age of 22 years (min.:18yrs; max.:43yrs; SD:2,57yrs).

**Summary of Results:** On a five-point Likert-Scale, 4% of the male and 6% of the female students felt often discriminated in Medical School environment. While 43% of female students were discriminated due to 'Gender' (m:8%), male students reported 'Religion' as the most important reason for discrimination (m:16%; f:8%). Most discriminating persons were Academic Teachers (30%), Fellow Students (26%) and Senior Physicians (16%). Male students were mostly discriminated by females and vice versa. Interestingly discrimination experience has impact on future career plans of male and female medical students. 18% of the female participants stated discrimination influencing their choice of specialty (m:8%). On top of that 20% of female students thinking about working/studying abroad due to discrimination experiences (m:5%).

**Discussion:** Beside of gender-related differences in perception of discrimination, it is still a very common issue in medical education, especially for female students. Reasons for discrimination are diverse and include 'Gender', 'Religion' and 'Teaching environment'.

**Conclusion:** Even if the percentage of often-discriminated students is relatively small, the majority of students stated experiences in context of discrimination. Furthermore it seems to have high impact on future career plans: Discriminated Students more often think about working/studying abroad and exclude specialties from the start.

**Take Home Messages:** Even if a lot of efforts were done, discrimination is still an important and future-influencing problem in Medical Schools. Diversity of Discrimination in Medical Schools: An international student approach.

#7DD15 (136071)

**Who is a good clinical teacher? — viewpoints from oriental students**

*Ling-Yu Yang\*, National Yang-Ming University, School of Medicine, Department of Pediatrics, Taipei, Taiwan*  
*William J. Huang*

**Background:** The characteristics of a good clinical teacher have been profiled in prior studies. However, most of the works were contributed by western countries. In oriental culture context, clinical teaching and learning has more sense of master-apprentice relationship. Therefore, the dimensions to illustrate a good clinical teacher may be different in oriental countries.

**Summary of Work:** We qualitatively analyzed the feedbacks from a database of a university teaching hospital across a 5-year period to identify the mostly recognized characteristics of clinical teachers with best (top 10%) average feedback scores.

**Summary of Results:** Data from more than 10,000 feedbacks showed that the highly agreed characteristics include (1) Respecting student's role as a teammate; (2) Demonstrating enthusiastic attitude to clinical works; (3) Encouraging students whenever necessary especially when they have frustration; (4) Role modeling discipline and professionalism; (5) Willing to share individual experiences on career development.

**Discussion:** Since quality of medical services is closely influenced by culture context, so the clinical teaching needs to consider its unique expectation.

**Conclusion:** The results of this study are helpful in designing faculty development program, and also may provide triggers for future studies to compare cultural background across different societies.

**Take Home Messages:** Oriental medical students have their unique perspectives to define good clinical teachers when compared with western students. They expected more encouraging and individual experiences sharing on career development.

#7DD16 (136181)

**Is cross-cultural awareness and communication skills sufficiently taught in medical school?**

*Bonita Amilah\*, King's College London, London, UK*  
*Faheem Ahmed (King's College London, London, UK)*  
*Maheen Sajid (King's College London, London, UK)*  
*Sara Noden (King's College London, London, UK)*  
*Afra Jiwa (King's College London, London, UK)*  
*Salma Khan (King's College London, London, UK)*

**Background:** The General Medical Council's (GMC) 'Tomorrow's Doctor' states that UK medical students must acquire 'respect for patients and colleagues that encompasses diversity of background and opportunity, language, culture and way of life'. However, traditional approaches to developing students' cross-cultural skills at medical school is poorly taught.

**Summary of Work:** A literature search of peer-reviewed articles indexed in PubMed and EmBase was carried out to assess currently available information on the subject matter.

**Summary of Results:** In 2008, only two thirds of UK medical schools reported some form of cultural diversity teaching. The GMC offers sparse guidance on how to incorporate cross-cultural education into the curricula, hence teaching is highly variable between institutions. Unlike alternative medical school examinations there is limited formal assessment of cultural diversity education hence progress is difficult to measure, however 76% of medical schools have implemented some form of assessment.

**Discussion:** Student exposure to cultural education takes less precedence over other communication skills, despite evidence suggesting that better awareness is associated with improved patient outcomes in multicultural settings such as in the UK. Further studies are necessary to outline a curriculum which is systematic and rigorous for medical schools to teach an appreciation of cultural difference and it's relation to delivering high quality patient care.

**Conclusion:** We believe that greater exposure to different cultures through community health volunteering opportunities as SSCs can help integrate this into medical curricula.

**Take Home Messages:** UK professional training bodies must provide stringent guidance on implementation of cross-culture educational strategies in an attempt to better equip future doctors with relevant skills to address the needs of an increasingly diverse patient population.

#7DD17 (136209)

**Reducing stigma among students and health professional towards diverse sexual orientation and gender identity populations**

**Rachel Bruls\***, *International Federation of Medical Students' Associations, Porto Alegre, Brazil*

*Carlos Andrés Acosta Casas (International Federation of Medical Students' Associations, Porto Alegre, Brazil)*

*Carles Pericas (International Federation of Medical Students' Associations, Barcelona, Spain)*

*Michalina Drejza (International Federation of Medical Students' Associations, Poznan, Poland)*

**Background:** The heteronormative standard, present in the medical curriculum, subjectively influences health professionals to assist patients as if they were heterosexual or cisgender, leading to serious discriminatory situations and hegemonic attitudes. In the IFMSA, to provide the needed competencies when there is a gap within the medical curriculum, we offer activities in all regions for students to exchange educational strategies amongst peers.

**Summary of Work:** IFMSA held International and Regional Peer Education trainings that introduce participants to how peer education works and its various applications within a classroom environment, as well as day to day activities. We also created platforms named European Cooperations on Sexuality Education as forums for conversations on Sexual and Reproductive Health Rights issues within the medical profession.

**Summary of Results:** By using verbal feedback and discussions to evaluate the qualitative impact of our trainings, we identify improvement. Participants feel empowered to deliver these workshops locally, pointing out how the training has added to their skills on sexuality issues, both as peer educators and as future medical professionals

**Discussion:** This is an elective peer education framework of interventions, however these skills are essential to all future health providers and therefore there should be a way to implement such items in the core curriculum.

**Conclusion:** Empowering Medical students with educational skills on sexuality is essential to reduce stigma and discrimination. With our methods, we both train medical students in the essential skills of peer education and provide them with the tools to spread knowledge.

**Take Home Messages:** Our multiple interventions were effective on the reduction of the stigma around sexual orientation and gender identity. They also provided a platform to teach future health providers the importance of this subject and how to face it during their professional career. Said methods could be easily translated into an elective or even implemented in the formal curriculum.

## 7EE Posters: Faculty Development

Location:

#7EE01 (135082)

**Improving teaching competence in professional clinical nursing through the use of simulated "First Aid" teaching situations**

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Tsung-Lan Chu, (Chang Gung Institute of Technology, Taiwan)

**Background:** Accurately transferring responsibilities at "First Aid" is one of the biggest challenges facing clinical nursing staff. The ability to transfer responsibilities at "First Aid" is a major factor in how well new personnel adapt to clinical nursing and has a great impact the retention rate of new staff. After surveying 5 teaching hospitals, the researchers found that classical classroom training methods were lacking when applied to the mentor and mentee situation found in the training of clinical nursing staff.

**Summary of Work:** From January 2015 to October 2015, 96 selected participants were asked to participate in this study. Only 4 participants failed to complete the entire course resulting in a 95.8% completion rate. The survey assessed a set of measurements and the content of the questionnaire was validated by five experts.

**Summary of Results:** The OSTE checklist scores for each aspect were taken prior to the intervention and after the clinical nursing mentors completed the simulated "First Aid" situation training course intervention. The OSTE Checklist measured overall professional teaching competence, teaching ability, evaluation capability, and communication and coordination skills. The pre-intervention overall professional teaching competence average score was 0.56 (SD = 0.21) and the post-intervention average score was 1.66 (SD = 0.26) This was an increase of 1.20 points over the pre-intervention score and the t-test showed that a significant difference (p-value < 0.04) existed between the pre-intervention and post-intervention scores. (p-value < 0.001, t-value 21.52).

**Discussion:** Clinical nursing mentors rated the impact of specific aspects of the simulated "First Aid" situation intervention which they believe enhanced their abilities to teach their mentees. The average impact scores for all aspects were above 4 indicating that the mentors found that the simulated "First Aid" situation intervention was beneficial and enhanced their own professional competence in teaching the transfer of "First Aid" responsibilities to mentees.

**Conclusion:** The use of simulated "First Aid" situations for the training of clinical nursing mentors significantly improved the OSTE checklist scores for the clinical mentors in all aspects, overall professional teaching competence, teaching ability, evaluation capability, and communication and coordination skills.

**Take Home Messages:** This improvement shows that the implementation and establishment of clinical nursing courses that address the education needs of both the mentors and mentees will enhance the teaching abilities of clinical nursing mentors resulting in mentees who can adapt better to the clinical care setting and lead to creating a high-quality workplace atmosphere.

#7EE02 (134595)

**Inter-Professional Faculty Development: Establishing an Education Network at a Tertiary Paediatric Training Center**

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Joanne May (Great Ormond Street Hospital, London, UK)

**Background:** In June 2015 we introduced an innovative inter-professional faculty development programme designed to support the professional development of health educators from all professional backgrounds, and provide a foundation for a sustainable clinical education faculty. Recognising the diverse and challenging training contexts of our educators, we recognized the great potential for learning with and from each other and sought to establish an Inter-professional Education Network.

**Summary of Work:** A learning needs assessment was carried out with 'Expression of Interest' forms widely distributed through email groups targeting all in professional groups. Information was gained on educational role, previous training and self-assessed learning needs for development as an educator.

**Summary of Results:** 32 forms were returned: with representation from medical (11), nursing (13), allied health (3), administrative (1) and healthcare scientist (4) professional groups. Of these, 88% had a current education role within the Trust and 59% had an education role outside the Trust. 91% had undertaken previous training in medical education, representing a high proportion with prior knowledge. The development needs identified included: developing knowledge and skills in teaching and learning techniques (94%), methods for supporting learners (41%), delivering inter-professional education (31%), design of education events and using multimedia techniques (31%) and evaluating education (28%). 53% also identified networking, support and sharing good practice as an important learning need.

**Discussion:** Based on these results we created 'Developing Educator Workshops' focused on developing each individual's skill in the context of their own learning environment and inter-professional interactions.

**Conclusion:** A highly valued component of an Inter-professional faculty development programme is the inclusion of opportunities for professionals to network and share good practice. Continued professional development in teaching and learning skills remain a priority despite prior knowledge and skills.



**Take Home Messages:** In designing a faculty development programme for skilled clinicians, careful consideration should be given to their prior training, current education roles and self-assessed learning needs.

#7EE03 (134737)

**An effectiveness study of virtual environment-based workshop in one minute preceptor model nursing faculty training**

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**Background:** Clinical nursing preceptors play a critical role in helping new nursing staffs to develop their career, adapt to the environment and learn professional topics. So many faculty development activities are designed to enhance their ability as clinical teachers. However, the effectiveness evaluation of such activities is often ignored or improper.

**Summary of Work:** Based on microteaching model and situation-simulation teaching concepts, we designed a one-day novel virtual-environmental based workshop of one-minute preceptor (OMP) training for nursing preceptors in our new “clinical virtual reality” classroom. We evaluated the effectiveness by a series of 2-station objective structured teaching examination (OSTE) before, immediately after and one-month after the workshop; monthly preceptee’s feedback for 3 consecutive months and group dynamics questionnaire about the workshop. The effectiveness is compared with traditional one-day role-playing based training model.

**Summary of Results:** Twenty-two nursing preceptors received the OMP workshop training in virtual reality group and 23 in role-playing group. The OSTE scores got significant increase after training in both groups (9.4 vs. 20.0 or 17.0). However, the role-playing group showed better scores in the two post-training OSTE than virtual reality group (20.0 vs. 17.0; 18.2 vs. 16.2). The satisfaction for the workshop and the preceptee’s feedback scores are similar between the two groups. The dynamic group questionnaire showed better interpersonal learning and relationship in the role-playing group.

**Discussion:** This study focused on the effectiveness of different design of teaching skill training. Although the microteaching combined with situation-simulation is theoretically better for skill training, our study failed to prove this benefit in our design for OMP training. The underlying reasons possibly include the too much observation and less interactive time with other

participants or the experience difference of workshop facilitators.

**Conclusion:** Both microteaching combined with situation-simulation or role-playing based design are beneficial in OMP training. The effectiveness is similar when the total training time is same.

**Take Home Messages:** 1. Microteaching combined with situation-simulation or role-playing based design are with similar beneficial effect in one-day OMP training. 2. The group dynamic may play an important role for the effectiveness of teaching skill training.

#7EE04 (133516)

**Consolidation Program in Emergency Medicine - an innovative approach to faculty development**

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Khalid Bashir (HMC, Doha, Qatar)

Hossam AbdelDayem (HMC, Doha, Qatar)

**Background:** The Emergency Medicine Residency Training Program (EMRTP) in Qatar achieved accreditation by the Accreditation Council for Graduate Medical Education International (ACGMEI) in 2013. The primary training site for EMRTP is based at one of the world’s busiest Emergency Departments at Hamad Medical Corporation with around half a million patient attendances annually. The faculty are of multinational origin and training with variable academic backgrounds and certifications that are not necessarily standardized. We describe an innovative 12 month faculty development initiative called the “Emergency Medicine (EM) Consolidation Program” aimed to improve the consistency and quality of the faculty.

**Summary of Work:** Twenty faculty members were selected after an exhaustive multi modal assessment process mapped against the six ACGMEI competencies. This provided a baseline of their achievements and competencies. They were then enrolled into a targeted program of face-to-face teaching, clinical skills training, brief updates in teaching, managerial and research skills, E-learning modules, workplace assessments and logged experiential learning. Enhanced training was offered in communication, leadership and academic skills. They also undertook a quality Improvement or small research project under guidance. Their progress was monitored through regular assessments by the equivalent of a clinical competency committee, consisting of experienced senior faculty.

**Summary of Results:** The EM consolidation program has resulted in excellent levels of satisfaction from the enrolled faculty as measured by pre and post course feedback surveys done at key points within the program. There has been minimal impact on clinical service, as the learning is done through specifically targeted non-clinical time that is already allocated or other means such as E-learning. At the end of the program, successful participants are signed off as having achieved equivalence to an ACGMEI approved

residency program and may be recommended for further fellowship training in sub-specialties.

**Discussion:** Faculty development programs in busy specialties like EM are often met with huge challenges due to time and resources. Uncertainties exist with defining what the faculty need and how this could be delivered and measured. Introduction of a new international standard such as the ACGMEI presents us with a huge opportunity to improve the quality and confidence of the existing faculty.

**Conclusion:** We anticipate this model of faculty development may be applicable to international programs elsewhere which may be in similar need of quality assuring their faculty for the purposes of rigorous accreditation requirement or simply to improve the consistency of faculty in delivering high quality patient care.

**Take Home Messages:** Faculty development is the cornerstone of any high quality residency program and could be achieved even in the presence of constraints in time and resources. Careful selection and continuing support through a variety of innovative methods has helped us in delivering a successful faculty development program with demonstrable outcomes.

#7EE05 (134267)

#### The role of leadership in medical faculty development program in a third world country

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**Background:** The role of teachers in medical schools is increasingly significant. A faculty development program to assure medical teacher's capacities as educator, scholar, researcher, leader and administrator is therefore critically important. Despite the importance, a systematic faculty development program can be challenging in a third world country with growing number of medical schools.

**Summary of Work:** This is a phenomenology study aimed to explore current faculty development programs in medical schools in Indonesia. A total of 6 focus group discussions involving 48 leaders representing new and established, public and private medical schools with various accreditation levels were conducted. Narrative data were recorded and transcribed verbatim. They were analyzed accordingly using core concepts of faculty development as the key framework.

**Summary of Results:** The thematic analysis revealed four main themes: the expected roles of medical teachers (roles in teaching, research, and services, challenge in advancing research role, individual and institutional approach), career development and recognition (preclinical-clinical medical teachers' and

medical schools' challenges), recruitment of medical teachers (challenge of new and established medical schools) and current faculty development programs (focus on formal postgraduate education, need for collaborations with local governments, hospitals, and other medical schools).

**Discussion:** This study revealed that current programs developing medical teacher's roles in our setting are mostly sporadic. Research advancement has been challenging in all medical schools and require further attention. The efforts to fulfill the quantity still outweigh those to assure the quality of medical teachers. This is particularly the issue for new and private medical schools. Without effective leadership roles, the faculty development program might be less prioritized in the medical schools.

**Conclusion:** This study highlighted the challenges and the role of effective leadership in establishing medical faculty development programs. While the results can be country specific, similar conditions and the need for effective leadership should be considered in settings with growing number of medical schools yet with limited resources.

**Take Home Messages:** The medical school leaders need to have visions on the importance of the faculty development program and how it can be developed with consideration of current limitations. Further advocacy for consistent government policies and collaborations with other stakeholders are required.

#7EE06 (134462)

**The Centennial Scholars Program at the University of Wisconsin School of Medicine and Public Health: Successful Advancement of Faculty Diversity**

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Alice Frohna (University of Wisconsin School of Medicine and Public Health, Madison, WI, USA)  
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**Background:** Many medical schools are committed to increasing the diversity of their faculty. Faculty development programs for underrepresented minorities are a potential way for such individuals to thrive in their roles in academic medicine and provide role models for learners at all levels.

**Summary of Work:** The Centennial Scholars Program (CSP) at the University of Wisconsin School of Medicine and Public Health was created in 2009 to increase the number of faculty from those groups that suffer from substantial health disparities in Wisconsin: African American, Hispanic, Hmong, and Native American populations. Funding for the program is provided by the Dean's Office, and includes three years of salary support for 50 percent protected academic time for junior and mid-career underrepresented minority faculty. Programming includes bimonthly professional development learning sessions, mentoring, periodic academic review, and social events.

**Summary of Results:** 15 Scholars have been enrolled and 13 have been retained after 5 years. In the fifth year of the program, a qualitative evaluation with interviews of the 13 Scholars yielded data regarding individual experiences with the program. Using a grounded theory approach, each new theme was noted until no new themes emerged. Themes were protected time, mentoring, working together, and achievements. Scholars reported excellent outcomes in academic work due to the protected time for research, education and other scholarly work; development of a sense of community; and mentoring availability.

**Discussion:** The scholars have contributed significantly to the clinical, research, and educational missions of the University of Wisconsin, and are already emerging as future leaders. All interviewed scholars have plans to remain at the institution.

**Conclusion:** The CSP has provided outstanding value to our school's efforts to expand the diversity of our faculty.

**Take Home Messages:** A development program for underrepresented young faculty has helped our institution recruit and retain outstanding faculty scholars who are role models for learners.

#7EE07 (132606)

**Barriers to obtaining required teaching qualifications**

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**Background:** To ensure quality education, all Dutch universities require faculty members who teach to obtain teaching qualifications. At Utrecht University medical faculty, a significant number of teachers struggle to complete their portfolio-based teaching qualification. Literature suggests that clinician teachers may face unique challenges. With the goal of improving the teaching qualification process, we studied the context and barriers experienced by clinician teachers, both completers and non-completers of the process.

**Summary of Work:** Clinician teachers who obtained their teaching qualification between January 2012 and September 2015 completed an anonymous evaluation of the process. We conducted a focus group with current clinician teachers actively in the process of obtaining their qualification and semi-structured interviews with those who are stalled or have never started the process. We asked them to discuss perceived challenges in the process and recommend solutions. We performed thematic analysis of all evaluation comments and transcripts using open and axial coding.

**Summary of Results:** Of 156 clinician teachers approached, 83 (53.2%) completed the evaluation; 7 of 25 (28.0%) participated in the focus group, and 8 of 23 (34.8%) agreed to be interviewed. We identified three themes related to context and barriers (a) clinician teachers were unclear on the purpose of the teaching qualification, licensing versus faculty development, and only valued the latter; (b) they described lack of transparency and support for the process within the work environment, and (c) they cited a culture of devaluing education compared to other tasks in the medical center's clinical departments.

**Discussion and Conclusion:** Busy clinician teachers appreciate faculty development. However a teaching qualification process identified as heavily administrative is not worth their effort in an environment with perceived low support and value for education.

**Take Home Messages:** Required teaching qualification programs should pay attention to faculty members' lived experiences and create environments that are both structurally and culturally supportive.

#7EE08 (134366)

**Exploring factors that negatively influence clinical teachers' learning following faculty development program using self-regulation theory**

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**Background:** Faculty development is an essential component in every medical education institution. However, there is little evidence regarding its effectiveness. This study aims to understand why faculty learning fails to be effectively translated into practice. A qualitative methods approach underpinned by self-regulation theory is adopted.

**Summary of Work:** One-to-one semi-structured interviews with clinical teachers from a single hospital in Taiwan participated (n=9). All interviewees all had participated a faculty development program for clinical teaching three months before their interviews. All interviews are being audio-taped, transcribed and thematically analyzed using inductively and deductively using self-regulation theory.

**Summary of Results:** Key findings will be presented and supported by examples from the interviews. Preliminary analysis suggests an interesting pattern of self-regulation behaviors of medical teachers including two additional factors (\*): (1) goal setting: process of establishing objectives before clinical teaching; (2) intrinsic interest: Believes in the profession of clinical teacher; (3) performance goal orientation: goals compare with other clinical teachers; (4) mastery goal orientation: goals compare with self-set standards; (5) self-instruction: process of monitoring in clinical teaching; (6) self-evaluation: process of self-evaluating previous and current teaching performance; and (7) self-reaction: responses after teaching performance; (8) balancing clinical loading and teaching: evaluating clinical loading and teaching weight according to the clinical practice;\* (9) limited opportunities for implementation: the opportunity of teaching after faculty development program for clinical teachers.\*

**Discussion:** Possibly due to cultural differences or the poor function of remediation in faculty development, help-seeking is not frequently seen in our study. Additionally, emotional control is absent. Again, cultural differences could be cited: expressing obvious emotional ups and downs when problems occur is uncommon in Taiwanese culture. On the other hand, 'balance between clinical loading and teaching' and 'opportunity of implementation' were new factors found in this study.

**Conclusion:** The framework of self-regulation can be usefully applied in the Taiwanese context although some amendments might be necessary.

**Take Home Messages:** The framework of self-regulation can be used to understand why faculty development does not always translate into faculty action.

#7EE09 (135640)

**Outcomes of the Implementation of a Certificate Program in the Development of an OSCE with Standardized Patients**

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**Background:** Our Objective Structured Clinical Examination (OSCE) program with standardized patients (SP) has been running for four years.

Expansion of this program created a need for faculty training, thus we developed and implemented a certificate program in development of an OSCE with SPs.

**Summary of Work:** We developed a certificate program in the development of an OSCE with SPs for the assessment of residents' communication skills. The curriculum was created using the six-step approach and was delivered during 5 half-day sessions. The program received CME credits through the local accreditation authority. The pilot included 12 Internal Medicine practitioners. Curricular content included defining objectives, case and checklists/scoring development, SP training, and providing feedback. The program culminated in a four case mock OSCE using cases that were developed during the sessions. The learners completed Individual Learner Strength and Needs pre- and post-assessment questionnaires as well as course evaluations. Six month follow-up data on further case development was obtained

**Summary of Results:** Ten learners created OSCE cases and successfully completed the program. Learners' perceived improvement in their self-rated expertise in both theoretical and practical aspects of OSCE/SP program development, with a majority shifting from 'novice' and 'able to address this area' to 'feel(ing) very confident'. All participants rated the program format and delivery highly on a Likert scale, and 70% 'strongly agreed' and 30% 'agreed' that program met stated objectives. 90% indicated no barriers to implementing what they learned. Long-term outcomes are the successful finalization and integration of two cases developed during the course into the Internal Medicine residency OSCE/SP curriculum.

**Discussion:** Our OSCE certificate program is a feasible and successful format to deliver OSCE/SP development training.

**Conclusion:** Program is adaptable and can be applied to different disciplines locally, regionally and internationally.

**Take Home Messages:** A certificate program for OSCE/SP program development is effective for training



faculty and developing new cases for future applications.

**#7EE10 (134373)**

**Teachers' perceptions on their professional practice after participating in faculty development initiative for training and implementation of OSCE assessment in University of the State of Rio de Janeiro Medical School (FCM/UERJ), 2015/Brazil**

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**Background:** Since 2014, with the release of National Curriculum Guidelines (NCGs2014), faculty development has gained great importance within Brazilian medical schools. On one hand, identifying faculty needs is essential for effective faculty development planning; on the other, teacher's qualification and commitment to new educational standards are essential tools in the improvement of curricular and cultural changes in medical education. In FCM/UERJ, the implementation of a new medical curriculum on the grounds of NCGs2014 has been a challenge since then.

**Summary of Work:** The main goal of this study was to investigate the perceptions of medical teachers following a successful faculty development initiative in FCM/UERJ, particularly regarding their perceptions on (1) the improvement on their professional qualification, (2) the institutional appreciation of their work, (3) their professional identity as faculties (in addition to medical doctors) and (4) their commitment to the pedagogical project of FCM/UERJ. For this purpose, a semi-structured online questionnaire was applied to the assessors of the OSCE/2015 (n=75), in order to identify the faculties' impressions about personal and professional repercussions of their participation in the initiative.

**Summary of Results:** The respondents (41%) valued their experience of working together with peers, recognized and felt pleased about institutional engagement on their professional qualification and also showed concern regarding the education of their students on the grounds proposed by the NCGs2014. In some cases, this training experience was the faculty's first contact with active teaching-learning-assessing methodologies.

**Discussion:** In this study, beyond ensuring teachers' qualification, a faculty development initiative reinforced the teaching staff unity and favored faculty professional identity and collaborative team work.

**Conclusion:** Faculty development can be considered a fruitful ground for the development of curricular improvements and continued institutional evaluation and management, as contributes to reinforce medical teachers' professional identity and to shape a collaborative teacher staff.

**Take Home Messages:** Faculty development is an important tool to curricular and and cultural changes in medical education.

**#7EE11 (132466)**

**Development of targeted sessions on adult education for emergency physicians**

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*Tina Bhandari (University of Toronto, Toronto, Canada)*

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**Background:** Emergency medicine physicians have a range of training in medical education; some have no formal training in medical education, whereas others have completed advanced degrees in adult education. At present there are no widely available short duration (30-60 minute) targeted adult education sessions for emergency physicians. Existing seminars, require a significant commitment of time and money that may act as a barrier for many clinically active emergency medicine staff.

**Summary of Work:** By following Kern's (2009) approach to curriculum development we developed a series of brief sessions to address the adult education learning needs of emergency medicine staff in Toronto. Using an electronic survey we solicited feedback from Toronto emergency physicians on their current level of comfort in adult education, their receptivity to adult education sessions, and their areas of interest for such sessions.

**Summary of Results:** Our survey confirmed a demand for short sessions on adult education. Based on the results of our survey we developed specific goals and objectives for our series of education sessions. We created a series of six 30-60 minute powerpoint-based sessions. The sessions were piloted for emergency staff physicians with feedback on learner impressions and planned changes to practice.

**Discussion:** By conducting an electronic survey and using established principles of curriculum development, we designed a series of brief, targeted sessions to address medical education needs for emergency medicine staff.

**Conclusion:** Emergency physicians have varied degrees of experience and training in medical education. Through this project we were able to develop a series of brief sessions addressing key needs identified by emergency medicine staff in our city.

**Take Home Messages:** Emergency medicine has unique medical education challenges. In responding to needs identified by emergency physicians we were able to successfully develop a series of brief targeted medical education sessions.

#7EE12 (135398)

**Online Faculty Development Opportunities for Patient | Carer Community to Support, Enhance and Enrich the MBChB curriculum**

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*Nancy Davies*

*Barry Ewart*

*Jools Symons*

**Background:** The University of Leeds delivers a responsive MBChB curriculum which focuses on end-user needs, preparing students for the multiple roles a future doctor will undertake, outlined by the GMC. Enhancement of teaching skills is supported through a programme of face-to-face CPD events alongside existing LITE-BITEs - free e-learning packages (online and app) focusing on specific teaching issues.

**Summary of Work:** The inclusion of the Patient | Carer community (PCC) in the management, teaching and delivery of the MBChB has been noted as an area of good innovation and practice by the GMC ([http://www.gmc-uk.org/Leeds\\_School\\_of\\_medicine\\_report\\_final.pdf\\_60203552.pdf](http://www.gmc-uk.org/Leeds_School_of_medicine_report_final.pdf_60203552.pdf)). Recognising the vital role they play in enriching the curriculum, a multi-team collaboration has produced resources for addition into the LITE-BITEs portfolio. Material incorporated includes: teaching from patient perspectives; sustaining a vibrant educational community and incorporating voluntary/community groups into the MBChB programme. These additional resources embodies the nature of the professional, integrated spiral curriculum.

**Summary of Results:** Additional sections on the LITE-BITE platform have been added, centering on involving patients | public and community groups in teaching. By creating these resources in partnership, the learning is meaningful and contextualised. These resources are free, fully endorsed by the relevant groups, and accessible by all, offering inclusive support for enhancing teaching skills.

**Discussion:** This resource raises awareness and facilitates involvement of PCC and community groups in teaching. It highlights the necessity of offering accessible faculty development to all and by creating resources in partnership with the diverse community of educators, many issues are contextualised and as such promote a culture of scholarly engagement.

**Conclusion:** We have extended provision of online Faculty Development opportunities to encompass all involved in medical education. Bespoke resources have been made accessible as to enable patients/carers/community to enhance their teaching skills and promote their vital inclusion into the innovative and responsive MBChB.

**Take Home Messages:** On-line teaching support has been provided as a faculty development innovation reaching the diverse community of Medical Educators at the University of Leeds.

#7EE13 (136329)

**Interventions for faculty development in undergraduate health programs: a systematic review. Foundations to build an interactive online platform to faculty development**

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**Background:** Research on faculty development in health programs are extensive and include studies of qualitative and quantitative, according to the type of question to be answered. With respect to faculty development in undergraduate health programs, there is a lack of studies that assessed the effectiveness of different interventions in the development of teachers, students and institutions.

**Summary of Work:** Aim: to assess the effectiveness of interventions in faculty development for teachers and students in undergraduate health programs, and support the construction of an interactive online platform for faculty development. Methods: an electronic search was performed in several databases: MEDLINE via PubMed (1948 to Jan 16th, 2014), EMBASE via Elsevier (1980 to Jan 16th, 2014); LILACS "Literatura Latino-Americana e do Caribe em Ciências da Saúde" via IAHX / IBECs form "Índice Bibliográfico da Espanha em Ciências da Saúde" / BDEF - "Biblioteca da Enfermagem" / COCHRANE (1982 to Jan 16th, 2014), ERIC via Web (1964 to Jan 16th, 2014), and BEME (2000 a 16 de Janeiro de 2014). Selection Criteria: all randomized controlled trials that assessed the effectiveness of interventions in faculty development for faculty in undergraduate health programs. Data Collection: Two authors independently selected studies for inclusion, extracted data and assessed the risk of bias.

**Summary of Results:** 3,946 articles, 26 books and 22 theses were identified. Of these, 83 were selected for initial evaluation. Five randomized controlled trials were included, including a total of 283 participants from interventions in faculty development. In assessing the educational outcomes, according to Kirkpatrick, a study was classified as level 4B, five as level 3, three as level 2B, four as level 2A, and three as level 1. None of the five studies was rated with a low level of bias for all domains assessed. Using the Medical Education Research Study Quality Instrument (MERSQI), the average points for the five studies was 15.7.

**Discussion:** Regarding the results of the outcomes assessed, participation in faculty development was definitely beneficial. They developed awareness of strengths and limitations, as well as the willingness to evaluate and improve teaching methods by changing the way of teaching during faculty activities, perceived problems in teaching, change in exams and feedback, and changes in increased retention of learning.

**Conclusion:** The available evidence demonstrated the effectiveness of faculty development interventions in

undergraduate health programs. Further randomized controlled trials are needed to strengthen the findings of the studies included in this review.

**Take Home Messages:** The available evidence demonstrated the effectiveness of faculty development interventions in undergraduate health programs.

**#7EE14 (134356)**

**The Impact of Faculty Development on Medical Teachers Perceptions: 5 years of Experience at Tbilisi State Medical University, Georgia**

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Marine Mamaladze, Tbilisi State Medical University, Georgia

**Background:** Faculty development has been considered as an essential tool for achieving high quality medical education. The first Faculty Development Center (FDC) in Georgia was created in 2012 at Tbilisi State Medical University (TSMU) in the frame of EU funded project MUMEENA (2011-2014). The FDC aimed to familiarize professors with modern standards of medical education, and teaching, learning and assessment methodology. In this study we assessed medical professors perceptions after training at the FDC.

**Summary of Work:** Faculty development was based on TOT principle and preceded by training of eight academics at the Institute of Medical Education at University of Leeds (UK). Faculty development program 7-day training comprising workshops on the following modules: Assessment methods, OSCE, Integrated Curriculum, Case-based Clinical Reasoning, Portfolio, Research methodology and Teaching in large groups. To get trainees feedback special anonymous questionnaires were designed and surveys were conducted after each workshop.

**Summary of Results:** Since 2012 a total of 312 medical teachers have participated in training at the FDU. Analysis of surveys showed that 253 (81%) of teachers were highly satisfied with modules expressing readiness to apply acquired knowledge in teaching activities; rest of trainees asked to replace some modules introducing new ones (i.e. Grant writing, PBL, etc). Interestingly that there were 3 respondents who considered that conducting trainings is not necessary.

**Discussion:** The study showed that some academics express resistance to changes that led to consideration how faculty development process can be improved.

**Conclusion:** The results of the survey confirmed that training of medical professors at the FDC positively changed their perceptions towards improving teaching skills. Renewal of modules in faculty development program might be useful to increase teachers' interest.

**Take Home Messages:** Continuous faculty development based on analysis of teachers feedback is an important step towards improvement of medical education at medical school.

**#7EE15 (135513)**

**What's in a clinical education dissertation?**

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Gillian Aitken

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**Background:** Masters programmes in health-professions education often culminate in the completion of a dissertation based on an original research project. Systematically reflecting on the characteristics and outcomes of Masters dissertations can be extremely useful for local evaluation and development, helps to highlight a potentially rich body of grey literature which may not have subsequently been published, and provides an opportunity to observe trends in context, topic and methodology which may be indicative of wider movements in clinical education.

**Summary of Work:** We undertook a scoping review of all Masters dissertations submitted as part of the MSc in Clinical Education at the University of Edinburgh since its inception in 2006. We developed a codification system to describe the key features of the dissertations, then extracted data related to student demographics and the context of the research, research design and methods, dissertation research participants, final mark awarded, and various other parameters.

**Summary of Results:** Information from 71 dissertations were collated and analysed. Most had passed (17 A, 26 B and 25 C grade), with only three fails. The majority of dissertations used qualitative or mixed-methods designs, with semi-structured interviews being the most common method. Most research participants were qualified health professionals or undergraduates, and most were connected to a university and / or based in secondary care.

**Discussion:** The approaches, topics and issues addressed in the dissertations were very interesting and enlightening, and will be presented and discussed in detail.

**Conclusion:** The preponderance of qualitative designs using interviews may reflect the practical challenges in conducting research in the 12 months available or the focus of the methods course on this topic. Students only progress to the dissertation if they are likely to successfully complete so it is not surprising most pass.

**Take Home Messages:** Analysing MSc dissertations provides useful insights of wider interest as well as being useful for local evaluation.

#7EE16 (135091)

**Variation in professors' teaching efficacy by demographical factors and rate of participation in faculty development programs in a medical college in South Korea**

**Seong Yong Kim\***, Yeungnam University, Daegu, South Korea

Soo-Koung Jun (Yeungnam University, Daegu, South Korea)

Kyeong-Soo Lee (Yeungnam University, Daegu, South Korea)

**Background:** Higher educational institutions provide faculty development programs to improve professors' competencies. One of the most important competencies is the teaching efficacy, which is a teachers' belief that one can help students' learning and achievement. Higher teaching efficacy of teachers gives an impact on active participation in using new teaching methods and interactions with students. This study aimed to examine the variation in the professors' teaching efficacy by demographical factors and rate of participation in faculty development programs in a medical college.

**Summary of Work:** The data were collected from 59 faculty members who participated in the Professor's Seminar. The Teaching Efficacy Scale by Eun-Young Hwang (2006) was used, having 3 factors: Confidence in knowledge, Teaching strategy control, and Leadership. The data were analyzed by methods of descriptive analysis, analysis of variance, and the Mann-Whitney U-test.

**Summary of Results:** The faculty members' teaching efficacy differed significantly by gender and the participation level in faculty programs, while it did not differ by educational career, job status, or specialty. Out of 3 factors of teaching efficacy, the score of leadership was higher as the rate of participation in faculty programs increased. The scores of teaching efficacy of male teachers was higher than female.

**Discussion:** The research results shows that various faculty programs should be developed to increase the satisfaction level of different groups of faculty members, in particular for female faculty, and they should be more focused on teaching efficacy, as it is considered to be one of the most effective way to increase the quality of education.

**Conclusion:** Teaching efficacy is considered to be one of the most effective way to increase the quality of education.

**Take Home Messages:** To evaluate the teaching efficacy of professors in medical schools more accurately, a scale for medical teaches needs to be developed and validated in the future in Korea. Gender issue in the variation of teaching efficacy should be more examined with more numbers of participants in the study.



## 7FF Posters: Curriculum Evaluation 3

Location:

#7FF01 (135530)

**Learning together with and within the community: a study into healthcare students' attitudes towards interprofessional education before and after a community-engaged health promotion day**

*Elliot Catchpole\*, PU PSMD, Exeter, UK*

*Richard Ayres*

*Sebastian Stevens*

*Katherine Stevenson*

**Background:** Interprofessional education (IPE) is an evolving teaching method employed in undergraduate and postgraduate healthcare education and is promoted by various prominent organisations.

Although community learning is becoming increasingly important in healthcare curricula, there is very little literature regarding social engagement and IPE. This study aims to explore healthcare students' attitudes towards IPE before, during, and after participating in a community-engaged 'happiness and wellbeing' event.

**Summary of Work:** A mixed-methods approach has been adopted, involving a before-and-after quantitative attitudinal questionnaire (Readiness for Interprofessional Learning Scale, RIPLS), and various qualitative methodologies including reflective diaries, focus groups, and visual ethnographic data from the event. Being a community-engaged event, prominent members of the local community centre were involved in the planning and running of the event, which focused on happiness and wellbeing. Students attended a planning workshop to create activities and stalls for the community in interprofessional teams.

**Summary of Results:** Although the study is ongoing, preliminary results suggest that students found the community-engaged event enjoyable and that learning together with other healthcare disciplines and the community has benefits that are not possible within the traditional university setting.

**Discussion:** Students felt the event gave them an opportunity to interact with other students and with the community. However, multiple challenges are present in regards to curricula integration, including lengthy organisation of events in partnership with the community and scheduling issues with multiple student disciplines.

**Conclusion:** Early findings suggest that community-engaged medical education research is valuable to multiple stakeholders, although there are barriers in place against making this concept mainstream.

**Take Home Messages:** • Students value working together in a community setting • Students are able to interact with the local community and provides wider benefits for students' learning • Community-engaged medical education allows long-term connections to be made between academic institutions, students, and the community

#7FF02 (126771)

**Medical students' experiences of working as general practitioners in a public health center**

*Maria Hagnäs\*, Unit of Primary Health care and Research Center for Life Long Health, University of Oulu, Oulu, Finland*

*Ilona Mikkola (Rovaniemi Health Centre, Rovaniemi, Finland)*

**Background:** In Finland, medical students are able to work as general practitioners (GPs) in public health centers after five years of studies. Although the student intake amounts are increasing, the teaching resources have been decreased in medical faculties. Therefore, primary care supervising by senior-GPs are in important role in medical education.

**Summary of Work:** To evaluate the medical students' experiences of working as GPs in Rovaniemi health center during summer time in the years 2013-2015 (N=45). The quantitative questions were scored as 1 to 5, as 1=Poor and 5=Excellent and dealt with statistically. Complementary open questions were analyzed qualitatively.

**Summary of Results:** Medical students thought that senior support (mean 4.8, SD 4-5) was well organized. The first experience in primary care was more positive than they expected. However, they opined that they got feedback from their work poorly (mean 3.7, SD 2-4). "I wonder if I did anything right".

**Discussion:** Medical students appreciated good senior support and familiarization. However, the lack of constructive feedback about their clinical skills was evident.

**Conclusion:** Learning of self-reflection is recommended from the beginning of the studies for medical students to evaluate their own professional development. The first experience of working in primary care is a great possibility to introduce GPs' work to medical students.

**Take Home Messages:** Constructive feedback and good supervising provided by senior colleagues are needed to support the professional growth of medical students working as GPs.

#7FF03 (131730)

**Perception gaps between core teaching hospitals and cooperative training facilities regarding community medicine in Japanese clinical training systems**

*Junichi Tanaka\*, Tohoku University Hospital, Sendai, Japan*

*Takehiro Numata*

*Hitoshi Kuroda*

*Michiaki Abe*

*Shin Takayama*

*Tadashi Ishii*

**Background:** A two-year clinical training system was introduced in 2004 for medical school graduates with community medicine included as a mandatory subject. Each institution decides the subject's contents; however, what these specific contents are and effects of the community medicine training are unknown.

**Summary of Work:** We surveyed 57 core teaching hospitals and 181 cooperative training facilities regarding community medicine. The questionnaire asked about community medicine training in terms of its curriculum development, its effectiveness, and the suitability and learning of the basic attitudes needed to be a medical practitioner.

**Summary of Results:** Both facilities see community medicine training as effective. However, there are perceived gaps in community medicine training between the two organizational types regarding learning about the "doctor-patient relationship," "team medicine," and "sociality of the medicine." Approximately 30% of the cooperative facilities do not design the community medicine curriculum.

**Discussion:** If only one of the organizational types designs the community medicine curriculum, this has a potentially harmful effect on residents in community medicine, as it may not take into consideration the learning items that the other organizational type considers advantageous.

**Conclusion:** There are perception gaps between core hospitals and cooperative facilities about community medicine training; such gaps potentially limit the learning of community medicine.

**Take Home Messages:** To improve the community medicine curriculum, it is necessary to recognize and narrow these gaps.

#7FF04 (135499)

**Complacency in using electronic survey**

*Chirayu Wiwatwarapon\*, Phramongkutklao College of Medicine, Bangkok, Thailand*

**Background:** Guiding medical student to understand the community is one of the missions of the department of military and community service. There are many ways letting medical student join the community, one of it is doing a health survey. Every year problem of doing the survey is gathering the data in form of paper but this year is replaced by electronic survey. This study represented the efficacy of the electronic survey form all users whether it worth or not.

**Summary of Work:** A study was conducted in medical student who took a survey in Chachoengsao, Thailand between 18-14 September 2014. The standardized questionnaire was used to determine the complacency of all users. The questionnaire is included convenience of using, accuracy of the data, interaction of people, cost and benefit, timing of analyzing the data, work load, and overall result. The result of the questionnaire is represented by the level of complacency which leveled to 5 categories. The category 1 means "least satisfied" and 5 mean "most satisfied".

**Summary of Results:** The total of 102 participants were enrolled into the study, of those 60 (58.8%) were male and 42 (41.2%) were female. 41 (40.2%) using Android, 61 (59.8%) using IOS. The question of convenience of using, accuracy, cost and benefit, timing, workload and overall complacency most reviews said very satisfied. In the other hand, the interaction of people is vary (5= 15 (14.7%), 4 = 39 (38.2%), 3= 25 (24.5%), 2= 18(17.6%), 1= 5(4.9%))

**Discussion:** From the result most people agree that electronic survey than using the ordinary, we found unexpected result of interaction between people that which should be in the same direction as other but interaction depend on many factors such as the personality of the interviewer also the interview.

**Conclusion:** Most people think using the electronic survey is very convenient

**Take Home Messages:** Use electronic wisely don't let it effect humanity.

#7FF05 (134928)

**A Medical Education Student Workshop Experience on Community Based Medical Education**

**Busra Oner\***, Sakarya University, Sakarya, Turkey

Bahar Bas (Canakkale Onsekizmart University, Canakkale, Turkey)

Ertugrul Yesilyurt (Canakkale Onsekizmart University, Canakkale, Turkey) (Çanakkale Onsekizmart University, Çanakkale, Turkey)

Emre Has (Turgut Ozal University, Ankara, Turkey)

Bahadır Kocak (Osmangazi University, Eskişehir, Turkey)

Edanur Kose (Bezmialem University, İstanbul, Turkey)

**Background:** Community Based Medical Education (CBME) practices are still continuously being discussed in Medical Education. We believe students opinions are lacking on the matter on the theory and practice of CBME. This is why we aimed to create a workshop for students interested in medical education to be informed about the concept and its applications.

**Summary of Work:** We held an organization to bring together 120 medical students from 40 different medical faculties around Turkey. The organization was planned, prepared and run by students. We organized informative seminars from academicians, discussion times on applications of CBME and moderated sessions that helped us to find improvements to current situation.

**Summary of Results:** There is a common sense in all students who were attended our workshop that doctors must be sensitive on community Without any discrimination. Also its first step should be to remember biophysicosocial approach at every Moment of continuing medical education. On this basis we expect medical faculties to act mindful towards teaching of conservative medicine during their undergraduate training service.

**Discussion:** Because of the varieties of infrastructure in different faculties students couldn't get the same chance to reach community and this was our challenge to create a one suitable program to fit all different circumstances. After all, participants who were aware of this variation started to learn infrastructural and academic advantages and disadvantages of their own systems.

**Conclusion:** When we realized what to do, we started to plan how to get a bigger role as students to improve the community based medical education practices in our country and to catch the global standards.

**Take Home Messages:** During discussion that involved all participants in small groups and with feedbacks after the workshop we saw that when given a chance, medical students have very innovative ideas and are willing to participate the improvement process.

#7FF06 (134298)

**Listening to Rural Preceptors: A Needs Assessment for Geographically-Distributed Sites**

**Sudha Koppula\***, Department of Family Medicine, University of Alberta, Edmonton, Canada

Fred Janke (Department of Family Medicine, University of Alberta, Edmonton, Canada)

**Background:** Family medicine teachers in rural Alberta, Canada are valuable educators. To support their high quality teaching, faculty development is crucial. To design and deliver effective faculty development, input from teachers is helpful. Needs assessments are one way for teachers to provide input into teaching topics of interest and need as well as preferred methods of delivery. The purpose of this project is to design a faculty development needs assessment survey, including preferred learning process, for rural clinical teachers of the University of Alberta, Department of Family Medicine, administer the survey, and analyze the data.

**Summary of Work:** Rural faculty developers determined geographic regions within rural Alberta based on which local resources and work environments are similar for teachers. Questions were developed by these faculty developers to determine teachers' preferred topics, methods and frequency of delivery, and knowledge of strategic planning discussed centrally at the department. The needs assessment was administered by Google Docs to allow for meaningful grouping of data. The data was primarily analyzed by region and preferred methods.

**Summary of Results:** Teachers expressed interest in common clinical teaching topics. The preferred methods and frequency of delivery varied by region. Preceptors described limited knowledge of discussions at the central department office.

**Discussion:** Results suggest that knowledge of clinical teaching topics is a need for rural clinical teachers of family medicine. There is also need for the frequency of presentation to be individualized based on region. There is also need to ensure rural clinical teachers are informed of department strategic planning.

**Conclusion:** This approach to designing a needs assessment around method of delivery and geographic area has been helpful for planning faculty development and to determine the awareness of rural preceptors to central department discussions.

**Take Home Messages:** Approaching a rural needs assessment in this manner may be an example for faculty developers to consider.

#7FF07 (132739)

**HRH Maha Chakri Princess Sirindhorn's project of New Medical Student recruitment program for rural area in Thailand**

**Pornsuda Krittigamas\*, Nakornping Medical Education center, Chiang Mai, Thailand**

*Charnchai Pojchamarnwiputh ( Nakornping Medical Education center, Chiang Mai, Thailand)*

*Achara Nithi-aphinyasakul ( CPIRD, Bangkok, Thailand)*

*Rajin Arora ( CPIRD, Bangkok, Thailand)*

**Background:** In case of high socioeconomic family and study in high quality school have more chance to study in Thai medical school. Until now, no medical doctor sustainable in the rural area especially in Thai-Burma border. More than 10 years ago, HRH Princess Sirindhorn patroned student from this area to study in health science education (e.g. nurse). This health science project created health to home town. In 2013 HRH Princess Sirindhorn initiated project to support student from this area to study medicine.

**Summary of Work:** A prospective descriptive study was performed during 1 year period from 2013 to 2014. Medical students were selected from students who a native habitat at least 5 years studied in three school (Matuen Vitaya School, Omgoi School, Aumpang School). Each School have been selected 10 students from grade 12 by social competency. We have been selected only 5 students from each school by educational competency. Then, gave short course( 60 days) tutorial for 15 students, 10 students were selected, then promote to the medical student of Payao University.

**Summary of Results:** 2 students can pass entrance to Payao Medical School (20%).

**Discussion:** Compared to other group of student who are well supported by family, 20% chance of getting into medical school may be small but compared to usually 0% chance of this. Next year this project will give short course tutorial for student grade 10-12. Improvement of teaching and learning in secondary school and high school in these area is required.

**Conclusion:** This project is very usefully and showed that improve health service equity via by improve education equity first.

**Take Home Messages:** Health service equity was made by education equity.

#7FF08 (133722)

**The differences in the accumulated grade point average between high school and medical years for the Collaborative Project to Increase Production of Rural Doctor (CPIRD) and a project of the One District One Doctor (ODOD)**

**Suchat Tantiriramai\*, Prapokklao Medical Education Center, Prapokklao Hospital, Chanthaburi, Thailand**

**Background:** Prapokklao Hospital has been a teaching hospital for more than 30 years. To serve the shortness of medical doctors in the rural area, in last 10 years we have included medical students from 2 tracks. The purpose of this study was to describe differences in the accumulated grade point average (GPAX) between the medical school and high school for both tracks.

**Summary of Work:** The GPAX at the end of high school and medical school's (4th, 5th and 6th years) of each student were reviewed in two tracks 1. the Collaborative Project to Increase Production of Rural Doctor (CPIRD) and 2. the One District One Doctor (ODOD). We analyzed the data were using by a paired student T-test.

**Summary of Results:** There are 113 medical (4th, 5th and 6th year) students. CPIRD students had significant lower mean of the high school GPAX.

**Discussion:** Most of ODOD students were recruited from small cities in rural areas and would work in their home cities after graduation. Unlike the ODOD students, most of CPIRD students were recruited from prestigious high schools in the capital and large cities and would work in large cities after graduation.

**Conclusion:** The high school GPAX was an important criterion for admission medical students, but it was not the determinant of academic success in medical school. CPIRD students had high GPAX than ODOD students in medical school.

**Take Home Messages:** There is the need to explore the other factors that influence academic performance of medical students in order to better the ODOD students. Individual characteristic, socioeconomic status as well as motivational and attitudes toward the medical doctor for ODOD students should be taken into account before they were recruited.



#7FF09 (131668)

**Improve retention in rural area by direct entry of graduates**

*Supachai Nathongchai\*, Somdejprachaotaksinmaharaj Medical Education Center, Naresuan University, Tak, Thailand*

**Background:** World Health Organization Guidelines in 2013 has recommended transform and scale up health professionals' education and training so that health professionals' institution should consider direct entry of graduates from other degrees to increase number of doctors. However quality of education should be considered.

**Summary of Work:** Recruitment of forty five medical students out of 2,707 (1.66%) from 2005 from direct entry of graduates who had prior degree in health sciences was started. They studied preclinical years at Naresuan University and three clinical years at 3 Medical Education Centers (MEC) in provincial hospital of Ministry of Public Health in Thailand . Eight to fifteen medical students were enrolled in each MEC every year.

**Summary of Results:** Prior degree of students are pharmacy (57.67%), public health (20%), medical sciences (10.67%), nursing (10.67%), the rest are physical therapy and veterinary science. All of them passed national licensing examination. Rural retention for at least three years is 96 % when compare with 82.37% in high school track. After three years of compulsory working in rural area for every Thai doctors after graduation, 52.17% still work in rural community hospital. Interestingly 34.78% train family medicine.

**Discussion:** A promising result that graduates from other health sciences degree may be more mature than normal track from high school students as retention rate for 3 years in rural area is better.

**Conclusion:** Our success in teaching medical students by enrolling only small number, good networking between three MEC in teaching and homogeneity of graduate students.

**Take Home Messages:** Direct entry of graduates should be considered in country with shortage of doctors in rural area.

#7FF10 (133594)

**A collaborative approach of rural doctor production in Thailand**

*Nikom Malitong\*, Ratchaburi Medical Education Center, Ratchaburi, Thailand*

*Rajin Arora, The Collaborative Project to Increase Production of Rural Doctor (CPIRD), Ministry of Public Health, Thailand*

*Achara Nithiapinyasakul, The Collaborative Project to Increase Production of Rural Doctor (CPIRD), Ministry of Public Health, Thailand*

*Prinya Chamnan, Sappasitthiprasong Medical Education Center, Ubon Ratchathane, Thailand*

*Rattiya, The Collaborative Project to Increase Production of Rural Doctor (CPIRD), Ministry of Public Health, Thailand*

**Background:** Thailand has been facing the problem of doctor shortage for long. In 1994, she has only 1 doctor per 5,000 populations and 9 medical schools which produced 865 graduates. To achieve the goal of 1 doctor per 2,500 populations, many strategies have been done. This study described the results from the past 20 years.

**Summary of Work:** In 1994, Ministry of Public Health (MOPH) and Ministry of Education started CPIRD (The Collaborative Project to Increase Production of Rural Doctor). It collaborates faculties of medicine and service hospitals of MOPH to produce rural physicians. Medical students of CPIRD were selected from their rural domiciles. Pre-clinical programs are taught in 14 collaborated universities. And clinical subjects are taught in 37 MECs (Medical Education Centre) which are the hospitals of MOPH.

**Summary of Results:** Until 2014, CPIRD has helped producing 5,927 doctors for the country. With 8 students graduated as the first batch in the year 2000, it increased to 904 graduates in 2014. Average graduation rate was 95.6% which 8.5% were honour degrees. The passing rate of national license testing part 1-3 was 99.6%. These figures are comparable with regular university graduates. Currently, CPIRD graduates comprised of 39.0% of all doctors entering community hospitals each year.

**Discussion:** to increase product of doctors for rural area of Thailand to the optimal goal with the facilities of the old faculty of medicine in Thailand must take times in the other word impossible. the collaboration project can reach the accepted ratio between doctor:population in the near future

**Conclusion:** CPIRD helped solving the problem of doctor shortage in Thailand. This partnership model fostered less investment by using the co-existing resources.

**Take Home Messages:** Collaboration between Faculty of Medicine and service hospitals is a good model in producing rural doctors for a country.

#7FF11 (133376)

**Recruitment and retention of junior doctors – to hospitals in rural areas**

*Nynne Lykke Christensen\*, Junior Doctors in Denmark, Copenhagen, Denmark*

*Janne Vinderslev*

*Bo Rahbek*

**Background:** The challenge of recruiting and maintaining employees outside the big cities is worldwide. The challenge is also major when it comes to specialist doctors and junior doctors. Denmark is a small country, but also here we experience great difficulties in filling the positions of both junior doctors and specialist on the smaller regional hospitals. Junior Doctors in Denmark has in late 2015 and early 2016 conducted a number of studies, that produce new evidence concerning the measures that can be taken in use in order to respond to the challenge.

**Summary of Work:** Junior Doctors in Denmark have conducted the following studies:

- Focus groups among politicians in Junior Doctors (spring, 2015)
- Focus groups among members of Junior Doctors (autum, 2015)
- Survey among all members of Junior Doctors (spring, 2016)

**Summary of Results:** There is no simple quick fix solution to the challenge of recruiting and maintaining junior doctors to work in the small regional hospitals. There is an untapped potential for the local employers in developing and implementing a strategy of recruiting and maintaining junior doctors to work in the small regional hospitals.

**Discussion:** The employers in the danish health care system – and probably also in the health care systems abroad! – have a major potential in developing and implementing a strategy of recruiting and maintaining junior doctors to work in the small regional hospitals.

**Conclusion:** Factors such as marketing and customizing a training program for the individual junior doctor offers great potential. Good training opportunities, solid feed back, recognition and to show interest in the junior doctors' private life are some of the crucial factors.

**Take Home Messages:** There is an untapped potential in the following: The challenge of recruiting and maintaining junior doctors to work in the small regional hospitals should be adressed locally and regionally through employer policies – rather than (only) through national structural reforms.

#7FF12 (133528)

**Outcomes of a Community Mentoring Pilot Program for Rural-based Medical Students**

*Rebecca Caygill\*, University of Melbourne, Shepparton, Australia*

*Mia Peardon*

*Julian Wright*

**Background:** Rural relocation can cause anxiety related to geographical and emotional isolation, through the absence of family and friends. These stressors are additional to general academic stressors. Mentoring is positively linked with well-being, career satisfaction, and career advancement. The majority of documented mentoring programs involve pairing students with senior mentors within the same discipline; this program particularly addresses rural-relocation stressors. By pairing students with community based mentors, this novel pilot aims to ease isolation anxiety by providing outside links to the rural community in which students are studying.

**Summary of Work:** Mentors were sourced through local community services; mentees volunteered from students in their first year of rural placement. Matches were based primarily on mutual interest. The program runs over the academic year, during which, students and mentors meet as often as they feel necessary. Evaluation: Three focus groups occur over the year to discuss progress of the mentoring relationship. Surveys are completed, concurrently, with a follow-up survey circulated five months post-program, to assess long term effects of participation.

**Summary of Results:** Evaluation is ongoing: Preliminary findings are positive, and reveal students with a community mentor more easily engage in the community, thus addressing social and emotional isolation issues.

**Discussion:** Rural students face additional stressors associated with relocation and isolation. As a result, finding the right support becomes a challenge. Community based mentoring provides students with a connection to their new community, at the same time providing support separate from the University as well as facilitating a greater sense of wellbeing.

**Conclusion:** Community based mentors provide rural students with additional, external, support, allowing them to integrate into the community, helping to alleviate isolation-based anxieties.

**Take Home Messages:** Rural students experience additional stressors to Metropolitan students: we need to alleviate these stressors to ensure rural students receive the best overall academic experience possible.

#7FF13 (134867)

**Structuring and implementation of indigenous rural internship of Medicine Course from Federal University of Amapá**

**Maira Tongu\***, Federal University of Amapá, Macapá, Brazil

Alessandra Feijão Soares

Anna Valeska Procópio de Moura Mendonça

Adriana Cristina Chagas Bueno

Paulo Narley Matos Lacerda

**Background:** The Federal University of Amapá (UNIFAP) has 25 years and the medical course has six. Nowadays Brazilian medical schools are modifying the curriculum in an attempt to form more critical reflective professional. As well as proposals that use active methods such as problem based learning, practical training was structured in a remote area - rural and indigenous, in Oiapoque city that is distant 600 km from the capital of the Amapá state, at the extreme north of Brazil in the Amazon area.

**Summary of Work:** The internship occurs in basic health units, where students make outpatient care of local and indigenous population, home visits, visits to indigenous villages nearby and lectures in schools on education in health

**Summary of Results:** Although some teachers and students did not believe that the work would be possible it was based and implemented in September 2015. Most of the students were very pleased with the internship because they experienced full-time reality of the local community so needy in medical care and thought the work was very important for medical training.

**Discussion:** Despite the difficulties of structuring an internship in a remote area, establishing partnership with the city's municipality, Brazilian army and financial resource provided by university, was possible the structuring and implementation of the stage.

**Conclusion:** The most gratifying after the completion of the stage was the perception by students of the importance of this type of activity. Even the students who were initially opposed to the stage, reported at the end that indicate the activity to the next classes of students.

**Take Home Messages:** The inclusion of students in remote communities, rural and indigenous provides the students meaningful learning experiences with the acquisition of skills and competencies that can not be offered within the walls of the university or at the hospital.

#7FF14 (132900)

**Peer Review of Teaching for GP Tutors: A Pilot Project**

**Ann O'Brien\***, Barts and the London, Queen Mary University, London, UK

Vidya Mistry

**Background:** Peer review is a method of assessing quality of teaching that involves gaining feedback about teaching from a variety of sources, such as students, peers, and a faculty member's own reflections.<sup>1</sup> Undergraduate teaching takes place at 170 GP practices across London and Essex. Peer review has been expected but has not been supported by formal training to date. The aim of this project was to establish a formative process for peer review to ensure improved quality of teaching and provide evidence for appraisal and revalidation.

**Summary of Work:** A cohort of 40 GP tutors who deliver undergraduate teaching were invited to take part in the project comprising three workshops held between January and June 2015. The first workshop introduced the process and a draft proforma, further developed after feedback from tutors. The second provided training on using the agreed proforma and led to allocation of groupings. The third reviewed the outcome of this pilot and led to the development of a standard operating procedure. Further evaluation of the pilot is on-going and the process has been expanded to all practices.

**Summary of Results:** 25 GP tutors took part in the peer review process. Most GPs had their teaching peer reviewed as well as reviewing a different colleague.

**Discussion:** The overall opinion of GP tutors was positive. They found the process beneficial to their development. The main concerns were organisational and logistical in nature and will be addressed as the process is developed.

**Conclusion:** Peer review is important in ensuring good quality of teaching. The inclusion of tutors in the development of this process has offered a degree of ownership and shared responsibility for quality assurance in education delivery.

**Take Home Messages:** It is possible to develop a peer review process to suit the needs of Practice-Based Tutors and this process could be replicated at other medical schools.

#7FF15 (127294)

**Paediatric Clinical Exposure for Medical Students - Are They Seeing Enough?**

*Penelope Uther\*, UNSW, Sydney, Australia  
(Keith) Chee Y. Ooi (UNSW, Sydney, Australia)*

**Background:** A consensus list of 25 presenting complaints forming a comprehensive paediatric curriculum has been published\*, but the extent of student exposure to these presentations was unknown. Students attend clinical placements in different settings and seasons, potentially adding further variability to their experience.

\*DOI:10.1111/j.1440-1754.2008.01377.x

**Summary of Work:** Students in years five and six of a six year medical degree, undergoing an 8 week paediatric placement, recorded exposure to the 25 listed presentations in a logbook. Data was collected regarding the location and season of attachment, and the presentations seen by each student. Student exposure and variation in experience with season and location of attachment were analysed.

**Summary of Results:** 361 logbooks were analysed. The median (range; interquartile range) number of cases seen was 14 (4-25; 11-17); only 1 student had seen all 25 presentations. 3 presentations had been seen by >90% of students; 9 presentations had been seen by <50% of students. There was no significant difference ( $p>0.05$ ) in the number of cases seen with location (tertiary children's, metropolitan or rural referral hospital), or season of attachment.

**Discussion:** While the most common presentations (febrile infant/child, breathing difficulties and vomiting/diarrhea) had been seen by most students, the vast majority of students did not gain exposure to all presentations; this occurred regardless of the location or season of attachment. Identification of important but frequently missed presentations allows for these to be targeted with other forms of teaching.

**Conclusion:** Students rarely gain exposure to all presentations suggested in a comprehensive paediatric curriculum during an 8 week paediatric attachment. Students have a similar experience regardless of the hospital or season of attachment.

**Take Home Messages:** The most infrequently seen paediatric presentations were identified. Student learning of these topics should be addressed by other means. The location or timing of a paediatric placement does not disadvantage students.

#7FF16 (131679)

**Occupational therapy and physiotherapy students' perspectives and satisfaction with clinical supervision**

*Charmaine Krishnasamy\*, National Healthcare Group, Singapore, Singapore  
Heidi Tan (Tan Tock Seng Hospital, Singapore)*

**Background:** Clinical supervision is provided by a clinical supervisor who is serving in this role, in addition to a clinical load. Literature reports that well-developed interpersonal communication and technical skills, flexible and enthusiastic supervisory styles to meet the needs of students, contribute to effective fieldwork supervision. In addition, students' satisfaction with clinical training can be affected by their perceptions of whether their learning goals are met and environmental factors.

**Summary of Work:** 247 students (occupational therapy (n=103) and physiotherapy (n=144)) completed self-administered surveys at the end of their clinical training in a public healthcare institution in Singapore. Questions were rated on a likert scale, with space for written comments. Chi-square was used to compare groups, text comments were analysed using content analysis, and logistic regression was used to determine if any of the questions predict overall satisfaction with the placement.

**Summary of Results:** A significant association was found between profession and communication of educational goals ( $p<0.001$ ), and profession and training received to achieve learning objectives ( $p=0.03$ ). Supervision time appeared to predict the students selecting 'very satisfied' with their overall training experience (OR=6.30, 95%CI: 1.16-34.27).

**Discussion:** Overall the students were satisfied with the training experience, and highlighted opportunities to apply and deepen their knowledge. They mentioned that their supervisors were 'inspiring', 'passionate', 'helpful' and 'dedicated' and suggested that the training experience can be further enhanced by having more cases, reduced supervisor to student ratio, and more time to learn from supervisors.

**Conclusion:** The perspectives and satisfaction of the students with the clinical training program was highlighted and useful suggestions on how the training experience could be further improved were obtained. These results will support the enhancement of clinical training programs for students.

**Take Home Messages:** The perspectives and satisfaction of the students regarding their clinical training program, and supervision time may have important implications for clinical supervisors and employers.



#7FF17 (133728)

**Developing Qualifications, Training Optometrists, Meeting a Need. The "what", the "how" and the "why" behind a professional development programme for optometrists**

*Jacqueline Martin\*, College of Optometrists, London, UK*

**Background:** The College of Optometrists is the professional, scientific and examining body for optometry in the UK, working for the public benefit. The ageing population means that eye disease is increasing and the hospital eye service does not have the capacity to treat patients effectively. This means new models of service delivery involving community optometrists are needed to ensure that patients are treated in a timely way to reduce the risk of sight loss. However, optometrists need to increase their knowledge and skills to take on this work.

**Summary of Work:** To meet this need, the College has developed a series of higher qualifications to be run by external training providers. This has created nationally recognised qualifications, in areas such as glaucoma and medical retina, which offer reassurance to commissioners that optometrists with these qualifications are all working to the appropriate standard.

**Summary of Results:** To date the College has accredited 13 courses run by universities and hospitals within the UK. 451 College accredited qualifications have been awarded. 86% of people who have taken a qualification said they are interested in taking further qualifications.

**Discussion:** There is an increasing need for optometrists to be able to play a bigger role in the delivery of eye health care. Qualifications such as these play an important part in supporting professional development but greater awareness by both healthcare providers and commissioners is essential.

**Conclusion:** The College qualifications can provide a way for optometrists to respond to the changes being made to healthcare provision in the UK. Uptake and interest in the qualifications suggest that optometrists want to undertake additional learning.

**Take Home Messages:** These qualifications have produced a series of learning programmes that equip optometrists with the skills needed to alleviate capacity issues in the hospital eye service in the UK.

## 7GG Posters: Speciality Training - Paediatrics and Psychiatry

Location:

#7GG01 (134893)

**How residents learn in pediatric emergencies: “do one - reflect one”**

*Matei Petrescu\*, Children's Hospital of San Antonio/ Baylor College of Medicine, San Antonio, USA*  
*Satid Thammasitboon (Baylor College of Medicine, Houston, USA)*  
*Dorene Balmer (University of Pennsylvania, Philadelphia, USA)*

**Background:** Pediatric residents have limited opportunities to participate and learn in emergencies. Situated learning theory focuses on the relation between learning and the context in which learning occurs. Understanding how residents learn in the emergencies they encounter in clinical settings may shed light on how to enhance their training.

**Summary of Work:** We explored the relation between how residents learn in emergencies and contextual factors in clinical settings. Using grounded theory methodology and a convenience sampling, we interviewed 12 pediatric residents (PGY level 1-3) from a US military training program. We inductively, and iteratively created codes, applied codes to transcripts, and analyzed patterns in coded data.

**Summary of Results:** Factors influencing residents' participation in emergencies were residents' learning styles, experience, complexity of the situation, and attributes of supervising physicians. When actively participating in emergencies, residents described being task-focused, having difficulty “clearing their heads”, and struggling to make sense of the situation. Residents reported learning more if supervising physicians adapted active participation to residents' experience, “thought-out loud”, and fostered residents' reflection. When passively participating, e.g., being a “fly in the corner”, residents talked about “just taking it in”. Residents identified debriefing as a key reflection step for learning in emergencies, regardless of level of participation.

**Discussion:** Residents' participation in emergencies is similar to the concept of legitimate peripheral participation in Lave & Wenger's situated learning theory. Reflection promotes learning during emergencies, perhaps more than level of participation, particularly active participation, which may overload cognition. Residents' individual learning needs may be supported by different degrees of participation and reflection.

**Conclusion:** How residents learn during emergencies in clinical settings is influenced by the interplay between participation and reflection.

**Take Home Messages:** Adapting residents' participation in emergencies to their learning style, experience and fostering their reflection may improve how residents learn in clinical settings.

#7GG02 (135759)

**Ace the Clinical: Supporting Trainees through the Challenge of MRCPCH Clinical Examination**

*Camilla Sen\*, Chelsea and Westminster Hospital, London, UK*

*Rachael Mitchell*

*Hermione Race*

*Caroline Fertleman*

**Background:** Very high standards are required to pass the MRCPCH clinical examination. This causes great anxiety amongst trainees, particularly those who have previously failed the exam. We created a course funded by the London School of Paediatrics, which is free for all London candidates, with the aim of increasing pass rates and supporting trainees re-sitting the exam.

**Summary of Work:** We have run the course tri-annually since 2011. Interactive seminars on clinical, communication and history-taking stations as well as developmental assessment and presentation skills help candidates to address their concerns. We hold one-to-one workshops with senior examiners for candidates re-sitting, to identify specific areas for development, using candidates' marks sheets from previous attempts.

**Summary of Results:** The course has attracted between 20-62 candidates on each occasion. Since its introduction in 2011, pass rates in London have increased from 45.2% in 2011 to 58% in 2014. The number of attendees who are re-sitting has also fallen from 18% (11/62) in 2013 to 10% (2/20) in 2015. Clinical examination and presentation skills workshops were most highly valued with 78% of candidates rating these 8-10/10. Candidates found advice from senior examiners very useful and reassuring. The one-to-one sessions for the candidates re-sitting was often cited as one of the best aspects of the course.

**Discussion:** Providing support for candidates taking the exam is an important step in improving pass rates. One-to-one feedback for resitting candidates is key.

**Conclusion:** Pass marks in London have improved since introduction of the course. Since this, we approached the Royal College of Paediatrics and Child Health to help them create and run a similar national course with the same ethos.

**Take Home Messages:** ‘Ace the Clinical’ helps MRCPCH candidates feel more confident to perform well in their exam. Specific workshops support candidates who have the added challenge of re-sitting the exam.

#7GG03 (132011)

**Overcoming the pedagogical challenges of a PICU ward round**

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Andrew J Jones*

**Background:** Greater emphasis is now placed on the quality of teaching within clinical areas. Ward rounds have potential to provide valuable learning opportunities but competing interests often compromise this. We describe the introduction of a new ward round structure to overcome the pedagogical challenges of a ward round on a paediatric intensive care unit (PICU).

**Summary of Work:** Expansion in consultant numbers within the PICU was seen as an opportunity for reformatting the existing ward round structure. The new design included a 30-minute meeting at the end of each weekday ward round in which consultant-led teaching could take place. Survey data on ward round educational value were collected from doctors and nurses before and six months after the change (a total of 82 survey responses).

**Summary of Results:** Before the introduction of the new structure 14.8% of respondents considered the ward round to be a good learning experience. This increased to 61.2% after the change ( $p < 0.01$ ). Reports of feeling valued on the ward round increased from 46% to 80% ( $p < 0.01$ ). 83% felt the new sessions were informative, and only 17% felt the new 30 minute session jeopardized timely completion of clinical work.

**Discussion:** Ward rounds in clinical environments have many competing demands. Education and training are often sacrificed as a result of this. Commitment by medical staff can create structures in which teaching is sign-posted.

**Conclusion:** Dedicated ward round teaching time led to greater staff satisfaction and improved learning.

**Take Home Messages:** Protected teaching moments on each morning ward round increase junior doctor learning and job satisfaction.

#7GG04 (135960)

**Ace The Written – Helping Paediatric Trainees Overcome a Major Stumbling Block**

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Lara Menzies (Department of Paediatrics, Barnet Hospital, London, UK. Affiliated to London School of Paediatrics)*

*Sara-Jane Smith (Royal Brompton Hospital, London, UK. Affiliated to London School of Paediatrics)  
Caroline Fertleman (Department of Paediatrics, Whittington Health, London, UK. Affiliated to London School of Paediatrics)*

**Background:** Paediatric trainees must pass the Royal College of Paediatrics and Child Health's multiple-choice written Theory and Science (TAS) exam to progress through training. Pass rates are low (ranging from 43% to 46% for the 2014 diets), and re-sitting the exam can be stressful and expensive. In spite of this, there are few free courses to support candidates.

**Summary of Work:** We organised a free interactive evening course: 'Ace The Written – How to Pass the MRCPCH Theory and Science'. Delivered by trainees who recently passed the exam, this combined teaching and discussion of i) exam preparation and technique, ii) challenging theory, and iii) answering difficult exam questions. It was attended by 18 candidates, some of whom had failed the exam multiple times. Data evaluating the educational impact of the course is presented below. Candidates completed pre- and post-course feedback, rating their confidence in answering questions, understanding of exam structure and competence in domains of the syllabus. They scored their competence in each domain from 1 (strongly disagree I am competent) to 5 (strongly agree I am competent). Mean ratings before and after the course were compared using paired t-test analysis. We linked course attendance to examination outcome to further assess course benefit.

**Summary of Results:** Competence ratings were significantly increased for i) confidence in answering exam questions ii) understanding of exam structure and preparation and iii) competence in all seven domains of the exam syllabus covered.

**Discussion:** Our course was well received by trainees; all said that they would recommend it. It provides an unthreatening environment to discuss anxieties and meet revision partners.

**Conclusion:** There was a significant increase in candidates' competence rating in all seven areas of the exam syllabus covered.

**Take Home Messages:** These findings strengthen the case for trainee-delivered revision courses to be made available to candidates facing high stakes written professional examinations.

#7GG05 (135567)

**Sign out and new night float system in ACGMEI pediatric residency program in Hamad Medical Corporation, Qatar**

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Manasik Kamil Takrooni Hassan, Hamad Medical Corporation

Tasneem Riyad Abdel Karim, Hamad Medical Corporation

Reem Mohsmed Hassan Mohamed, Hamad Medical Corporation

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**Background:** To comply with ACGME requirements, most training programs adopted new resident schedules that resulted in an increased number of patient handoffs. Inadequate sign-out has been associated with adverse events. Our aim was to study the quality of the sign out before and after the introduction of the new float system schedule.

**Summary of Work:** The study was conducted in Hamad general hospital, pediatric residency program using a survey to examine the characteristic and the content of the sign out. The survey was collected before and after introduction of the float system to compare the two schedules with total of 38 responses and 42 responses respectively

**Summary of Results:** With comparison to the old conventional schedule, the new float system had significant decrease in duration of sign out, 90% reported duration of less than 1 hr compared to 63% in the old system (p value 0.0063) with the average number of 18 patients. The environment of the sign out was reported as quiet or with minimal interruption in 77% vs 49% (p= 0.007). There was no statistically significant change between the systems with regard to SBAR use for standardized communication and no significant change in critical elements missing 14% vs 19% (p= 0.7). The overall safety rating for 4&5 out of 5 was 62% for the float system compared to 81% previously (p=0.08).

**Conclusion:** Using float system had showed improvement in the environment of the handover, decreased the duration of the timing needed to complete the sign out with no difference in usage of the standardized SBAR format and no change in critical information missing. However, the overall safety rating showed some decrease. Further monitoring for the sign out to quantify and identify barriers to safe and complete sign out is needed to improve the quality of the sign out.

**Take Home Messages:** Float system is one of the excellent tool for handover.

#7GG06 (134787)

**Duty hours violations among pediatric residents in ACGME-International Program in Qatar**

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Eman Almuslemani

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Mona Marafeah

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**Background:** ACGMEI duty hour's regulation of maximum 80 hours' work per week, 24 hours off per 7 days averaged over 4 weeks period were proposed to enhance resident's quality of life, residents learning and improve safe patients care in teaching hospitals. These standards were implemented in 2012 in our paediatrics residency program; however, resident's opinions on the new changes compliance and potential reasons for violation of the duty hour standards have not been evaluated. This study aims to explore paediatrics residents' experience of ACGMEI – Duty hour's regulations and identify factors associated with violations of these rules

**Summary of Work:** An electronic survey distributed between February - March 2015 to all 47 paediatrics resident at Hamad Medical Corporation – main tertiary academic teaching hospital in Qatar, included questions on compliance and possible factors associated with violations of duty hours. Participants were asked to respond to questionnaire by using a 5-point Likert scale

**Summary of Results:** The response rate were (100%). Nearly (80%) of residents reported compliance for all of the 2011 ACGMEI duty hour regulations, no significant differences were noted by postgraduate years. Almost (38%) of participants reported workload intensity and complete paperwork on patients as major factors contributing to non-adherence with work hours regulations, followed by responsibility towards unstable patients and continuity of care (22%), reduced exposure to challenging clinical cases (22%) and finally Schedule conflict with other educational activities during free time described in (18%) of responders

**Discussion and Conclusion:** Majority of residents were more likely to report compliance to ACGMEI duty hour's rules. Overburden by workload demands, quality of clinical education and continuity in patient care, were the most reasons for noncompliance among postgraduate residents.

**Take Home Messages:** Identifying factors associated with duty hours violations will allow training programs to monitor, improve compliance and restructure post call educational activities.



#7GG07 (127962)

**National Survey of Canadian Pediatric Resident Continuity Clinic Coordinators**

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Moyez Ladhani (McMaster University, Hamilton, Canada)

Erin Peebles (University of Western Ontario, London, Canada)

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Kristy Parker (University of Ottawa, Ottawa, Canada)

**Background:** Many postgraduate training programs have introduced continuity clinics in order to enhance exposure to ambulatory care and promote resident autonomy and responsibility for the longitudinal care of patients. Little is known about the type of continuity experiences provided to pediatric residents across Canadian pediatric residency training programs.

**Summary of Work:** All Royal College accredited pediatric residency training programs in Canada were invited to participate in the study. The study was administered through an online questionnaire that focused on clinic demographics and operations, including available resources, scheduling, supervision structure and assessment tools. Clinic successes and challenges were also elicited.

**Summary of Results:** Fifteen of 17 (88.2%) pediatric residency training programs provided responses. The majority (13/15, 86.7%) of programs included a continuity clinic-training component, though structure varied significantly. Approximately half (7/13, 53.8%) of the clinics focused on consultant pediatrics and had multiple referral sources. Standardized written evaluations (9/13, 69.2%) were used most frequently.

**Discussion:** Pediatric resident continuity clinics support development of Royal College of Physicians and Surgeons of Canada training requirements. Consistent with existing literature, continuity clinics are perceived to expose residents to problems unique to outpatient practice, allow for independent management decisions, and provide a forum for receipt of regular feedback on performance.

**Conclusion:** Continuity clinics are common within Canadian pediatric residency training programs. This formal evaluation of the type of continuity experiences provided to pediatric residents will provide an important background and basis for further research regarding the impact of such programs and encounters as well as their optimal delivery.

**Take Home Messages:** Though most Canadian pediatric training programs include continuity clinic exposures, there is a wide variation amongst individual programs in size, structure and evaluation format. Despite these differences, continuity clinics are thought to provide valuable exposure to outpatient pediatric problems, promote autonomy and allow for skill development through observation and feedback.

#7GG08 (133267)

**Pediatric residents' confidence and practice in adolescent health care, after mandatory adolescent medicine rotations in Thailand**

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Jiraporn Arunakul (Ramathibodi Hospital Mahidol University, Bangkok, Thailand)

**Background:** The adolescent medicine rotation was recently included as a mandatory part for pediatric resident training in Thailand for the class of 2013.

**Summary of Work:** To refine the curriculum, we explored pediatric residents' level of confidence and how frequently they provided aspects of care to adolescents by asking them to answer a self-administered questionnaire. This is a cross sectional study of 2 groups of pediatric residents, the former curriculum group (FCG) and the mandatory curriculum group (MCG). There were 91 participants (45 from 2012, 46 from 2015).

**Summary of Results:** The FCG more frequently felt "more confident" while more MCG providing health care "more frequently". Both had highest percent of feeling "more confident" in assessment of BMI and BP. The FCG had higher percent of feeling "more confident" on physical examination ( $p = 0.031$ ) and growth assessment ( $p = 0.040$ ). Both groups were most frequently provided care in assessment of growth, plotting growth chart and assessment of BP. Assessment for risk of cervical dysplasia was least carried out for both groups. The MCG reported a higher percent of doing the psychosocial assessment ( $p = 0.035$ ).

**Discussion:** The MCG had less confidence than the FCG, which may be due to increase self-awareness about the areas that they can develop.

**Conclusion:** The FCG reported higher levels of confidence than the MCG in most items, while the MCG reported more frequency in providing care. The MCG were more confident than the FCG on topics related to psychosocial issues. The MCG reported carrying out the psychosocial assessment more frequently than the FCG.

**Take Home Messages:** Pediatric residents reported providing care to adolescents more frequently than before. Exposure to more cases and enhancement of teaching formats by incorporating more to the adult learner is suggested.

#7GG09 (134553)

**A quantitative analysis of activity and fatigue in paediatric residents compared to faculty members – a prospective cohort study**

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*Marion M Aw (Department of Paediatrics KTP-NUCMI National University Hospital, Singapore)*

**Background:** We aimed to compare the difference in activity level, sleep, fatigue and professional quality of life between paediatric residents and faculty in our hospital. Residents work an overnight on-call rota (4-6 per month). Faculty predominantly do stay-home on-calls.

**Summary of Work:** Paediatric residents and faculty were invited to participate. Participants were required to wear a wrist actigraph for 4 months, and complete 2 surveys; the Epworth Sleepiness Scale and the Professional Quality of Life, one each at the start and end of the study. The wrist actigraph records daily activity (steps taken) and sleep.

**Summary of Results:** Eighteen paediatric residents and 11 faculty members participated. Compared to residents, faculty logged less median(range) sleep in a working day; 393(162-704) versus 407(102-626) minutes ( $p=0.041$ ). Physical activity, as measured by median (range) number of steps walked, was similar in faculty 8155(481-31236) and residents 8067.5(216-21597),  $p=0.189$ . However, faculty logged more vigorous and moderately vigorous activity; 19 versus 17 minutes ( $p=0.032$ ), 70 versus 60 minutes ( $p=0.001$ ), respectively. Faculty & residents reported similar fatigue scores at both study time points; 30% versus 33.3% ( $p=0.99$ ) and 44.4% versus 37.5% ( $p=0.99$ ). At both time points, faculty reported lower burnout scores compared to residents (50% versus 36.4%,  $p=0.68$ , 44.4% versus 0%,  $p=0.033$ ), and higher compassion satisfaction scores (63.6% versus 36.4%,  $p=0.395$ , 88.9% versus 30%,  $p=0.02$ ). Traumatic scores were similar.

**Discussion:** Despite similar fatigue scores and less sleep, faculty appear to have less burnout compared to residents, and experience greater compassion satisfaction.

**Conclusion:** These findings may suggest that senior doctors possess skills which enable them to cope better with the rigors of work, and derive greater job satisfaction.

**Take Home Messages:** It may be important to identify these protective factors & determine if acquiring them earlier could be useful for trainees.

#7GG10 (130708)

**Training Needs for Developmental Pediatrics in Saudi Arabia**

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*Lyn Sonnenberg*  
*Debra Andrews*

**Background:** Developmental pediatrics (DevPeds) is a core branch of general pediatrics. Rotations in DevPeds are mandatory internationally, but not yet in Saudi Arabia. Overall, little is known about DevPeds conditions in Saudi, and even less about DevPeds training. Therefore, we evaluated the perceived educational needs of Saudi pediatricians.

**Summary of Work:** This emailed, cross-sectional needs assessment survey evaluated the perceived DevPeds educational needs of practicing Saudi pediatricians who completed their training in the past five years (2010-2015), along with the current general pediatric residents. Participants were approached through Saudi Commission for Health Specialties (SCHS). Quantitative measures were conducted on survey items.

**Summary of Results:** Participants (108/174) reported variable exposure to DevPeds conditions during training from learning disabilities 23/108(21%) to cerebral palsy 104/108(96%). Pediatricians frequently managed DevPeds cases on weekly basis, for example, autism 41/64(64%), with 75/84(89%) identifying the need for more autism-specific training. Specific DevPeds training was classified as "Important/Very Important" by 98/108(91%).

**Discussion:** Since neurology is a mandatory subspecialty rotation in training, this likely explains why cerebral palsy is the most commonly observed DevPeds condition during residency and requires the least additional training. Establishing a mandatory rotation in DevPeds would lead to greater exposure to other DevPeds conditions identified as requiring more training.

**Conclusion:** Our study supports a mandatory DevPeds block in pediatric residency training in Saudi Arabia to increase knowledge of commonly encountered DevPeds conditions frequently managed in practice. The next phase for this project is to identify potential learning opportunities and content for future curriculum development, along with developing well-defined training objectives.

**Take Home Messages:** Despite the high prevalence of DevPeds conditions in practice, formal training in DevPeds is lacking. This study will impact curriculum design such that future pediatricians will be better equipped in DevPeds not only in Saudi Arabia but also in other countries that do not have specific training in this field.

#7GG11 (127046)

### Training in spirituality for psychiatry residents

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*David C L Teo (CGH, Singapore)*

*Yong Lock Ong (CGH, Singapore)*

**Background:** The curriculum for a newly established psychiatry residency in Singapore included a three-hour didactics on the topic of spirituality in Year 4. As this was a new topic that had not been taught here, we examined residency experiences overseas for guidance. This was available through various published studies in spirituality.

**Summary of Work:** The format of the didactic session was divided into four parts: (1) Lecture on spirituality and worldview by faculty (2) Presentation on how to take a spirituality history by one of the residents (3) Interview with a real patient, and (4) Group discussion

**Summary of Results:** This didactic session had been well received and attended by two cohorts of residents so far. One suggestion was to organise a panel of multi-faith practitioners for residents to gain an appreciation of the diversity of religious practices in Singapore.

**Discussion:** Spirituality in clinical practice has gained more attention in the recent decade. Proper teaching will help to increase the competence and confidence of young psychiatrists in taking a spiritual history in their case assessment, and using that to draw up a bio-psycho-social-spiritual case formulation and management plan.

**Conclusion:** Religion and spirituality may contribute to the risk of developing a clinical problem, or they may serve as protective factors. It has become a requirement in specialist training and examination (knowledge, skills and attitudes).

**Take Home Messages:** Spirituality is a topic that can be taught in an Asian setting using guidance from published material. Due to the multi-cultural, multi-ethnic and multi-religious nature of Singapore's society, research is needed in the area of spirituality so that training can be relevant.

#7GG12 (129082)

### How Psychiatry Residents Perceive the Quality of Supervision for New Cases in the Ambulatory Setting

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**Background:** This survey attempts to compare the perception of the quality of supervision of the residents with (DO) and without direct observation (WDO) of the initial interview in the outpatient setting. The hypothesis is that residents, particularly the less mature learners, would prefer DO.

**Summary of Work:** Residents who had completed their ambulatory training were invited to respond to a questionnaire detailing their years of post-graduate experience, their supervisory framework and their preferred choice of supervision. The Cleveland Clinic's Teaching Effectiveness Instrument (CCTEI) was used to assess the residents' perception of the quality of supervision.

**Summary of Results:** 18 out of 26 eligible residents responded (response rate of 69%). 8 had DO and would prefer to maintain (6/18) or incorporate supervision WDO. CCTEI mean score was lower for DO (3.5 vs. 3.9;  $P=0.39$ , ns). The criticisms for DO were: 1. stressful; 2. time consuming; 3. affects autonomous learning. The less mature learners are less likely to opt for DO (57% vs 73%).

**Discussion:** Previous studies highlighted that DO was an important factor in the accuracy of patient evaluation. Verbal reporting WDO tended to influence the supervisor in minimizing psychopathology, with implications on patient care. Our study seemed to suggest that DO was not favored amongst residents particularly the less mature learners.

**Conclusion:** Close supervision by DO may not always be welcomed. Residents described it as stressful and affected autonomous learning. It can be laborious and time-consuming and may not be effective and sustainable with an increasing pool of residents.

**Take Home Messages:** There may be a need to standardize the ambulatory clinic supervision across teaching sites but allow for flexibility in the supervisory framework for residents to function independently when deemed competent. More research is needed to elucidate the determinants of the most effective supervisory model.

#7GG13 (130841)

### Improving quality of education for interns practicing Psychiatry

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**Background:** At the Sahlgrenska University Hospital we strive to have the best education for interns in Sweden. In order to continuously improve quality of the education, we have a working group comprised of the intern's council, the intern chancellery, the directors of studies for psychiatry and key persons responsible for education in the psychiatry department. This group decides which areas of intern education in psychiatry that need to be improved and plans a strategy for improvement.

**Summary of Work:** After finishing their internship in Psychiatry, interns rate different aspects of their education (scale of 1-5) in an anonymous questionnaire. Every 6 months the results from the questionnaires are compiled and suggestions for improvement are discussed. For 2014-2015, we set goal scores of  $\geq 4.0$  for intern supervision and education respectively.

**Summary of Results:** Scores were assessed 6 months after the working group meeting. Intern supervision and education improved their average scores from 3.6 to 4.3, surpassing set goals. Furthermore, all interns reported they had achieved the learning goals set by The National Board of Health and Welfare. Overall average internship satisfaction scores have been increasing the past 1.5 years of assessment from 3.1 to 3.9 to 4.1.

**Discussion:** Even small changes in assessment scores can be hard to achieve. This survey demonstrates the importance of a joined collaboration to achieve set education goals. A prerequisite for improving intern education is to use a standardized questionnaire and frequently assess the intern education. The overall internship satisfaction scores the last years shows a positive trend. Of course, improving quality is hard, but retaining improved quality is even harder.

**Conclusion:** and Take-home Message: Continuous work with improvement and assessment lead to a measurable increase in the quality of psychiatric education.

#7GG14 (135004)

### Morbidity and Mortality (and Innovation) Rounds as a QI training for residents in Psychiatry

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*John Teshima*

*Adam Tasca*

*Deborah Khan*

*Patricia Cui*

*Jacqueline Kosta*

**Background:** Morbidity and Mortality (M&M) rounds can provide lessons relating to medical errors and systems issues. They play an important role in quality improvement (QI) and can be used to teach QI practices within the frame of Continuous Interprofessional Development. The goal of this initiative was to (1) engage staff and learners in QI, (2) teach QI techniques, and (3) engage residents in QI projects as a learning opportunity.

**Summary of Work:** A program of M&M (and Innovation) rounds following the Ottawa model was initiated. The cases were selected based on adverse outcomes and identifiable system issues. The Ishikawa diagram was introduced as an instrument to increase participation in discussions co-facilitated by an experienced psychiatrist and educator. For each M&M&I rounds, a set of recommendations was produced and their progress was informed in the next round. Attendance, evaluation and attitudes towards QI were measured with pre and post questionnaires. To train residents in QI, each resident was assigned the implementation of a recommendation from the M&M&I rounds as an independent QI project.

**Summary of Results:** The attendance has been around 20 participants per round of at least five disciplines. The satisfaction of participants has been high regarding relevance (90%) and impact on practice (90%). The M&M&I rounds to date have yielded recommendations that are being implemented under the coordination of residents. QI projects are required as part of their training – currently three projects are in the implementation phase.

**Discussion:** This intervention has succeeded in engaging residents in QI projects and in motivating participants to discuss systems issues relevant to their practices. Updates on the recommendations of previous rounds create accountability. Balancing the number of recommendations and feasibility of implementation will be a key factor in sustainability of the model.

**Conclusion:** The M&M&I rounds are a valuable intervention to disseminate QI skills and culture by eliciting QI projects from real-life experiences.

**Take Home Messages:** M&M&I rounds are a valuable intervention to disseminate QI skills and culture by eliciting QI projects from real-life experiences. M&M&I rounds can be successfully used as an educational intervention to foster QI learning and culture.



#7GG15 (135156)

**Psychiatrists better at therapy, or better psychiatrists with therapy? A survey of competencies in psychotherapy and impact on clinical care**

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Lim Yong Hao

Issac Lim

Nicholas Chew

**Background:** In 2010, Singapore adopted the US-based residency programme in specialist training. Psychiatry was one of the first specialties to adopt the residency, heralding many changes in the curriculum, including the unprecedented introduction of training in psychotherapy. The psychotherapy module includes didactic teachings, a one-year posting in psychodynamic psychotherapy (PDP) and cognitive-behavioural therapy (CBT), and clinical supervision. This study aims to explore the impact of psychotherapy training on competencies specific to psychotherapy, as well as in core competencies in psychiatry, comparing residents with advanced specialist trainees (ASTs) who were not psychotherapy-trained.

**Summary of Work:** This exploratory mixed-method study used 3 sources of data: 1) an anonymous online survey measuring knowledge, attitudes and confidence in psychotherapy, that were sent out to all psychiatry trainees (n=62) at the start, and to just the junior residents (n=27), at the end of the academic year, 2) de-identified data of supervisor-rated workplace-based assessments of the 6 ACGME-i and psychotherapy (both CBT and PDP) competencies for psychiatry residents (n=15) who went through psychotherapy training, and, 3) focus group discussions (n=10) with residents (R3) who just completed their psychotherapy posting.

**Summary of Results:** Descriptive statistics, effect sizes and graphs were used in exploratory analyses. Higher confidence in all aspects of psychotherapy of senior residents who went through psychotherapy posting compared to ASTs (mean Cohen's D=0.78 for PDP and 0.36 for CBT), and, increased confidence in psychotherapy for R3 before and after psychotherapy posting demonstrated the impact of psychotherapy training. Positive correlations between progression in psychotherapy competencies and progression in patient care competencies, supported by findings on improvement in how residents communicate and interact with patients from focus group discussions, also suggested that the benefits could translate to clinical practice.

**Discussion:** Our exploratory study suggests that formal psychotherapy training has an impact, in terms of improved confidence in psychotherapy, compared to informal, ad-hoc psychotherapy training, potentially translating to better patient care through better communication and management. The next step would be to evaluate the different aspects of psychotherapy training and to look at objective clinical performance.

**Conclusion:** It has been long recognised that psychiatrists should be adequately versed in the fundamentals of psychotherapy, but competing interests in clinical training is a perennial challenge. Our findings provide the impetus to continue psychotherapy training in residency.

**Take Home Messages:** The incorporation of psychotherapy training in residency has a positive impact in core clinical competencies extending beyond competencies specific to psychotherapy. There is potential for further research on how this translates to change in clinical practice and patient care.

#7GG16 (135655)

**Patterns of relationships between different methods of assessing medical knowledge in psychiatry residents**

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Wen Phei Lim (Tan Tock Seng Hospital, Singapore)

Christopher Chan (Institute of Mental Health, Singapore)

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**Background:** Residency programs use a plethora of tools, including Workplace-Based Assessment (WBA) and standardized tests, to assess residents' medical knowledge. These assessment tools are based on different frameworks and are likely to assess different aspects of medical knowledge. Data from these assessment tools are routinely and jointly employed to evaluate residents' performance but efforts to investigate the relationships between these tools are less frequent.

**Summary of Work:** This study seeks to understand the relationships between the different tools used to assess medical knowledge. Three years of (from 2nd to 4th year of training) assessment data from 3 cohorts of psychiatry residents (n=36) in Singapore were extracted. Psychiatric Residency In-Training Examination (PRITE), clinical supervisors' monthly evaluation of medical knowledge (based on ACGME-I competencies), ORIME ratings (Pangaro, 1999) completed by clinical supervisors, and an overall measure of clinical competence were used in the analyses.

**Summary of Results:** Residents who scored higher in PRITE tend to have higher ratings in supervisors' monthly evaluation ( $r=.31$ ,  $p=.007$ ) and are more likely to be rated higher in ORIME (mean scores: Reporter=68.7, Interpreter=69.5 & Manager/Educator=70.6), though the differences were nonsignificant ( $p > .05$ ). Overall measure of clinical competence was not used due to lack of variation.

**Discussion:** In general, relationships between the different assessment tools, though positive, were weak. Different assessment tools assess different aspects of medical knowledge - WBA measure 'shows how' while standardized tests measure 'knows' and 'knows how' (Wass et al., 2001). Standards and

benchmarks are also more fluid in WBA compared to standardized tests and all these could account for the weak relationships.

**Conclusion:** Different assessment tools provide different insights into residents' medical knowledge. The relationships between the assessment tools should systematically investigated. The investigation should also expand into other residents' competencies.

**Take Home Messages:** WBA and standardized tests complement each other and provide a holistic assessment of residents' medical knowledge.

## 7HH Posters: Student Characteristics and Learning Styles

Location:

#7HH01 (135170)

**The Associations of Student Learning Styles and Study Scores Among the 5th Year Medical Students in pediatric courses**

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Anyarat Thiptara

**Background:** Clinical skills and learning styles affected in medical training. The objective was to evaluate the association between the study performances of pediatric courses and student learning styles among medical students

**Summary of Work:** We conducted this study at the Medical Education Center, Maharaj Nakhon-Si-Thammarat Hospital between 2014 and 2015. We interviewed 62 medical students who attending pediatric courses regarding their learning styles including how to behave before attending the classes, while attending the classes, after the classes, and before the tests using a five scales-questionnaire. We reviewed their study performances including pediatric I (PED1) scores and pediatric II (PED2) scores. We performed descriptive statistics and evaluated the relationships between the study scores and learning styles using a simple linear regression model.  $P = 0.05$  was considered statistically significant

**Summary of Results:** One average, the grades were 1.8 for PED1 and 2.3 for PED2. Students who searched for and read additional materials before attending the class ( $P = 0.03$ ) and took a note during the class ( $P = 0.037$ ) were more likely to get higher scores for PED1. Students who read handouts before attending the class ( $P = 0.019$ ) and summarized the main ideas for each study topic before the test ( $P = 0.029$ ) were more likely to get higher scores for PED2. Surprisingly, students who spent an additional time at the pediatric ward to gain experience were more likely to get lower scores for PED2

**Discussion:** The study suggested that good habits including reading a related article and handout before classes, and taking a short note during classes and before testes might help medical students to improve their study performances

**Conclusion:** The learning styles affected in the performances of pediatric courses

**Take Home Messages:** Pediatric staff is needed to advise students who want to spend an additional time to gain more experiences at the ward.

#7HH02 (136274)

**Revisiting the ‘so what?’ of data on learning approaches in a bygone problem-based curriculum: Medical students’ disposition to be organized in their study?**

**Gillian Maudsley\***, The University of Liverpool, Liverpool, UK  
Department of Public Health & Policy, Liverpool, UK)

**Background:** The concept of learning approaches/styles is somewhat in disfavour in medical education research literature. Recently, Entwistle and McCune (2013) revisited their data to construct ‘disposition to understand for oneself at university’. With the demise of the Liverpool problem-based undergraduate medical programme, it is timely to revisit learning approaches (and satisfaction) across that curriculum.

**Summary of Work:** Aim—What are the trends/patterns in learning approaches in medical students? Setting: Liverpool MBChB curriculum. Participants: Medical students and pre-medical school applicants interviewed for admission. Method: ► Data on Entwistle learning approaches and on satisfaction with the curriculum were compiled from eight surveys of medical students between 2001/02 and 2010/11 (embedded in larger studies from three projects covering cohorts from pre-medical school, and Years 1, 3, and 5). Four surveys had featured both learning approaches and satisfaction, and each of two surveys featured learning approaches or satisfaction only. ► The six administrations of the 18-item learning approaches instrument (n=115—n=201; n=968 applicants) included two sets of paired administrations: –start-Year 1—end-Year 1 plus – medical school applicants and the subsequent mid-Year 5 cohort that included those admitted ► The six administrations of three items on satisfaction also included three linked administrations (start-Year 1—end-Year 1—mid-Year 5). ► Main analysis: Basic description of each measure, their cross-tabulation, and principal components analysis of learning approaches.

**Summary of Results:** The pattern of learning approaches was consistent cross-sectionally and longitudinally in the three subscales emerging on principal components analysis, particularly the ever-prominence of strategic learning (and specific ill-fitting items). Over Year 1, for example, mean strategic score increased.

**Discussion:** Predominance of strategic learning suggests that the students were generally focused on organized study, time management, and self-efficacy in study.

**Conclusion:** The ‘So what?’ of learning approaches should not be dismissed.

**Take Home Messages:** Medical students in this curriculum were consistently strategic in their learning approach.

#7HH03 (135914)

**Cognitive Style Assessment in Indian Medical Students - A Quick Survey using Alert Scale of Cognitive Style**

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**Bhalendu Vaishnav** (*Pramukhswami Medical College, Karamsad, India*)

**Digeesha Bathwar** (*Pramukhswami Medical College, Karamsad, India*)

**Somashekhar Nimbalkar** (*Pramukhswami Medical College, Karamsad, India*)

**Background:** Medical students' cognitive style influences their academic performance. Learning style also differs at different stages of learning. Cognitive integration between students and teachers offers an innovative method to empower medical students for better learning.

**Summary of Work:** As a part of institutional initiative to achieve cognitive integration in teaching-learning activities, cognitive style assessment of students of first, second and third M.B.,B.S. was carried out using 'Alert Scale of Cognitive Style'. Results were analyzed to know patterns of cognitive style preferences, their association with age, gender, handedness, previous academic performance, parents' educational status. Examples of methods to enhance learning ability using different cognitive styles were provided. Feedback was obtained about components of study design.

**Summary of Results:** Total 242 student participated. Middle brain cognitive dominance in first, second and third year was 70%, 45%, 53% respectively. Left brain dominance was observed in 20%, 15%, 14% respectively. Right brain dominance was observed in 10%, 39%, 30% respectively. No association was observed between cognitive style and handedness, gender and other factors. Feedback revealed unawareness among students about their own cognitive styles prior to study. Responses about usefulness of sensitization sessions in enhancing cognitive clarity, modification of individual learning methods appropriate to cognitive style, impact of the sessions on overall development as humane and competent medical graduate tapped on single likert type question (range 0-9) were 5.9, 7.5 and 8.0 respectively.

**Discussion:** Informing students how they learn is an important meta-cognitive strategy. Study enhanced cognitive self-awareness of students, helped them in identifying appropriate methods of accumulating and assimilating knowledge. Results offer a cognitive basis for enhancing classroom teaching. Higher incidence of right brain cognitive style in clinical years may enhance comprehensive learning.

**Conclusion:** Cognitive diversity among medical students demands appropriate amends in teaching-learning practices for making educational activity more interesting and rewarding.

**Take Home Messages:** Every teaching-learning activity should take into consideration diversity in cognitive

styles of students to enable every student to become strategic learner and thrive.

#7HH04 (135695)

**Learning styles preferences among the first year medical, dentistry and physiotherapy students at Al neelain University, Khartoum Sudan**

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**Marwa Gaffar Alameen**

**Nasr M A Elsheikh**

**Nazik Elmalaika O S Husain**

**Background:** A learning style is the complex approach in which, learners most efficiently and most effectively perceive, process, store, and recall what they are attempting to learn. This study aimed to assess the learning styles among the first year medical, dentistry and physiotherapy students.

**Summary of Work:** A cross sectional institutional-based study was conducted at Khartoum, Sudan. First year university students of Medicine, Dentistry and Physiotherapy Faculties were enrolled. The VARK (Visual, Auditory, Read and write, and Kinesthetic) learning style hard copy questionnaire was administered following copyright permission. Data were analyzed using Statistical Package for Social Sciences (SPSS) version 21

**Summary of Results:** About 59.6% were from governmental schools and 79.4% of the studied students had Sudanese High Secondary Certificates. About 64.1% demonstrated singular mode preference. Inferential statistics showed statistically significant difference between the learning styles and the type of secondary school whether governmental or private (P-value 0.005) while no statistically significant difference in relation to the type of high school certificate of the studied group (P-value 0.225)

**Discussion:** Knowledge of learning styles of students at educational institutes, is valuable and helps solve learning problems among students, and allows students to become better learners. Moreover, it can help provide learning situations tailored to the student's individual preference, overcome the predisposition to treat all students in a similar way

**Conclusion:** The type of secondary school whether governmental or private may affect learning style of medical students while student's gender, type of college, or type of high school certificate do not

**Take Home Messages:** Educational planners should know students different learning styles in order to design approaches that promote lifelong learning skills as well as disciplinary knowledge.



#7HH05 (135797)

**Teachers' interaction with the students may influence their learning style: a view from self-determination theory**

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Elisa Huéscar (UMH, Elche, Spain)

María del Carmen Acosta (UMH, Elche, Spain)

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**Background:** The self-determination theory (Decy and Ryan, 2000) proposes that intrinsic motivation to perform an activity arises when the subject fulfils his/her basic psychological needs during that activity. Consequently, we studied: a) if the teacher's behaviour during his/her interaction with students may influence how they learn; and b) if the self-determination theory could explain that relationship.

**Summary of Work:** Four hundred and one students from seven different Health Sciences Degrees voluntarily responded the Spanish version of the following validated inventories: a) "Teaching Intervention Assessment Questionnaire" (CEID); b) "Study Process revised Questionnaire" (R-CPE-2F); c) "Satisfaction of Psychological Needs in Education Scale" (ESNPE); and d) "Academic Motivation Scale" (AMS-HS-28). Descriptive and correlational studies among their results were carried on with the SPSS v.18 statistical package.

**Summary of Results:** Seventy four percent of the students were deep learners. Deep learners were heterogeneously distributed among the different Degrees (highest: Medicine; lowest: Exercise Sciences). Students' learning style significantly correlated with the subjective perception of the teacher intervention ( $r=0.247$ ,  $p<0.001$ ), the subjective perception of fulfillment of their psychological needs during the academic activities ( $0.280$ ,  $p<0.001$ ), and their self-determination index ( $0.470$ ,  $p<0.001$ ).

**Discussion:** Our data suggest that when the teacher's behaviour during the academic activities fulfils the student's basic psychological needs, intrinsic motivation would arise in the students. This, in turn, would favour the development of deeper learning styles. However, intervention studies are needed to confirm this descriptive observation.

**Conclusion:** Instructional intervention's design should take into account the satisfaction of the basic psychological needs of the students in order to increase their intrinsic academic motivation.

**Take Home Messages:** Teachers may be conscious on the fact that how they interact with students may influence the student's learning style.

#7HH06 (135840)

**A study of learning styles and approaches to learning amongst medical students in clinical training: Is there a relationship between both strategies?**

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Isabel Leiva

Oslando Padilla

Alvaro Cisternas

Marcela Bitran

**Background:** Previous studies in our medical students have informed about profile of learning styles. We need to expand knowledge about strategies to learning of others medical students in clinical training. The purpose of this study was to analyze the relationship between learning styles and approaches to learning of medical students in clinical training.

**Summary of Work:** This study of 852 undergraduate chilean medical students (from fourth to sixth year) aims to analyze their Kolb's learning styles (LSI) and approaches to learning according Study Processes Questionnaire (SPQ).

**Summary of Results:** The predominant learning style was assimilator (45.8%) and others were converger (37.4%), accomodator (9.3%) and diverger (7.5%). The mean score of the learning approaches revealed that deep approach=29.27 and surface approach=25.23. Mean score in the subscale deep motivation=15.3, deep strategy=13.9, surface motivation=11.9 and surface strategy=13.3. Results shown associations between Kolb learning styles and specific subscale of learning approach.

**Conclusion:** There are associations between learning styles and approaches to learning of chilean medical students.

**Take Home Messages:** Learning styles and approaches to learning complements knowledge of how students learn. These results contribute to reflection about different teaching methods and interventions can be proposed for a more effective learning. Funded by grant FONDECYT 1150340

#7HH07 (134339)

**Learning and Study Strategies Inventory (LASSI) as a predictor of academic performance in medical schools**

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*H. Gregory Hawkins*  
*Lynn M. Crespo*  
*James Buggy*

**Background:** LASSI is used to assess learning and study strategies measured by 10 subscales including three components of strategic learning: skill, will and self-regulation. This study examines how the timing of LASSI administration affects scores on the 10 LASSI subscales, and whether or not there is a difference in the strength of association between subscale scores and student performance.

**Summary of Work:** LASSI instrument was administered to 128 students during orientation at the beginning of M1 and M2 years for two classes. A paired t-test was used to compare differences between the two administrations. To measure the strength of association between LASSI subscale scores and performance on overall biomedical sciences, NBME CBSE and USLME Step 1, Pearson product-moment correlation analyses were performed.

**Summary of Results:** There is a significant difference between LASSI subscale scores at the beginning of M1 and at the beginning of M2. There were more significant correlations between LASSI subscale scores at the beginning of M2 with performance on overall biomedical sciences, NBME CBSE, and USMLE Step 1 exam. Significant associations were observed between LASSI subscales anxiety and test strategies with students' performance on overall biomedical sciences and USLME Step 1; selecting main idea was also correlated with USMLE Step 1. The LASSI subscale anxiety is significantly associated with all of these performance measures.

**Discussion:** Since behavioral attributes measured by LASSI subscale scores are correlated with performance in major examinations, early identification of students who lack these skills should be supported by targeted interventions to maximize academic achievement.

**Conclusion:** Assessing medical students' learning and study strategy skills is more accurate after a medical school experience than at the start of medical school. Anxiety, selecting main idea, and test strategies are correlated with students' performance on USMLE Step 1 exam.

**Take Home Messages:** Behavioral attributes are correlated with academic success, and for reliable assessment of these attributes, LASSI instrument should be administered after a medical school experience.

#7HH08 (133991)

**Exploring Resilience in Medical Students and Junior Doctors**

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*Ray Keelan (University Hospital South Manchester, Manchester, UK)*  
*James White (University Hospital South Manchester, Manchester, UK)*

**Background:** Mental illness and burnout in doctors is rising. The GMC has recommended resilience training be an integral part of undergraduate training. The early stages of working are the highest risk, however undergraduates may prioritise gaining clinical skills over resilience skills. We therefore examined awareness and attitude to resilience training across third year medical students, FY1s and FY2s.

**Summary of Work:** Questionnaires distributed to 108 students, 20 FY1s and 30 FY2s.

**Summary of Results:** Limited numbers were aware of resilience training, but increased with each group (6%, 25% and 33% respectively). 7% of FY2s had received resilience training, no others. Similar numbers responded positively to the question 'are you resilient' (86%, 90% and 87%). When asked if they were resilient enough, 60% of FY1s and 47% of FY2s responded no. When asked if they would benefit from resilience training, only 50% of students and 58% of FY1s responded positively, compared to 83% of FY2s.

**Discussion:** Despite being recommended for the curriculum, very few have heard of, let alone received resilience training. Furthermore, the number of doctors reporting they are not resilient enough is worrying. The perceived benefit of resilience training increases each year. Students report similar rates of resilience to working doctors yet only half value the concept of training – could this be a lack of insight into the nature of their impending work?

**Conclusion:** With career progression, awareness of resilience training and it's importance increases. Low numbers of doctors state they are resilient enough, and students may be overly confident. Greater exposure to realistic, challenging situations as a student coupled with resilience training may be beneficial.

**Take Home Messages:** Low levels of resilience awareness and training despite recommendations - Students and doctors acknowledge they are resilient, however doctors report not enough - Reasons why students are less receptive to training and methods of improving junior doctor resilience could be explored.

#7HH09 (132399)

**Demographic characteristics of medical students relating to patient satisfaction outcomes**

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Jenepher Martin, Eastern Health Clinical School, Monash University

**Background:** Contemporary health care requires partnership between doctors and patients to foster better health outcomes. Preparing a medical workforce equipped with learned capabilities for patient-centredness is increasingly recognised as a responsibility of health education institutions. In our Patient Teaching Associate program, students in their first clinical year consult with volunteers living with chronic conditions in a simulated clinic and receive multisource feedback on consultation performance. Our program involves students from two universities, one with an undergraduate the other a postgraduate course. We describe the characteristics of students and relate these to patient satisfaction assessment outcomes.

**Summary of Work:** Characteristics of medical students and patient satisfaction data (the latter using a validated questionnaire) were collected on entry to the program. Associations between baseline satisfaction scores and student data were explored using regression analyses.

**Summary of Results:** Of the 71 students in their first clinical year, prior employment experience, but not age, gender, volunteering, international status, language spoken at home or undergraduate degree, was associated with higher patient satisfaction (adjusted standardised beta=0.28, P=0.02). Better rapport was the major determinant of higher patient satisfaction for students with paid work experience among the satisfaction domains.

**Discussion:** There is a perception that voluntary work is helpful to medical students in the development of interpersonal skills. Our finding that it was paid work that was associated with higher patient satisfaction, particularly better development of rapport, is a challenge to that belief.

**Conclusion:** Medical students with prior paid work experience establish better rapport with patients, reflected in higher satisfaction ratings at baseline assessment than students without prior experience. Incorporating paid work experience in teaching programs may promote patient satisfaction with medical students' consultation skills.

**Take Home Messages:** Incorporation of paid work experience in teaching programs might have benefits, one of which may be to help students develop their capability for patient centred care.

#7HH10 (135529)

**The level of happiness and related factors among medical students of Khon Kaen University 2015**

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**Background:** Medical students spend 6 years to gain their knowledge and competency to be an efficient and good doctor. During this time, they need to be strenuous, endurable and adjustable which might lead to decreasing in their happiness. This study aimed to examine the happiness level and its related factors among the medical students, KKU 2015.

**Summary of Work:** The self-administered questionnaires and The new Thai Happiness Indicator (THI-15) were used to obtain data from 453 medical students randomly selected from a total of 1,122.

**Summary of Results:** The response rate was 94.0%. 85.8% of students had either happier than or equal to the general population (95%CI: 81.96, 88.92). The happiness level was difference depending on the studied year. The 1st year medical students demonstrated the most happiness group (93.6%) while the 6th year medical students showed the least happiness group (66.7%). The factors related to the happiness level were the family relationship, satisfaction in their own physical health, the self-desire to study medicine, the prior knowledge of medical student life-style and the participation in extra-curricular activity.

**Discussion:** The 1st year medical students were the most happiness group may explain by their success in being recruited to the Faculty. Whilst, the 6th year medical students were confronting hard working and expectations from teacher and themselves.

**Conclusion:** The majority of the medical students had either happier than or equal to the general population. The happiness level was significantly related to the studied year, the family relationship, the satisfaction in their own physical health, the self-desire to study medicine, the prior knowledge of medical student life-style and the participation in extra-curricular activity.

**Take Home Messages:** Information regarding medical student and medical doctor life-style should be providing to student who interested in studying medicine. Extra-curricular activities should be promoted.

#7HH11 (131749)

**Medical Students' Personality Type and the Association with Anxiety and Depression Symptoms**

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**Background:** Studies show high frequency of depression, anxiety, and stress among medical students. There are many factors associated with this mental problem. This study aims to determine a prevalence of depression and anxiety among medical students and an association between the levels of this problem and personality and other sources of stress.

**Summary of Work:** All the 5th year medical students from the Faculty of Medicine, Ramathibodi Hospital, Mahidol University were enrolled in this cross-sectional study. The Hospital Anxiety and Depression Scale (HADS) and the nine-type-Enneagram personality assessment were used to determine the level of anxiety and depression and personality type respectively.

**Summary of Results:** The response rate among the study subjects was 58% (n=112). The prevalence of anxiety and depression were 16% and 7%, respectively. The student's personality type were significantly associated with the anxiety (Chi-square=20.8,  $p < 0.02$ ) while mean HAD depression score in students with low-GPA were significantly higher than those with Moderate-GPA ( $F=3.55$ ,  $p < 0.05$ ).

**Discussion:** This finding indicates that anxiety and depression may coexist with some personality types and academic achievement, respectively. Whereas anxiety is the feeling of internal worry about uncertain outcome, however, depression is rather the feeling of sad, loss from undoubted poor outcome. This different perception may result in different symptoms.

**Conclusion:** Symptoms of anxiety were associated with personality type and symptoms of depression were associated with academic achievement. Paying attention to these factors would help to identify and support the risk groups. Further study to enhance insights of the causes and improve quality of care for medical student should be done.

**Take Home Messages:** Symptoms of anxiety were associated with personality type and symptoms of depression were associated with student's GPA.

#7HH12 (126663)

**The Mediating Role of Basic Psychological Needs Satisfaction between Autonomy-Support and Self-determined Motivation in Dental Education**

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**Background:** Self-determination theory (SDT) postulates that teachers' autonomy-support, when mediated by students' perceptions of their basic psychological needs satisfaction (BPNS) of autonomy, competence and relatedness, is associated with increased levels of self-determined motivation. Therefore, our aim is to test the mediating role of BPNS between autonomy-support and motivation, in a dental student sample.

**Summary of Work:** We conducted a cross-sectional study collecting data on demographics, autonomy-support, perception of BPNS, and motivation, from 929 Chilean undergraduate dental students. Mediation of BPNS was tested based on the Preacher&Hayes approach and then integrated in a structured equation model, controlling for gender, age, and year of curriculum.

**Summary of Results:** There was a significant indirect effect of autonomy-support on self-determined motivation through BPNS ( $b=0.494$ ,  $p=0.011$ ,  $BCaCI[0.071, 0.889]$ ), representing a small to medium effect-size ( $K2=0.042$ ,  $BCaCI[0.007, 0.075]$ ). The final model (Autonomy-Support  $\rightarrow$  BPNS  $\rightarrow$  Motivation [Controls]) fitted well the data and all regression weights reflected positive associations, with a stronger significant indirect path and a weaker non-significant direct path.

**Discussion:** Autonomy-support affects self-determined motivation of dental students through the mediation of BPNS. Consequently, it is not the intended effect of teachers' autonomy-support that impacts motivation, instead it is the impact it has on students' perception of BPNS that will have a positive or negative effect on their motivation.

**Conclusion:** This is the first study on the mediating role of BPNS between autonomy-support and dental students' motivation. For dental education, an autonomy-supportive environment that facilitates BPNS would lead students to engage and value academic activities, which is expected to contribute towards them becoming better practitioners and therefore to increase patient-safety.

**Take Home Messages:** Teachers' autonomy-support affects self-determined motivation of dental students through the mediating effect of BPNS. Therefore, the BPNS of autonomy, competence and relatedness should be considered when planning interventions to increase dental students' self-determined motivation, which in turn may improve educational outcomes and student-patient interaction.



#7HH13 (135931)

**Positive impact of a first year innovative module on students' emotional intelligence and their attitudes towards doctor-patient relationship**

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*Madalena Patrício*

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*António Barbosa*

**Background:** During the last decade medical education has been emphasizing the importance of a good doctor-patient relationship. This study aims to assess the impact of a first-year teaching strategy on students' emotional intelligence as well as on their attitudes towards the doctor-patient relationship (ATDPR).

**Summary of Work:** 214 first-year medical students' ATDPR and their emotional intelligence were respectively assessed by the Relationship Centered Medicine Scale (RCMS) and Emotional Intelligence Scale (EIS). Assessment was made before and after the module 'Clinical Medicine: doctor-patient-person' (5 ECTS) which aims at promoting a more humanised medicine and the recognition of the person as a 'whole' with his individuality, vulnerability and resilience. Teaching methods privilege the training of communication skills and teaching in the community namely by giving students the opportunity to visit two institutions supporting vulnerable people and later go back to one of them to interview one of the users. A portfolio to document students' critical reflection namely their capacity to identify and value the dimensions of suffering, vulnerability and resilience as well as the role of the institutions to support the 'person' and the 'family', was also requested.

**Summary of Results:** A paired-samples t-test was conducted to compare students' results pre and post-module. There was a significant difference in the total scores of RCMS [ $t(213)=-3.55$ ,  $p=0.000$ ] and Communication [ $t(213)=-1.89$ ,  $p=0.050$ ] and Patient Perspective subscales [ $t(213)=-3.78$ ,  $p=0.000$ ], as well as in Empathy [ $t(212)=-3.29$ ,  $p=0.001$ ] and Understanding of Other Emotions [ $t(212)=-6.88$ ,  $p=0.000$ ] subscales of IES.

**Discussion:** The combination of different ways of learning and teaching at an early stage of medical course is crucial for change students' attitudes and relational skills.

**Conclusion:** Students' higher scores and the analysis of portfolios point to the importance of the teaching-learning strategy.

**Take Home Messages:** This study provides support for the importance of including early communication skills training and community based teaching to improve students' attitudes and their emotional intelligence.

#7HH14 (134825)

**Does Religion Play a Positive Role in the Lives of British Muslim Medical Students?**

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**Background:** Over 80% of the world population is affiliated with a religious group.<sup>2</sup> Despite this, religion has been implicated as a cause of suffering and ill-actions across the globe. This is in specific relation to the mainstream media's portrayal of Islam in recent years. This study evaluated the role of Islamic faith in the studies of British medical students and whether this media portrayal is justified.

**Summary of Work:** An online questionnaire was distributed to British Muslim medical students. They were asked questions regarding: the role of faith in their decision to pursue medicine; any challenges they have faced due to their religious beliefs; and if their faith has benefited them as prospective doctors. Each response was justified using free text.

**Summary of Results:** 119 students (67 male, 52 female) completed the questionnaire. Of 119, 70 (58.8%) stated that faith played a role in their decision to study medicine. Of 70, 51 (72.9%) studied medicine because their Islamic faith encourages them to better society +/- serve humanity. Sixty-two (52.1%) of the students stated that they experienced challenges at medical school because of their faith. Of 119, 98 (82.4%) think that their faith has better-equipped them for a medical career. Common responses involved the role of Islam in self-betterment: specifically, patience, compassion, humility. Many also stated that their religion may act as emotional support when faced with challenges – commonly: when losing a patient. There was no statistical significant difference between the responses of male and female medical students ( $P>0.05$ ).

**Discussion:** These findings challenge the media's portrayal of Islam and British Muslims.

**Conclusion:** The vast majority cite their religion as is the primary reason for them pursuing medicine – with many stating that their religion will help better-equip them as prospective doctors, despite challenges in the work-place.

**Take Home Messages:** Religion plays a fundamental and positive role in the lives of British Muslim medical students.

#7HH15 (132581)

**Factors affecting learning achievement of the second year medical cadet at Phramongkutklao College of Medicine in Medical Physiology Course**

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**Background:** Transformation of healthcare professional education and characteristics of the 21st century learners, teaching and learning processes in physiology at Phramongkutklao College of Medicine (PCM) has been developed to effectively facilitate students' learning. Teaching physiology consists of lecture and lab with small group discussion. Formative evaluation, review hours, computer-assisted instruction and group mentoring are provided to help student learning process.

**Summary of Work:** In the first semester of academic year 2015, 104 medical cadets of the second year PCM enrolled in medical physiology course. To assess learning achievement and their affecting factors, the data were collected through questionnaires and educational scores.

**Summary of Results:** A mean and a standard deviation of educational scores were 70.35% and 7.60%, respectively. Fifty-six (53.8%) medical cadets were classified as above mean value group and forty-eight (46.2%) were classified as below mean value group. The former group had 1st year cumulative GPA significantly higher than the latter group in which thirty (62.5%) were male. Nineteen (63.3%) of medical cadets who lived outside Bangkok and vicinity were in the latter group. The factors that affected with learning achievement at the beginning of the course were self, medical cadets' adaptation for new environment, lecturers' characteristics, instructional system and learning/teaching process, respectively.

**Discussion:** From the open-ended questions, in detailed reasons were less time, less adaptation from being civilian to being more discipline in military environment at PCM, exhaustion from basic cadet training, health problem, readiness to learn, more extra activities, difficulty of physiology context, using English language, etc.. At the end of the course, it was found that medical cadets' adaptation were developed leading to improve learning achievement.

**Conclusion:** The adjustment of PCM's medical curriculum in next academic year is proposed to facilitate medical cadets' learning and the factors affecting learning achievement should be appropriate administered.

**Take Home Messages:** Understanding the factors that affects medical cadets' learning achievement is important.

## 7II Posters: The OSCE

Location:

#7II01 (132148)

**Evolution of a modified OSCE as a formative assessment tool in undergraduate Orthopaedics**

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Chee Yu Han

Sharon Chong Yin Zi

Shamal Das De

**Background:** Assessment of Orthopaedic clinical competencies using the Long/Short Case format was non-standardized and unstructured. Time duration for patient-clerking and depth of case discussion varied with different expectation among individual assessors. Unobserved patient-clerking rendered assessment of professionalism and communication skills impossible. Hence, OSCE was introduced since 2010 in the undergraduate Orthopaedic assessment to address these issues.

**Summary of Work:** Question templates are developed to constructively assess history-taking and clinical examination skills, testing approach to basic management of common conditions. These are rigorously prepared and reviewed at multiple levels. Simulated patients are trained and standardized beforehand. Examiner standardization includes questioning approach, student prompting and marking system. Feedbacks on exam conduct are reviewed annually, contributing to each developmental phase of the OSCE structure and design.

**Summary of Results:** The development of OSCE structure and design is summarized in four phases over a 6-year period (2010-2015). An example blueprint of a modified OSCE assessment is also illustrated to indicate key focuses for each of the five stations, and the coverage of competency area adapted from the ACGME competencies.

**Discussion:** Through the years, the Orthopaedics EOPT OSCE structure and design has evolved to encompass all levels of assessment illustrated on Miller's pyramid of clinical competence in accordance with the intended learning outcomes for an undergraduate Orthopaedics curriculum. Innovative modification of the assessment structure led to an evolution of a better-defined OSCE blueprint.

**Conclusion:** The evolution of Orthopaedics EOPT OSCE structure and design in the last 5 years showed that the modified OSCE assesses medical students in a more comprehensive manner. It assesses not only the 'Shows how' but all other levels of clinical competency on Miller's pyramid.

**Take Home Messages:** The modified OSCE assessment which encompasses all levels in Miller's pyramid of clinical competence is recommended as a formative assessment tool that encourages a more holistic approach in both the teaching and learning of medicine.

#7II02 (135122)

**Non-academic factors affecting student OSCE performance in undergraduate medical students**

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Carmina Flores (Universidad Anáhuac, México, México)

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**Background:** The Objective Structured Clinical Evaluation (OSCE) is a tool that has proven useful in assessing clinical competencies worldwide, but there are several factors that affect the student's performance during the OSCE that may be intervening in their scores. Currently, at Anahuac University the OSCE is used as an evaluation system in order to obtain a medical degree. There are trials that proved that there are factors that affect the performance of health professionals, suggesting that the causes of school failure in medical students are diverse and often their origin is non-academic.

**Summary of Work:** We expected to establish the influence of factors such as the type of hospital where the candidate studied the internship year, the age of the student, or the time required to complete the degree program and whether or not these factors influence the performance at the OSCE. The OSCE participants during 2015 (n = 280) were asked to complete a survey about these non-academic variables; they were analyzed by means of univariate and multivariate regression to determine their influence on the OSCE performance.

**Summary of Results:** There is a significant relationship between the performance scores obtained by the OSCE and the undergraduate internship hospital (ANOVA, F Ratio: 0.9062 p:0.44), the year of admission to undergraduate training (ANOVA, F Ratio: 35.30 p:0.001) and the participant's age (ANOVA, F Ratio: 70.39 p:0.001).

**Discussion:** Having found a significant relationship between these factors allows us to identify students who have a profile of risk of underperforming the OSCE, which give us an opportunity to support them and improve their performance.

**Conclusion:** There are non-academic factors that can influence the student performance in the OSCE.

**Take Home Messages:** Although we found a positive relationship between some non-academic factors, we need to study the relationship of other factors related to OSCE performance.

#71103 (136112)

**"Shadow OSCE": an adapted implementation of OSCE evaluation using "shadow evaluators"**

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*Marcelo Arlindo Vasconcelos Rodrigues*

*Rodrigo Díaz Olmos*

*Paulo Andrade Lotufo*

*Itamar de Souza Santos*

**Background:** OSCE is a valid assessment designed to evaluate students' clinical skills. We aimed to develop an adapted implementation of this assessment ("shadow OSCE") to improve its formative value, enabling an enhanced feedback. In this study, we describe shadow OSCE and compare its results with those found with the original OSCE strategy.

**Summary of Work:** In shadow OSCE, the evaluators (shadow evaluators) accompany the students by all stations, like a shadow of the student, in contrast to the well-known strategy in which evaluators remain fixed in a single station (fixed evaluators). In our study, OSCE applications occurred between 2012 and 2014 at the Hospital Universitário da Universidade de São Paulo. Both a shadow and a fixed evaluator observed all OSCE applications. At the end, shadow evaluators provided a structured, targeted and individualized feedback. All grades were in a scale from zero to 100. We present descriptive statistics as means±standard deviations. We describe Pearson's correlation coefficients for shadow and fixed evaluators' grades. In addition, we use paired t-tests to investigate if the mean difference between shadow and fixed evaluators' grades was different from zero.

**Summary of Results:** We evaluated 594 OSCE station applications in 316 different medical students in the last undergraduate year. Scores from shadow evaluators were 78.89±15.23. Scores from fixed evaluators were 78.31±15.51 (mean difference, 0.58; 95% confidence interval [95%CI]: -0.05 to +1.21 p=0.07). Pearson's correlation coefficient, 0.87; 95%CI: 0.85 to 0.89.

**Discussion:** Our results do not point to significantly different grades by shadow and fixed evaluators. In addition, we may speculate that shadow evaluators provide a more targeted and personalized feedback accompanying students in multiple scenarios

**Conclusion:** Shadow OSCE allows a targeted and personalized feedback. There was a strong and non-biased correlation between shadow and fixed grades.

**Take Home Messages:** Shadow OSCE may be a valuable tool to improve OSCE formative aspect.

#71104 (132202)

**Implementation of an Objective Structured Teaching Examination to assess teaching skills in the dental clinic of a University in Chile**

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*Cristhian Pérez (Universidad de Concepción, Concepción, Chile)*

**Background:** Objective Structured Teaching Examination (OSTE) is a tool for evaluating teaching skills in different contexts, through direct academic performance. Despite the importance of quality teaching in the dental school clinic work, academic skills are only indirectly evaluated through students satisfaction surveys.

**Summary of Work:** Mixed descriptive study was performed sponsored by FONDECYT 1161541. In the quantitative phase it was used a non-experimental and cross-sectional design. In the qualitative phase it was used the phenomenological method. OSTE was implemented to 15 teachers of dental clinic, selected by non-probabilistic convenience sample. They participated in 9 stations that evaluated 10 teachers skills for dental clinic work. Internal consistency and interrater agreement of each station's scoring instruments were evaluated using Cronbach alpha and Cohen's Kappa. Teachers participated in a focus group to describe their perception of the experience of being part of a OSTE.

**Summary of Results:** The results showed an adequate reliability with Cronbach alphas over 0.60 and acceptable interrater agreement scoring instruments for assessing the OSTE. In addition a direct correlation between stations scores founded. The perception of teachers documented in the focus group was positive and they reported OSTE as an instance that promote self-awareness and motivates them to continue in training.

**Discussion:** The OSTE implemented presented adequate psychometric properties, showing that allows a better and more detailed assessment of teaching skills than satisfaction surveys. However, it must be used consistently over time as a tool for evaluation and feedback to teachers.

**Conclusion:** OSTE must be included as an established practice in dentistry schools because it results can optimize the design of training policies of the academic and identify weaknesses in teaching.

**Take Home Messages:** We can improve the education of our students knowing our teachers better.



#71105 (134436)

**The objective structured clinical examination (OSCE) as a teaching aid for undergraduate oncology education: experience of Leeds Cancer Centre**

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*Fei Sun*

*Ganesh Radhakrishna*

**Background:** The incidence of cancer is increasing and there have been many recent developments in oncology treatments. However, there remains limited exposure to oncology practice within undergraduate curricula, and junior doctors often lack confidence in managing patients with oncological problems.

**Summary of Work:** Our teaching OSCEs take place at the end of each 4th year undergraduate student's three-week attachment within the department. The stations cover common and important aspects of oncology practice within our undergraduate teaching hub. Facilitators give direct feedback on student performance. The format and timings match the end of year summative university OSCE.

**Summary of Results:** Feedback from students has been consistently excellent. From September 2014 to 2015 more than 90% of 200 students felt the teaching OSCEs were an enjoyable and useful way to learn, improved their knowledge and skills, highlighted areas to work on and helped with preparation for their summative university OSCE.

**Discussion:** We have found teaching OSCEs are a useful method of enhancing learning in oncology for 4th year undergraduates. Feedback from students is excellent and in response to students' suggestions we have created additional scenarios, reduced the size of each group and developed the hub environment. Future plans include incorporating simulation training within the OSCE and the use of filming to highlight specific areas of performance for individual student feedback.

**Conclusion:** Teaching OSCEs are an effective and enjoyable component of our undergraduate oncology placements. They are both an educational resource and a formative assessment of learning objectives for the placement.

**Take Home Messages:** We use Objective Structured Clinical Examinations to Observe Skills in Cancer Education.

#71106 (135657)

**Development of a Chinese communication skills rating tool for standardized patients (SP) in OSCE examinations and workshops - A mixed method study**

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*Samuel Yeung Shan Wong (The Chinese University of Hong Kong, Hong Kong)*

*Shekhar Kumta (The Chinese University of Hong Kong, Hong Kong)*

*Tony Nelson (The Chinese University of Hong Kong, Hong Kong)*

**Background:** A wealth of communication rating scales has been developed for research and educational purposes, however such tools have limited uses in real consultations or as an adjunct to examinations due to the large number of items assessed or set structure. In addition, widely recognised tools e.g. Kalamazoo and Adapted ABIM Patient Satisfaction tool are only available in English and may not factor in the Chinese language and cultural context.

**Summary of Work:** The adapted ABIM was fore and back translated and trialed by standardised patients in Year 4 MBBCh family medicine OSCE examinations. Focus groups were conducted on the use of tool. Interviews were transcribed and thematic analysis was conducted using grounded theory. A new tool was developed and piloted across video feedback and OSCEs. Students received SP feedback on their OSCE assessment and completed a questionnaire about communications skills and feedback

**Summary of Results:** Themes from SPs revealed difficult to delineate concepts/items/ overlapping and difficult to complete in time and ambiguity of medical content vs. communication skills. Subsequently a shorter 3 item assessment tool was developed. The pilot assessment had over 95% completion in both workshop and OSCE settings. Students valued SP feedback.

**Discussion:** Chinese SPs found it hard to identify with items on ABIM, this may be due to language/cultural influences or training. A single simplified tool for use as the student transition through undergraduate education and learning activities can be useful for feedback.

**Conclusion:** A 3-item communication skills assessment tool was developed and deemed useful for SPs and students across a range of settings amenable for longitudinal assessment

**Take Home Messages:** Language and culture are important factors in communication and curriculum development should reflect the local cultural context.

#71107 (134554)

The hidden curriculum of clinical teachers as examiners in OSCE

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**Background:** Clinical teachers often participate in OSCE. Being an examiner in OSCE would bring about learning that would contribute to their clinical teaching. The learning of clinical teachers as an examiner in OSCE was not yet well studied. Our work aimed to disclose dimensions of such learning.

**Summary of Work:** We conducted a survey and interviewed eight clinical teachers who experienced at least one formal OSCE. Both quantitative and qualitative data were collected from the result of survey and transcripts of interviews, and these data were analyzed further to confirm the dimensions of hidden learning.

**Summary of Results:** Our study found that the dimensions of hidden curriculum included self-reflection of their clinical competences regarding to topics in OSCE, increased ability of role-taking at clinical teaching context, and teaching skills such as giving a constructive feedback.

**Discussion:** The dimensions of hidden curriculum include attitude, knowledge, and skills that are related to clinical teaching. Since these examiners are clinical teachers in the working place, such learning could be merged and applied to improve their clinical teaching.

**Conclusion:** As examiners in OSCE, clinical teachers would experience hidden curriculum which could lead to their reflection on teaching performance and may help to improve their teaching skills.

**Take Home Messages:** The hidden curriculum of examiners in OSCE would be a good opportunity for clinical teachers to reflect on their clinical competences and teaching skills. Such learning is very valuable in faculty development.

#71108 (135674)

OSCE from the perspective of 3rd year medical students

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Anna Kocurek

**Background:** The Objective Structured Clinical Examination (OSCE) is a useful method for assessing clinical skills and knowledge in simulated conditions. Aim of the study OSCE from the perspective of 3rd year's medical students.

**Summary of Work:** Students of 3rd year's study of Faculty of medicine at Jagiellonian University Medical College in Cracow were evaluated by OSCE, which assessed their skills of internal medicine, surgery, gynecology, pediatry. OSCE consisted of 12 stations (3 medical interview, 9 practical skills). In order to assess student's reviews on OSCE, we used method of diagnostic survey using the survey technique. After taking OSCE exam, students were asked to fill in questionnaire about the exam. We used Statistica 12.0 for analysis.

**Summary of Results:** We analyzed 221 questionnaires. OSCE passed 96,9% of the students in the first term. 93,7% of students considered OSCE as a well organized exam, 87,8% claimed that OSCE is fair and 95,5% that is clear. 86,4% students are pleased with the introduction information about OSCE that was given before the examination. 78,6% students believe, that OSCE allows to properly identify skills that require improvement. 90,9% believed that feedback on their mistakes is helpful to improve their clinical skills. Comparing with the other type of exams, OSCE is more stressful for 61,7% of students. 59,2% claimed that OSCE properly selects well prepared students and these who need to improve knowledge and skills. For 18,8% of the students heart auscultations with simulator and interviews as extremely difficult.

**Discussion:** Students, who didn't pass all stations with positive result, significantly more often ( $p=0,01990$ ) indicate improper balance between quantity of stations that check communication skills and these checking other clinical skills.

**Conclusion:** OSCE is well organized, fair and correctly selects students who need to improve their knowledge and skills.

**Take Home Messages:** Further assessment of OSCE should be continued to maximize benefits for students.

#71109 (134504)

**Application of modified OSCE in Evaluation of Clinical Competence for new nurses**

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Kuo-Su Chen (*Chang Gung Memorial Hospital, Keelung, Taiwan*)

**Background:** How to appropriately evaluate the professional ability of nurses remains debated. The traditional assessment methods may not adequately reflect mastery of essential skills and cognitive learning in clinical settings. The objective structured clinical examination (OSCE) is now broadly applied to assessment of clinical competencies. To effectively evaluate learning outcome, we designed a modified OSCE to assess clinical competence for new nurses in this study.

**Summary of Work:** A modified OSCE consists of four stations, each of which has one standardized patient (SP) and one faculty observer. Each examinee completes 4 test stations (A-D). The elements tested include caring, problem solving and counseling skills. The items include 1) taking history or doing physical examination at SP; 2) interpreting medication administration, adverse effect, intravenous notes, or fever care; 3) patient counseling and communication. Each station takes 10 minutes. SPs and the faculty observer complete the checklist and examinees complete questionnaire. The Borderline-group method was applied to establish the pass/fail standard per station.

**Summary of Results:** 53 graduated nurses were enrolled from this study. Almost all participants (96.2%) confirmed that they had never taken part in such an examination. The average score at each station was 69.4 ranging from 49 to 83. The new nurses had poorer performances at station B. There is high learner satisfaction with using simulators to learn clinical skills. Particularly, the self-satisfaction of examinees, and care/communication skills showed a significant correlation ( $p < 0.05$ ).

**Discussion:** The result of this OSCE showed a reliable evaluation at performance of new nurses, suggesting a single assessor per station would be sufficient. This OSCE could be an easy and suitable method to apply in evaluating nursing clinical skills.

**Conclusion:** A modified OSCE at this study can help new nurses gain confidence to use their skills at their clinical work. OSCE is also considered as a reliable method of evaluating nursing nurses' clinical skills.

**Take Home Messages:** An appropriately designed OSCE can be a valid strategy for teaching and assessing new nurses' clinical ability, and are helpful and meaningful to nursing professional education.

#71110 (132616)

**The effectiveness of OSCE in pharmacy interns--- the experience from Pharmacy Department of Taipei MacKay Memorial Hospital**

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**Background:** Objective Structured Clinical Examination (OSCE) can strengthen the patient-oriented expertise by simulated clinical cases. Here we reported that the implementation of OSCE in Pharmacy Department of MacKay Memorial Hospital, the results of students' feedback, and the improvement of the training program.

**Summary of Work:** The study period was from the year of 2012 to 2014. All students participated in the OSCE before the end of their intern courses. Based on the key points of outpatient services, we designed three stops which were prescription verification, outpatient prescription dispensing and patient consultation. After examination, we further analyzed the final scoring and information of students' feedback.

**Summary of Results:** One of 39 interns was not qualified. Generally, the scoring and performance of outpatient prescription dispensing were better than that of prescription verification and patient consultation. All raters and pharmacy interns agreed to the benefit of each workstation and the usefulness in clinical performance.

**Discussion:** Students' performance in different stops showed inconsistent results. Students could realize their disadvantages and advantages during OSCE evaluation.

**Conclusion:** OSCE is important to provide feedback for raters and students, as well as for curricular improvement.

**Take Home Messages:** The clinical skills of pharmacy interns require accurate guidance and evaluation. OSCE is one of the important tools to evaluate the clinical skills and abilities.

#7111 (131976)

**The utility of formative objective structured clinical examination in the training of eleven different fields of healthcare providers**

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Shou-Chuan Shih

**Background:** The Objective Structured Clinical Examination (OSCE) has become one of the standard evaluative tools to assess clinical competency in medical students. However, it is unclear to apply to a wider range of healthcare professionalism. This study is to evaluate the utility of OSCE in many healthcare providers in medical center.

**Summary of Work:** The OSCE assessment program of healthcare professionalism including nurses, pharmacists, laboratory scientists, respiratory therapists, psychologists and counselors, radiologists, physical therapists, occupational therapists, nutritionists and psychologists' suicide prevention were from the year 2008 to 2015. These assessments were correlated to communication skills, medical, psychological counseling and patient education.

**Summary of Results:** Participants from each healthcare field were satisfied (84.5%-100%) with novel implementation of OSCE in clinical trainings and educations. The test scenarios were rated (82%-100%) as practical and helpful in the development of professional skills in their clinical settings. Trainees (92%-100%) and trainers (95%-100%) were also positive about the novel system.

**Discussion:** The benefit of using OSCE was to measure effective communication skills and attitudes in ways, so it is widely used by different medical professions. In the OSCE of psychologists and counselors, it was difficult to write the scenarios and the standardized patient is difficult to do the role playing.

**Conclusion:** There are four reasons to get success for these OSCE including support and encouragement from director of hospital, give reasonable remuneration to test script writers and OSCE examiners, positive feedback from trainees and formative OSCE benefits trainers as well as trainees.

**Take Home Messages:** The feedback in the post-OSCE session provides trainees and trainers an opportunity to review the system for continuous quality improvement.

#7112 (131754)

**Joined development of OSCE program in different allied health professional education: Experience from Kaohsiung Medical University Hospital**

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**Background:** OSCE is widely used in Taiwan in the education of health professions but not in allied health professionals. With less resource and experience, introduction of OSCE in clinical education of individual allied health profession is difficult. Collaboration of educational initiatives of different allied professions and clinical educational administration is important.

**Summary of Work:** Action plan was initiated in 2013 in KMHU by joined stirring team of educational administrative staffs and educational coordinators from 4 allied health professions without established OSCE programs. The joined team coordinated the resource, timeframe, as well as faculty development activities such as emulation of established programs and rater training.

**Summary of Results:** Four professions including Dietitian, Respiratory Therapy, Physical and Occupational Therapist joined the stirring team. Initial templates of OSCE scenarios were created for all professions and joined faculty developments activities were conducted. OSCE was incorporated into assessment programs in the clinical education of by the end of this action plan.

**Discussion:** Educational initiatives of different allied health professions in our hospital found it difficult to establish OSCE into their own clinical educational programs. Our experience in administrative coordination to create the collaboration among different initiatives indicated that a joined development would be an easier path for the introduction of OSCE programs.

**Conclusion:** Educational initiatives of allied health professions in hospital are less experienced in OSCE program. However, with collaboration that allow different professions to emulate the process and share with experiences and resources, the establishment of a new assessment program such as OSCE will be far easier.

**Take Home Messages:** A joined project by different health professions in hospital is a practical and feasible way for development of OSCE program.



#71113 (132486)

**Competencies are context dependent: Evaluating the reliability of competency based OSCEs for internationally trained health professionals**

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*Geoffrey R. Norman*

**Background:** A competency based education (CBE) framework offers consistency in assessment design, however it is yet to be determined if competencies offer consistency in assessment. Touchstone Institute conducts several competency based OSCEs each year as screening exams in the re-entry to practice pathway for internationally trained health professionals. These evaluations offer insights into the relationship between performance and competence.

**Summary of Work:** The internationally educated nurses competency assessment program (IENCAP) was developed at Touchstone in collaboration with the College of Nurses of Ontario (CNO) and includes a 12-Station high stakes OSCE. Each station evaluates the same 10 competencies. We submitted scores from several exams to a multi-trait multi-method matrix analysis to determine if the examination was able to assess generalizable competencies. The method determines if there was a higher correlation between multiple assessments of the same competencies across stations or between different competencies within individual stations.

**Summary of Results:** All correlations were significant, however, a consistent finding was that correlations were stronger between different competencies evaluated within the same station than identical competencies evaluated across different stations.

**Discussion:** The results confirm the context or case-specific nature of competency. While CBE presumes that measurement of a particular skill (e.g. take a history) can be assessed independent of context, these findings suggest the individual context is a major determinant of performance.

**Conclusion:** Competence may not be best determined in a single occasion.

**Take Home Messages:** The context dependent nature of competence assessment likely requires multiple samples of performance in varied contexts.

#71114 (135699)

**OSCE examination in post-graduated medical students from CPIRD scheme track, Thailand**

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**Background:** Post- graduated medical students knowledge and skills represent teaching-learning standard in medical school. OSCE examinations is the good test for evaluated the essential basic clinical practice. This study aimed to examine number of post- graduated medical students can pass the exam in different medical center hospital and the essential aspect that they have low level.

**Summary of Work:** A nine station of OSCE were delivered to post-graduated student .The aspects included knowledge, procedural, communication skills, history taking and physical examination. We examined the number of post- graduated medical students pass the exam from different medical schools. We also examined the aspect that they passed under 60%.

**Summary of Results:** 446 post- graduated medical students from CPIRD curriculums from 29 medical schools in Thailand were test by OSCE examination. The number of post- graduated medical students can pass the exam under 60% included OB-GYN procedure station ( 53.1%), trauma management station (57.6%) and history taking station (55.61%).

**Discussion:** This study suggest that the medical school will change the teaching skill in some aspect especially in emergency procedure in trauma unit and delivery room however history taking is the crucial part for consider to improve.

**Conclusion:** This study is the report of educational outcome of different medical school in CPIRD program. This demonstrates that one third of exams had number of post graduated students can pass under 60% led to improve history taking and OB GYN and Surgery procedural skills will be develop.

**Take Home Messages:** The OSCE assessment is the essential tool for assess the competencies of medical student. Improvement of teaching from teachers to make self confident of post-graduated student to practice in their work.

#71115 (132794)

**FRCA Examinations: Factors Influencing OSCE Performance**

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**Background:** The Fellowship of the Royal College of Anaesthetists (FRCA) is renowned as being a very difficult postgraduate examination. Many factors influence the outcome of the examination, leading us to question whether a way of predicting a successful performance was possible.

**Summary of Work:** Participants were recruited from those attending a Primary FRCA revision course run by Coventry Anaesthetic Courses. Heart rate was used as a physiological marker of stress. Participants wore a heart rate monitor throughout a 32 station Objective Structured Clinical Examination (OSCE). Monitors recorded the candidate's average heart rate during each station. Questionnaires were used to collect demographics and the candidates' evaluation of their own performance. Each OSCE station had a pre-approved mark sheet; candidates' scores were recorded.

**Summary of Results:** There was a significant correlation between score and percentage change from baseline heart rate ( $p=0.019$ , Pearson correlation coefficient 0.71). Total score significantly correlated with preparation time and candidates' confidence levels (Pearson Correlation Coefficient 0.106 and 0.135 respectively, both  $p<0.000$ ). Although, of the two, only confidence levels significantly correlated to resting heart rate (Pearson Correlation Coefficient -0.250,  $p<0.000$ ). Regression analysis suggests that to achieve a score greater than 75% (Primary OSCE October 2015 pass mark - 69.3%), a minimum of 6 months preparation time is required.

**Discussion:** Unexpectedly, a greater change in heart rate from baseline was associated with a superior performance in the examination; from our study, this relationship was not adequate enough to predict outcome. Nonetheless, this suggests that a level of anxiety enhances performance; perhaps the weight of the examination is better appreciated.

**Conclusion:** We suggest six months preparation time as the optimum for a successful attempt at the examination. As for improving confidence, consideration of courses focussing on non-technical examination skills could play a role in examination success.

**Take Home Messages:** Preparation and confidence were the most influential factors in passing this OSCE.

## 7JJ Posters: Feedback

Location:

#7JJ01 (132797)

**Self-, peer-, and faculty-assessment in medical students' oral case presentation: A multisource feedback study**

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**Background:** Oral case presentation(OCP) is a critical interpersonal communication skill in patient care. However, the assessment of OCP is inconclusive. The assessment tool, multisource feedback(MSF), is well-known for being relatively objective. Our study evaluates the assessment results following an application of the concept of MSF to OCP training.

**Summary of Work:** We utilized a mixed-methods approach to compare assessment results from multisource(self, peers, and faculty) in OCP. Firstly, a validated OCP assessment form(full score of 100: including 5-items for essential contents and 3-items for presenting performance) was developed through consensus of faculty and experts. Secondly, the assessment form was given to students, peers, and teachers. Data were analysed statistically(including T-test, ANOVA and correlation). Finally, semi-structured in-depth interviews were undertaken for further investigation.

**Summary of Results:** Seventy-four fifth-grade medical students(24 females, 50 males) and 10 teachers participated. ANOVA showed significant differences between the total score from self, peer, and faculty ( $F(2, 219)=34.19, p<0.001$ ). The score from faculty ( $79\pm8$ ) was significantly lower than self-assessment ( $87\pm10, p<0.001$ ) and peer-assessment ( $91\pm9, p<0.001$ ). The score from peers was significantly higher than self-assessment ( $p=0.016$ ). In in-depth interviews, students admitted to adding subjective opinions and personal concerns when undertaking both self- and peer- assessments. For another, teachers believed they assessed objectively and discriminately.

**Discussion:** Due to relatively few experiences than teachers about the assessment of OCP, the students gave higher score to themselves and peers. They tended to show their self-confident, try to keep friendship, and avoid offending classmates. The teachers tended to do assessment skillfully and show their justice cautiously.

**Conclusion:** There were differences between the assessment results from self, peers, and faculty in

students' OCP performance. Compared with students' subjective approach to the process of assessment, teachers felt they gave more objective scores.

**Take Home Messages:** The MSF provides different information from different assessment sources. Teachers believe they are more objective than students.

#7JJ02 (133715)

**FEEDBK, a new feedback model for timely, concise feedback in undergraduate clinical teaching**

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Saira Hameed

Karim Meeran

**Background:** Experiential learning is at the heart of the medical apprenticeship but can be associated with lack of feedback to students on their performance. This is despite the recognition that feedback is fundamental to improving student achievement. Barriers to giving feedback include lack of time and lack of knowhow.

**Summary of Work:** We have developed FEEDBK, a new model for giving feedback at the end of a clinical learning encounter. FEEDBK is quick (can be done in under 5 minutes), easy to remember, simple to use and has been adopted by teachers at the Imperial College School of Medicine.

**Summary of Results:** FEEDBK Model Focus: Clarify learning outcomes at the start; Evaluate Student self-assessment, "How do you think that went?"

Encounter: Descriptive feedback on communication skills & professionalism; Do: What they should continue to do; Better: One suggestion for improvement; Key message: Give a key take home message.

**Discussion:** Feedback underpins learning and giving feedback has been identified as the hallmark of an excellent clinical teacher. The FEEDBK model overcomes time constraints inherent to busy clinical teaching settings and provides a structure for every teacher to give effective feedback at the end of each learning encounter.

**Conclusion:** FEEDBK, a memorable mnemonic, gives all clinical teachers a new and powerful tool for their teaching repertoire. In a busy clinic or ward, FEEDBK can be used to formatively assess learners in a way that is both timely and constructive, encouraging and signposting students toward improved performance.

**Take Home Messages:** Students must be offered feedback if they are to capitalise on experiential learning. Try FEEDBK in your own practice. Our new model overcomes time and knowhow barriers, allowing every teacher to constructively appraise students, thus reviving the ethos of the medical apprenticeship and fostering the development of tomorrow's doctors.

#7JJ03 (135382)

**Experiences and preferences for feedback of final year medical students**

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Eleanor Southgate, Chelsea and Westminster Hospital, Imperial College, London, UK  
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**Background:** Feedback has been described as a fundamental aspect of learning and teaching. Existing literature and national student surveys suggest students are not necessarily satisfied with the quantity or quality of feedback they receive. This survey aimed to ascertain final year students' feedback goals, satisfaction with quality and quantity of feedback, and preferences regarding the feedback experience.

**Summary of Work:** An initial focus group was conducted with 9 final year students. A questionnaire was formulated, including statements where students were asked to rate agreement or satisfaction on a Likert-type scale, based on quality and quantity of feedback. Students were asked their preferences for further feedback in an open question. The questionnaire administered to final year students.

**Summary of Results:** The focus group students wanted feedback on summatively assessed domains (history/ examination, clinical issues, management, professionalism), with the aims of knowing how prepared they were to become a doctor and their performance compared to their peers. 27 students completed the questionnaire. 70% of students wanted more feedback. Greatest dissatisfaction in feedback quantity was in history/examination skills (29.6%). Dissatisfaction regarding feedback quality ranged 3.7-7.4% over the four domains. Students expressed preference for feedback from junior doctors, instantaneous verbal feedback, and that following observed consultations.

**Discussion:** The majority of students continue to request more feedback, mostly for basic clinical skills. Students suggest that junior doctors' feedback is preferable, as juniors have more student contact and have recently completed finals examinations.

**Conclusion:** Final year medical student cohorts report the desire for increased quantity of feedback, particularly in clinical skills, and by junior doctors. Their preferred format is observed consultations followed by verbal feedback.

**Take Home Messages:** Feedback on history and examination is important to final year students. Junior doctors play an important role, enhancing the learner experience and fulfilling the GMC requirement of 'doctors as teachers'.

#7JJ04 (133539)

**Summative OSCE feedback: what do students want?**

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**Background:** The literature is sparse on what medical students seek and value from their summative OSCE feedback. At UCL Medical School, students may choose to pick up their OSCE feedback which contains their quartile ranking and examiner feedback for each station. However, not all students collect this feedback. This study aimed to explore student motivations for collecting their feedback and their thoughts on the quality of the information provided.

**Summary of Work:** An online questionnaire was sent to year 5 and 6 medical students asking about their opinions on the usefulness of their feedback and how it could be improved. Students from these years were invited to participate in focus groups facilitated by a fifth year medical student to further explore this topic. Questionnaire responses and focus group transcripts were then thematically analysed.

**Summary of Results:** There are variable degrees of satisfaction and perceived usefulness from the OSCE feedback. Students' primary motivations for collecting the feedback were to identify areas of strength and to learn how they might improve. Disappointment stemmed from broad, non-specific comments summing up an entire station e.g. 'poor skills'. This, coupled with a lack of constructive feedback led to frustration with their feedback. Students also wished for more absolute and relative metrics on their performance to aid contextualising their performance. **Discussion:** Students see the potential for summative OSCE feedback to be a significant learning opportunity. They approach it with an open mind, wanting to know what examiners thought they had done well and poorly. Frustration arises when students are unable to translate feedback to actionable points.

**Conclusion:** Students value summative OSCE feedback however examiners need to be trained to provide more constructive comments.

**Take Home Messages:** When designing and giving summative OSCE feedback, focus should be given to maximising scope for specific and personalised constructive comments.



#7JJ05 (133520)

**When students hesitate to ask: How to support students to seek feedback using structured tools**

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*David Hope (Centre for Medical Education, University of Edinburgh, Edinburgh, UK)*

*Helen Cameron (Centre for Medical Education, University of Edinburgh, Edinburgh, UK)*

**Background:** Students feel they receive insufficient useful feedback. Research shows feedback seeking can improve motivation, engagement and support integration into learning environments, and that junior students prefer passively receiving feedback whereas senior students actively seek feedback. We explore feedback seeking via a "Feedback Postcard" tool implemented in years 3-5 of an MBChB programme of 750 students and approximately 1,000 staff.

**Summary of Work:** Around 59% of students responded to surveys. 14 students and 11 staff members attended an interview or focus group. Data were qualitatively analysed using a grounded theory approach to explore students' feedback seeking behaviour and how Feedback Postcards affected this.

**Summary of Results:** Junior and more introverted students found the postcards useful in enabling discussions on their performance with staff. They obliged students to seek learning opportunities, overcome worry about approaching staff and made feedback routine. Staff felt postcards encouraged proactivity. Senior students found them less useful and considered the required number of cards excessive. These students were more integrated into the clinical environment, performed more tasks with less supervision, and were more willing to seek feedback without a structured tool.

**Discussion:** Junior and senior students gave significantly different responses. Both acknowledged that the postcards helped junior students and those introverted or less motivated to seek feedback. Senior students found them a burden, reporting a willingness to seek feedback without them. These findings may result from the stage of training, in accord with other studies, or from the timing of the innovation.

**Conclusion:** Structured feedback seeking tools are useful for junior students. They may be unnecessary for advanced and independent students but this needs further exploration. Future studies on feedback seeking must consider the seniority of students.

**Take Home Messages:** Feedback seeking tools can be beneficial in a range of contexts, especially where students feel isolated, poorly integrated into the clinical environment, or worry about interacting with staff.

#7JJ06 (133050)

**Does video-enhanced standardised feedback enhance the acquisition and retention of intravenous technical skills in comparison to one-to-one feedback from an expert in a cohort of novice medical students?**

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*Joanna Matthan*

*Matthew Gray*

*Lucy Bookless*

*Paul Rodham*

*Alexander Phillips*

**Background:** Video enhanced feedback has been proven to be better than standard lecture feedback in the short-term retention of a newly taught clinical skill, however, its effect on long term retention is poorly established. We aimed to establish if supervised (SVF) or unsupervised video assisted feedback (UVF) influences the retention of a new clinical skill taught to novice medical students and if a significant difference exists between the two types of feedback over an 8 week period.

**Summary of Work:** A prospective blinded randomised trial with 42 novice medical students. The candidates were randomised to each arm of the trial and following standard introduction to IV cannulation were recorded performing the task followed by 20 minutes of feedback. The SVF group received 1-to-1 feedback by an expert reviewing their video while the UVF group reviewed their own video alongside a video of an expert performing the task. The candidates returned at 1 week, 3 weeks and 7 weeks to repeat the task without further feedback.

**Summary of Results:** The videos were anonymised and doubly marked according to a pre-determined university standard mark scheme by faculty members not present during data collection. Final results are currently being analysed and will be presented on conclusion of the project (April 2016).

**Discussion:** Positive feedback from candidates suggests a role for video-feedback in clinical education. Short-term benefits have been proven, if its long-term value can be established there is scope for widespread use.

**Conclusion:** Technological advances can allow students to have widespread access to personalised video feedback both as a learning resource and as part of clinical examinations.

**Take Home Messages:** Video enhanced feedback is an underused resource with valuable potential in medical education.

#7JJ07 (127030)

**Barriers To Providing Effective Feedback - A survey of Consultants in the West Midlands**

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**Background:** With the role of revalidation, evaluation of training and feedback are increasingly important in medical education. Good feedback requires the learner to reflect on what's gone well and what could be improved. Regular constructive feedback is central to developing competence however there is a wide variation in quality of feedback.

**Summary of Work:** An online survey was sent to Consultants across four sites asking what they perceived as barriers encountered when giving feedback to trainees, following Pendleton's rules (1984) for effective feedback. 55 Consultants completed the survey. 80% had received training in feedback. 42% had received feedback on their method of feedback.

**Summary of Results:** 51% of Consultants cited lack of time and 31% lack of suitable environment as a barrier to giving effective feedback. 33% cited concern over upsetting the professional relationship with the trainee and 31% felt trainees were resistant to receiving criticism.

**Conclusion:** Kirkpatrick described a pyramid model for evaluation of training, moving up from immediate reaction to in depth evaluation that changes behaviour or practice. Clearly this requires dedicated and adequate time as well as consistent observation of practice by the same trainer.

#7JJ08 (134055)

**Students' perceptions of meaningful feedback on task-related expertise development in the clinical workplace**

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**Background:** Receiving meaningful feedback while in the clinical workplace is probably the most frequently voiced desire of students in undergraduate health care rotations. Especially in competency-based education, students require meaningful performance-relevant information in order to get insight in their expertise development. In a learning environment as the clinical workplace, providing meaningful feedback is often difficult for supervisors. From students' perspective it is still unclear what they perceive as meaningful performance relevant information. In this study we aimed to obtain insight in what students perceive as meaningful feedback in performance situations in the clinical workplace.

**Summary of Work:** An interpretive approach was used during an explorative qualitative multi-centered study. Three focus groups were conducted with undergraduate students that were in the clinical phase of their training program. The data was analyzed in open coding and, subsequently, organized as a form of axial coding.

**Summary of Results:** A list of preferences for meaningful feedback on task-performance in the clinical workplace was generated and clustered in five categories, namely: source, topic, timing, frequency and method. Depending on the learning environment of a specific clerkship participants' preferences to meaningful feedback on task-performance varied. Participants explicitly mentioned that besides feedback on performance from the supervisor, useful feedback could come from a variety of sources.

**Discussion:** In educational literature there is abundant evidence of how feedback should be provided to learners, and what factors are of influence on how feedback is sought by students in the clinical workplace.

**Conclusion:** This study points out that how performance-relevant information is preferred by students in assessment situations highly depends on contextual differences in the learning environment.

**Take Home Messages:** Feedback on students' performance in the clinical workplace is the most effective when it is meaningful information focused on the specific clinical task.

#7JJ09 (135574)

### Medical students in the feedback process

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*Oto Osina*

*Petra Morgosova*

*Jiri Francik*

*Lukas Bris*

*Jan Danko*

**Background:** Each of us would like to have feedback that is critical yet helpful and useful for improving the subject design, subject quality and students' learning experience.

**Summary of Work:** We carried out evaluation of subjects and educational process by the students of general medicine study program in the academic years 2012/2013, 2013/2014 and 2014/2015 (summer and winter semesters). The students had an opportunity to evaluate the following 7 areas: the subject in general, teaching conditions, organization of the subject, knowledge and preparation of the teachers teaching the subject, teaching skills of the teachers teaching the subject, relationship of the teachers to students, insights and opinions. The scale A – FX, with a possibility to mark with X (I do not know, I have no information), was used.

**Summary of Results:** 1692 students participated in the evaluation of summer and winter semesters of academic year 2012/2013, 1707 students participated in 2013/2014 and 1625 students participated in 2014/2015. The total response rate was more than 70%.

**Discussion:** The questionnaire conclusions are processed after years of study, subjects ranking evaluation according to the grades, each subject is processed in detail according to the structure of questions, open questions are at the end of the questionnaire (positive/negative/proposed changes and other comments on the passed subjects).

**Conclusion:** Repeated feedback by the medical students not only provides information about the teaching process at the Faculty and helps to improve and refine this process but also points out that remedies were successful.

**Take Home Messages:** It's the constructive feedback we dissect to determine how we can improve our subjects.

#7JJ10 (135721)

### Medical students do not experience anxiety when receiving feedback after reviewing video-recorded practical clinical skills

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**Background:** Feedback is an essential part of the learning process, helping students continually improve performance. A survey of UK medical students revealed widespread dissatisfaction with punctuality, quality and utility of feedback received by students. Video-assisted feedback (VF) has the potential to be a powerful tool in medical education, but student anxiety related to the prospect of being recorded has been reported previously. We aimed to investigate the effect of VF on medical student perceptions of anxiety during the acquisition of practical skills.

**Summary of Work:** Medical students were recorded performing cannulation, catheterisation and suturing; their performance was reviewed with an expert or on their own with an 'expert' video for reference. Students' anxiety levels and type of feedback received were collated using five questions on a five-point Likert scale. Response frequencies were determined and statistical analysis was undertaken.

**Summary of Results:** 81.6% of respondents felt that receiving feedback from an expert tutor was not stressful, 78.9% disagreed or strongly disagreed that reviewing their performance with an expert video was stressful. Students preferred face-to-face feedback, with over three-quarters (77.5%) of respondents in agreement. Most respondents (79.1%) strongly disagreed that face-to-face feedback impaired their learning due to anxiety.

**Discussion:** Receiving VF was not stressful for our students for a variety of reasons: (1) tutor-based feedback was individualised, (2) no peers were present when the feedback was received, (3) procedural clinical skills have steps that are discrete, predictable and prescriptive and (4) anonymity was maximised for the video-recordings.

**Conclusion:** Most students were not anxious with VF; it could be utilised better in the acquisition of practical skills and potentially to enhance the teaching and learning of these skills without the negative effects of VF-related anxiety.

**Take Home Messages:** Students display no raised anxiety levels when their video-recorded performances are reviewed with an expert, suggesting

VF feedback could play a greater role in provision of feedback.

#7JJ11 (132893)

**Evaluating a novel model of feedback provision for medical students: the FEEDBK model**

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Rohan Vithlani, Imperial College Healthcare NHS Trust, London, UK

Sarah Hogan, Imperial College Healthcare NHS Trust, London, UK

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**Background:** The purpose of feedback is to improve the learner's knowledge, skills and behaviour. The UK National Student Survey has repeatedly identified feedback as an area in need of significant improvement. We designed a novel tool, the FEEDBK model, to enhance the learner's feedback experience.

**Summary of Work:** The model presents a feasible means of providing feedback in busy clinical settings. The student and teacher should agree on the Focus of the learning opportunity to clarify learning outcomes. The student then Evaluates their performance, thus promoting reflective practice. The teacher gives non-judgmental feedback on the Encounter, e.g. communication skills and professionalism. This is followed by feedback on something the student should continue to Do and one suggestion for something they could do Better. The feedback is concluded with one Key take-home message. A successful pilot has been completed in an outpatient setting with undergraduates. We are evaluating FEEDBK in an inpatient setting in a central London hospital with 3rd year medical students. FEEDBK was introduced by teaching fellows in January 2016. Phase 1, questionnaire 1 and focus group 1, pre FEEDBK implementation is complete and phase 2, questionnaire 2 and focus group 2, post FEEDBK will be run at the end of February.

**Summary of Results:** Questionnaire data will be analysed for trends in students' perceptions about the quality, quantity and utility of feedback pre and post FEEDBK implementation. Thematic analysis will be done on focus groups 1 and 2 using NVivo to sort and code data. This is in progress and will be complete by April 2016.

**Discussion:** Although work in progress, we hope to show that FEEDBK is welcomed by students and improves their perceptions about the quality and utility of feedback.

**Conclusion:** We feel the model overcomes current barriers to feedback and will allow every teacher to provide constructive, timely and curriculum aligned feedback.

#7JJ12 (135003)

**Unsupervised video feedback may suffice when learning practical clinical skills: A randomised trial comparing supervised and unsupervised video feedback in the learning of clinical skills**

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**Background:** Feedback is a vital component of the learning process; however, great variation exists in the quality, quantity and methods of delivery. There has been an increase in the use of video technology to assist the provision of feedback. We aimed to evaluate two types of video feedback for students learning cannulation, catheterisation and suturing to determine if they improve performance and are comparable.

**Summary of Work:** A prospective blinded randomized trial was carried out comparing supervised video feedback (SVF) involving an expert reviewing a student's performance and providing advice on improving their performance and unsupervised video feedback (UVF) involving students reviewing their own performance with an expert teaching video. Medical students were recorded performing cannulation, catheterisation and suturing, followed by SVF or UVF before re-performing the tasks. Students' recordings were scored by two blinded experts using a validated pro forma.

**Summary of Results:** 71 students were recruited. Cannulation scores improved 6.3% with SVF and 9.8% with UVF ( $p=0.34$ ), catheterisation scores improved 10% with SVF and 13.5% with UVF ( $p=0.55$ ) and suturing improved 16.7% with SVF and 15.2% ( $p=0.94$ ). Improvement from baseline scores was significant in all cases ( $p<0.05$ ).

**Discussion:** Educator time constraints and the need to improve feedback may render increased UVF usage in practical clinical skills settings entirely feasible.

**Conclusion:** Video feedback allows significant improvement in clinical skills for novices. As there is no significant benefit from SVF, a similar improvement can be obtained using generic expert videos and allowing students to review their own performance.

**Take Home Messages:** Provision of generic expert videos can enhance the feedback process, allowing students to develop a reflective and increasingly independent approach to learning.



#7JJ13 (134624)

**Does Consultant supervisor behaviour change as a result of feedback from Junior Doctors?**

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*Rachel Melsom*

*Ai Lyn Yeo*

**Background:** The Department of Medicine for the Elderly, Worthing Hospital, UK, piloted a survey to enable junior doctors to feedback on the input and support from their clinical and educational supervisors. An email survey sent in 2013, yielded very low response rates. In 2014 and 2015, an anonymised SurveyMonkey questionnaire consisting of 10 questions about supervisors, with additional white space for comments, was circulated to trainees. Surveys were sent earlier in 2015 (June vs July), to maximize response rate.

**Summary of Work:** Questions: Approachability and availability; support for clinical advice; ability to give positive feedback; ability to give negative feedback in a sensitive way; interest in trainee; interest in their training; support in difficult situations; challenging trainees to improve; co-operation with work-based assessments; understanding e-portfolio requirements. Scoring per question: 1=Poor; 2=Not Great; 3=Satisfactory; 4=Good; 5=Excellent Annual quantitative results were compared. Qualitative results were circulated to individual consultants, who were asked to reflect on the feedback, and detail any resulting change in their practice.

**Summary of Results:** Response rate improved. • 2014 (n=41; 46% response rate) • 2015 (n=57; 52% response rate) Feedback was very positive in both years, making significant improvement hard to achieve. • 2014 range: 4.31/5 → 4.85/5 • 2015 range: 4.52/5 → 4.78/5 Average improvement: 1.75%

**Discussion:** General improvement in consultant communication skills, with greater awareness of its impact on trainees (improvement average: 3.89%). Knowledge of the formal training requirements needs improvement (decline average: -1.25%). Consultants sharing personalised feedback has generated change in training across the department (e.g. trainees leading ward rounds, improved bedside teaching)

**Conclusion:** 1. Timing and anonymity are important to improve response rates. 2. Feedback is valued by consultants and precipitates change

**Take Home Messages:** • The use of anonymized surveys for feedback has led to constructive changes in quality of supervision. • The survey is currently being extended for use across all departments with trainees.

#7JJ14 (132767)

**An effective-feedback strategy: comparison between peer-feedback and peer-with teacher-feedback in learning Pediatric Basic Life Support**

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*Win Techakehakij*

**Background:** Although peer-feedback is an important method in learning, some studies report an ineffective result due to knowledge insufficiency. This study compares the efficacy of peer-feedback and peer-with teacher-feedback, with the aim of improving the performance on pediatric basic life support after the basic knowledge achievement.

**Summary of Work:** Two groups of 4th-year medical students (30 on each) were assigned for self study with standard text and video demonstration before attending lecture in class. The first and second practical examinations were undertaken after lecture and after feedback, consecutively. Feedbacks were given by peers in one group, and peers with teacher in the other. Performance was analysed using 20-items classified into five domains; assessment, technical-accuracy, coordination, problem-solving and overall competency. Each item was rated on a 5-point scale. T-test was used to compare the performance scores between before- and after-feedback and between groups, with a significance level of 0.05.

**Summary of Results:** After receiving feedbacks, technical-accuracy, coordination and overall competency were significantly improved in both groups. Nevertheless, problem-solving was only improved in peer-with teacher-feedback group. Comparison between groups revealed insignificant difference of the performance in most domains. Concerning the performance comparison, only the problem-solving score was higher in peer-with teacher-feedback group (diff 18.00±2.00 vs 13.33±1.16, p=0.036), while no difference in other domains was observed.

**Discussion:** With the basic-knowledge achievement, peers could provide feedbacks almost effective as teacher. However, teacher contributed more insights in problem-solving that might result from subject expertise and higher feedback skills.

**Conclusion:** Peers and/or teacher can give an effective feedback. However, teacher feedback could potentially further complete the deficiency aspects in problem-solving.

**Take Home Messages:** Teacher- along with peer-feedback enhances the excellence in feedback efficacy, in order to improve the performance on pediatric basic life support.

#7JJ15 (133441)

**Feedback on feedback: a “Thumbs Up” approach to improving preceptor feedback using an innovative addition to electronic workplace-based daily assessment forms**

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*Karen Schultz (Queen's University, Kingston, Canada)*  
*Nancy Dalgarno (Queen's University, Kingston, Canada)*

**Background:** Assessment in competency based medical education (CBME) is designed to support resident learning and competency decisions. Direct observation and formative feedback are foundational in CBME and used in daily low stakes workplace-based assessment. Preceptors often lack opportunities to receive feedback about the feedback they provide residents.

**Summary of Work:** The purpose of this qualitative pilot study was to design an addition to electronic daily assessments that provides feedback to the preceptors about the feedback they provide to residents. Phenomenological design was used, based on the resident's perspective of the feedback they deemed most useful. Residents in a Family Medicine training program were invited to nominate documented feedback they identified as particularly useful in their learning and describe why. Twenty entries from five competitions were included.

**Summary of Results:** Five themes emerged from this pilot that indicate feedback was most useful to residents when it: changed and improved their practice; taught them something new; motivated them to learn more; confirmed they were doing the right thing; promoted reflection.

**Discussion:** Based on the findings, the electronic assessment forms were changed such that residents can now identify feedback that was of particular value to them, giving it the “thumbs up” and including why using a choice of the five themes.

**Conclusion:** Enabling residents to identify feedback that drives their learning and to identify why, offers preceptors feedback on their feedback. The full study will validate the five themes and investigate the impact this information may have on preceptors.

**Take Home Messages:** Daily workplace-based formative assessment supports residents to better understand their own learning needs. By indicating “thumbs-up”, residents can give feedback to preceptors on what drives their learning best and should provide opportunities to inform preceptors about the impact of the feedback they provide learners, thereby, increasing its effectiveness and usefulness for learners.

#7JJ16 (134616)

**How do core medical trainees preparing for PACES prefer to be given feedback on their clinical examination skills?**

*Ann Griffin\*, University College London, London, UK*  
*Karim Keshwani (UCL, London, UK)*

**Background:** PACES is a postgraduate examination assessing trainee physicians' examination skills. Preparation involves weeks of clinical examination sessions to hone technique. Many trainees use near peers who have recently passed PACES to facilitate bedside teaching for feedback to improve examination technique. We sought the opinion of trainees and assessors on two different feedback techniques: Pendleton and ALOBA (Agenda-led outcome-based analysis).

**Summary of Work:** We developed an eight week PACES teaching schedule where eight assessors delivered one- or two-to-one bedside teaching to ten trainees at North Middlesex Hospital, London. Both feedback techniques were demonstrated to both groups before the schedule. Assessors were encouraged to use both techniques and questionnaires were given to both groups after each encounter. A semi structured focus group compared and contrasted each method. Questionnaire white space responses and transcribed focus group data underwent thematic analysis. Likert responses underwent descriptive analysis.

**Summary of Results:** Out of all 59 encounters, all trainees and assessors agreed or strongly agreed Pendleton allowed for giving complete feedback. Assessors felt Pendleton's structure adheres to PACES mark schemes and reinforces good habits, with assessor's constructive comments at feedback conclusion. Trainees agreed or strongly agreed ALOBA was time efficient in 31 out of 33 encounters. Both assessors and trainees felt ALOBA is more conversational and a more accurate encounter representation, but can be intimidating due to both positive and constructive comments given together, and the proportion is assessor-dependent.

**Discussion:** By training bedside teachers in providing structured feedback by ALOBA for PACES preparation feedback quality and experience is improved for both trainee and assessor.

**Conclusion:** Both groups felt ALOBA is time-efficient, more intuitive, gave complete feedback, and is preferred to Pendleton, but is more difficult to learn and can be intimidating.

**Take Home Messages:** In challenging time constrained environments giving feedback through structured methods can make feedback more effective and efficient.

#7JJ17 (134988)

The results from 360-degree feedback during post-graduate year 1 training courses affect the residents' subsequent specialty choices

Chih-Ming Hsu\*, Chang Gung Memorial Hospital, Chiayi, Taiwan

Leng-Chieh Lin  
Chang-Hung Yu  
Chih-Cheng Hisieh

**Background:** Choosing a specialty has always been a difficult process. Influences can be numerous including student-related factors and curriculum-related factors. However, the relationship between specialty choice and feedback is under explored. This study aimed to examine the relationship between 360-degree feedback and residents' subsequent specialty choices.

**Summary of Work:** 66 residents, who completed PGY1 training courses at a single hospital in Taiwan between 2012-2014 participated. Feedback and scores were given by clinical teachers, nursing staffs and peers. Scores of global rating, suggestions and comments from 360-degree feedback were collected (total 330 samples). The relationship between the scores of global rating and several variants were analyzed using binary regression logistic analysis. The variants include: (1) desired specialty; (2) applied specialty; (3) specialty which trainees enrolled; (4) consistency between desired specialty and applied specialty; (5) consistency between applied specialty enrolled specialty; and (6) consistency between desired specialty and enrolled specialty.

**Summary of Results:** Logistic regression analysis showed that, the scores assessed by the clinical teachers, but not nursing staff or peers, significantly correlated with (1) the final specialty which trainees enrolled ( $p=0.029$ ); and (2) the consistency between desired specialty and the specialty which trainees enrolled ( $p=0.049$ ). Analysis with Omnibus Test of Model Coefficient ( $p=0.038$ ) demonstrated this model was appropriate.

**Discussion:** The results indicate the trainees tended to apply to a specialty if they get a higher scores from clinical teachers of that specialty. The possible reasons include better interaction with clinical teachers and peers, better working atmosphere in that department, and acceptable amount of workload and working hours.

**Conclusion:** Clinical teachers' positive feedback affects the residents' specialty choices whereas other members of residents' immediate work circle do not.

**Take Home Messages:** Residents who get higher global rating scores from clinical teachers tend to choose the specialty that the clinical teachers belong to.

#7JJ18 (133732)

Audio feedback in postgraduate clinical education

Gill Aitken\*, University of Edinburgh, Edinburgh, UK

Derek Jones  
Tim Fawns

**Background:** The quality of feedback to students is of concern to institutions and students for strategic and educational reasons. Initial evidence suggests audio feedback is more efficient in terms of staff time and perceived by students to be more personal.

Developments in technology have created new opportunities to deliver and evaluate audio feedback.

**Summary of Work:** The aim of this pilot study was 1) test the feasibility of delivering audio feedback and 2) gain students' perspectives on audio feedback. The context of the study was an online MSc in Clinical Education. All assignments for a Year 2 course were submitted and marked (by two tutors). Students ( $n=30$ ) received type-written in text comments and summary audio comments. We explored students' response to receiving feedback in this way via a subjective rating questionnaire and asynchronous online discussion (facilitated by a tutor not involved in marking).

**Summary of Results:** Questionnaires were analysed using descriptive statistics and online discussions were analysed using thematic analysis. Initial results indicate a range of perspectives on the value of audio feedback broadly consistent with the extant research on the topic in terms of positive student experience and efficiency.

**Discussion:** This pilot has enabled us to refine the process of providing audio feedback, develop a protocol for other tutors not engaged in this trial, and develop a methodology for evaluating its use. Further research is required to explore the student experience in terms of influence of students' year of study, first language, the topic and format of the assignment.

**Conclusion:** Audio feedback is viable as a method and can enhance the student experience and improve the efficiency of the marking process.

**Take Home Messages:** Audio feedback is acceptable to faculty and students.

## Session 8: Simultaneous Sessions

Tuesday 30 August 2016: 1400-1530 hrs

### #8A Symposium: Building the Community of Medical Education Scholars: Sharing lessons learned for developing and maintaining successful units for medical education scholarship & research

Location: Auditorium



**Larry Gruppen\*** (University of Michigan, USA)

**Lara Varpio\*** (Uniformed Services University of the Health Sciences, USA)

**Cees van der Vleuten\*** (Maastricht University, Netherlands)

**Wendy Hu\*** (University of Western Sydney, Australia)

Additional comments from:

Steven Durning (Uniformed Services University of the Health Sciences, USA)

Stanley Hamstra (Accreditation Council for Graduate Medical Education, USA)

David Irby (University of California San Francisco, USA)

Bridget O'Brien (University of California San Francisco, USA)

Olle ten Cate (University Medical Center Utrecht, Netherlands)

Susan Humphrey-Murto (University of Ottawa, Canada)

Participation in medical education scholarship is widely considered necessary for successful, modern medical training programs. Medical Education Units (MEUs) that support scholarship and research are being launched internationally, but the processes for developing and sustaining successful MEUs are not well understood. While histories of some individual MEUs are available, overarching analyses of the lessons learned about establishing and sustaining MEUs in diverse contexts has yet to be conducted. Our research team is studying MEUs around the world to construct broadly applicable understandings of how MEUs are launched and successfully maintained. In this symposium, we share findings from that research and from our experiences as MEU Directors and unit members. Using theories from Bourdieu and Institutional Theory, we describe MEUs from 4 national contexts, and best practices for securing institutional support for MEUs (including suggestions for new units and for those in countries that are not well resourced). Scholars currently developing, directing or working in MEUs will find this session informative.

### #8B Symposium: The Role of Qualitative and Quantitative Feedback in the Context of a Competency-Based Curriculum

Location: 211 – P2

**John Norcini\*** (FAIMER, Philadelphia, USA)

**Ara Tekian\*** (University of Illinois at Chicago College of Medicine, Chicago, Illinois, USA)

**Glenn Regehr\*** (University of British Columbia, Vancouver, BC, Canada)

**Trudie Roberts\*** (Leeds Institute of Medical Education, UK)

**Lambert Schuwirth\*** (School of Medicine, Flinders University, Adelaide, South Australia)

**Yvonne Steinert\*** (Faculty of Medicine, McGill University, Montreal, Canada)

Feedback is an essential ingredient in the learning process of an individual. It can be provided in a variety of formats, such as oral or written; can be targeted for individuals or groups; and can be designed for formative or summative purposes. With the current movement toward competency-based curricula, providing high-quality feedback to students – whether at the undergraduate or postgraduate level – has become critical to achieving the competency of the learners. This symposium will examine, compare and contrast, and dissect the interplay between the qualitative and quantitative feedback in the context of a competency-based curriculum and provide both real-time examples from various institutions. The symposium will be interactive in providing opportunities for participants in small groups to discuss strategies to meaningfully integrate qualitative and quantitative feedback in their own institutions.

### #8C Symposium: Why diversity matters to health, health care and medical education

Location: MR 112 – P1

**Janusz Janczukowicz\*** (Medical University of Lodz, Poland)

**Nisha Dogra\*** (University of Leicester, UK)

**Petra Verdonk\*** (VU University Medical Center, the Netherlands)

**Nicky Honnef\*** (VU University Medical Center, the Netherlands)

The aim of this symposium is to support both clinical and non-clinical teachers with the responsibility of designing, delivering and/or assessing diversity education, and those teachers who want to ensure that their teaching incorporates strategies effectively addressing clinical and societal diversity. This symposium will:

- review the terminology around diversity,
- discuss how diversity teaching relates to the rest of the curriculum,



- consider challenges in teaching and assessment as well as in learning about diversity,
  - discuss the tensions between providing a safe learning environment while challenging students.
- The symposium will provide opportunities for those interested in diversity, including but not limited to (dis)ability, LGBT, gender, cultural diversity, migrant/refugee/minority health, religion and health, socioeconomic health, disparities, poverty and intersectionality who wish to discuss how to deal with these particular aspects, how different and similar they are, what are the best strategies to teach these issues and how to integrate them across all health professions curricula.

## 8D Research Papers: Simulation, integration and transfer

Location: 212 – P2

#8D1 (126405)

### Impact of simulator familiarization when investigating real-life correlation of a virtual-reality performance test

**Ann Sofia Skou Thomsen\***, CAMES/Department of Ophthalmology, Rigshospitalet, Copenhagen, Denmark  
Morten la Cour (Department of Ophthalmology, Rigshospitalet, Denmark)  
Lars Konge (CAMES, Rigshospitalet, Denmark)

**Introduction:** Virtual-reality simulators can provide a standardized training environment and un-biased performance metrics in surgery. However, correlation to real-life performance needs to be investigated before the extent of its usefulness in training programs of surgeons can be defined. Our objective was to investigate the correlation between performance on a virtual-reality simulator and real-life motion-tracking parameters. Furthermore, the impact of simulator familiarization was investigated.

**Methods:** The study was designed as a prospective cohort study. Eleven cataract surgeons with varying levels of experience from ophthalmology departments and private clinics in Denmark were included in the study. All participants performed and video-recorded three standard cataract surgeries before completing three repetitions of a competency-based test on the EyeSi virtual reality simulator. Primary outcomes were simulator metrics (total test score from first, second, and third repetition, respectively) and motion-tracking metrics (score, calculated by average path length x average number of movements from three real-life surgical videos of full procedures). All outcomes have previously shown evidence of validity<sup>1,2</sup>.

**Results:** The number of cataract surgeries performed by each included surgeon varied from two to 24,200 (mean 3,656). Third repetition of a competency-based test on the EyeSi simulator was significantly correlated to real-life performance measured by motion-tracking software of cataract surgical videos, Pearson correlation coefficient of -0.70 ( $p=0.017$ ). First and second repetition showed insignificant correlations indicating that surgeons had to familiarize themselves with the simulator before the simulator score became representative.

**Discussion:** The test scores from the first two repetitions on the EyeSi simulator showed no correlation with the motion-tracking scores, shifting from a tendency to opposite correlation in the first repetition towards stronger correlation in the second repetition. This shift seems primarily to be caused by the more experienced surgeons getting significantly better with time compared to the less experienced surgeons. It is probable that more experienced surgeons have a much more rapid acclimatization to the simulator based on their already acquired surgical skills. This effect is well recognized from other

simulation-based studies and needs to be taken into account when assessing virtual-reality simulator data. One approach to minimize this type of bias is to deliver a 1-hour warm-up on the simulator prior to simulation-based assessment.

**Conclusion:** After a familiarization period, performance on the EyeSi simulator showed significant correlation to real-life surgical skills.

**References:** Thomsen ASS, Kiilgaard JF, Kjaerbo H, la Cour M, Konge L. Simulation-based certification for cataract surgery. *Acta Ophthalmol.* 2015;93(5). Smith P, Tang L, Balntas V, et al. "PhacoTracking". An evolving paradigm in ophthalmic surgical training. *JAMA Ophthalmol.* 2013;131(5):659-661.

#8D2 (128347)

### "See and Do" or "Do and See": the optimal sequence of independent discovery and explicit instructions for surgical skills training

**Polina Mironova\***, University of Toronto, Toronto, Canada

Carol Anne Moulton (University of Toronto, Canada) Charlotte Ringsted (Aarhus University, Denmark)

Daniel Axelrod (University of Toronto, Canada)

Ryan Brydges (University of Toronto, Canada)

**Introduction:** Current focus on competency-based education in medical training is leading to an increased emphasis on learner-centered teaching model. Recent studies demonstrate that allowing students to explore tasks on their own before providing explanations increases conceptual understanding and retention of knowledge. But the relationship between the role of discovery versus explicit instruction is still debated and the effect of sequence of teaching and independent practice in affecting skills learning is not known. Building upon the successful implementation of practice-before-instructions in other fields, we conducted an experiment investigating how sequencing of each learning opportunity affected technical skills in medicine in a search of appropriate autonomy and supervision balance.

**Methods:** First-year medical students ( $N=26$ ) were randomized into two groups for learning a suturing task. Instructions-before-practice (I-P) group had access to teachers before independent practice, while practice-before-instructions (P-I) students were asked to explore the task on their own before having access to instructors. We collected data on students' immediate performance, retention and transfer of skills to a more advanced version of the task.

**Results:** While both groups had similar retention performance, transfer performance was higher in P-I group than in I-P condition,  $F(1, 23)=6.35$ ,  $p=.019$ ,  $\eta^2=.216$ .

**Discussion:** If the aim of learning is not simply a performance of the practiced task after a teaching session, but the students' ability to adapt the learnt skill to a novel situation and prepare the students for future learning, a transfer test is an essential measure

of the intervention. As the body of knowledge in the medical field is constantly growing, the future doctors are likely to encounter unanticipated situations that were not practiced in medical schools or residency. It is thus imperative that we provide students with the cognitive tools for adaptive learning that will serve them throughout their careers.

**Conclusion:** Discovery vs. explicit instruction is not a zero-sum proposition. Optimizing sequencing may have a significant impact in how students utilize learning opportunities. We discuss implications in relation to findings in other fields as well as for training medical skills.

#8D3 (127103)

**Knowing How and Knowing Why: Integrated conceptual knowledge facilitates the acquisition, retention, and transfer of simulation-based procedural skills**

*Jeffrey Cheung\*, The Wilson Centre, Toronto, Canada*

*Kulamakan M. Kulasegaram*

*Nicole N. WoodsCarol-anne Moulton*

*Charlotte V. Ringsted*

*Ryan Brydges*

**Introduction:** Transfer of procedural skills is a critical outcome of simulation-based training, yet how instructional design best promotes transfer is unclear.(1) Research on clinical reasoning has yielded ample evidence suggesting instruction which integrates conceptual knowledge of cause and effect mechanisms (e.g., basic science foundations) with information about clinical signs and symptoms of disease aids transfer of clinical reasoning skills.(2) Whether such conceptual integration is germane or extraneous to simulation-based procedural skills training is unclear. We studied the impact of instruction integrating conceptual why explanations with procedural how instructions on the acquisition, retention, and transfer of lumbar puncture (LP) skill in simulation-based training.

**Methods:** Medical students ( $n = 30$ ) were randomized into two groups that received different instructional videos during a 1-hour self-regulated LP training session. One video demonstrated step-by-step instructions on how to complete LP, and the other provided the same procedural how instruction with integrated conceptual why explanations that emphasized relevant conceptual knowledge (e.g., anatomy, use of equipment). Raters used a global rating scale (GRS) to score participants' LP performance on immediate post-test and one-week delayed retention and transfer tests (i.e., different patient positioning and anatomy). Participants also completed written procedural and conceptual knowledge tests prior to LP training and after the transfer test.

**Results:** Participants with integrated conceptual why instruction had better conceptual knowledge ( $F(1,27) = 21.33, p < 0.001, \eta_p^2 = .44$ ) but not procedural knowledge ( $p = 0.180$ ). ANCOVA revealed conceptual

knowledge scores to be a significant positive covariate of LP performance across post-test and retention test performances ( $F(1,26) = 12.26, p = 0.002, \eta_p^2 = .32$ ). Hierarchical linear regression revealed a similar positive relationship between conceptual knowledge and transfer performance ( $\Delta R^2 = 0.19, F(1,27) = 6.20, p = 0.019$ ); after controlling for conceptual knowledge, participants' group allocation was not a significant predictor of transfer performance.

**Discussion:** Though our integrated why intervention improved conceptual knowledge scores significantly, it did not appear to have a direct effect on participants' LP retention and transfer. Rather, we found that regardless of group, trainees with greater conceptual knowledge performed better on retention and transfer tests. We interpret this to suggest that integrating 'why' explanations into training had an indirect, positive effect on participants' LP retention and transfer that was mediated by improved conceptual knowledge. Our results show that conceptual knowledge is a significant predictor of transfer performance. We recommend that future research focus on the role of participants' prior knowledge in this process, as well as how best to deliver and integrate conceptual knowledge to improve the outcomes of procedural skills training.

**Conclusion:** Instruction that integrates conceptual knowledge with procedural knowledge appears to be an important factor influencing procedural skills acquisition, retention, and transfer that is unaccounted for in current best practices for instructional design of simulation-based training.(1)

**References:** Woods NN. Science is fundamental: the role of biomedical knowledge in clinical reasoning: clinical expertise. *Med. Educ.* 2007 Nov;41:1173–1177. Cook DA, Brydges R, Hamstra SJ, Zendejas B, Szostek JH, Wang AT, Erwin PJ, Hatala R. Comparative Effectiveness of Technology-Enhanced Simulation Versus Other Instructional Methods: A Systematic Review and Meta-Analysis. *Simul. Healthc. J. Soc. Simul. Healthc.* 2012 Oct;7:308–320.

#8D4 (127384)

**The transfer of learning from the classroom into the clinical workplace: a systematic review**

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*Geraldine Clarebout (School of Health Professions Education, Maastricht University, the Netherlands)*

*Agnes Diemers (Department of General Practice, University Medical Center Groningen, the Netherlands)*

*Bert Aertgeerts (Academic Center for General Practice, Leuven, Belgium)*

*Ann Roex (Academic Center for General Practice, Leuven, Belgium)*

**Introduction:** Although medical students are increasingly exposed to clinical experiences as part of their training, these often occur in parallel with other aspects of the pre-clerkship curriculum, rather than in an integrated fashion.<sup>1</sup> This integration is important as

it allows students to learn how, when, where and why to apply the knowledge gained in the classroom into practice. Therefore, there is a need to make a more explicit connection between learning in the classroom and its application in the workplace.<sup>2</sup> This systematic review aims to synthesise the existing evidence about instructional interventions that link the classroom and the clinical workplace.

**Methods:** Electronic databases (AMED, CINAHL, EMBASE, ERIC, Medline, RDRB, PsycINFO and WoS) were searched. Study selection, quality appraisal and data analysis were done by two independent reviewers. The coding form was piloted on the selected studies and iteratively refined until the form adequately captured all necessary data. Data were extracted by one researcher and independently checked by a second reviewer. Differences in opinion were resolved through discussion. In the case of important missing data, attempts were made to contact the authors of the original paper.

**Results:** 20 papers out of 6586 met the inclusion criteria. Only seven out of the twenty studies used a control group, four studies measured the outcomes after an extended period of time and only two studies reached the “does” level of Miller’s pyramid. Three types of interventions were identified. Most interventions involved the supervisor providing feedback. Due to the large heterogeneity, no meta-analysis could be performed. The study with the largest effect size included a 3-minute video to refresh students’ prior knowledge and skills while caring for real patients.

**Discussion:** Small-scale interventions can bring classroom learning and workplace practice into closer alignment, and these appear to be necessary accompaniments to curricular structures that parallel classroom learning with workplace experiences. Given that only 20 studies met the inclusion criteria of this systematic review, it is possible that many interventions linking the classroom with the workplace exist but simply have not been reported. This field of medical education would benefit from more primary research, specifically studies containing detailed descriptions of the interventions, as well as description of the contexts in which they are taking place.

**Conclusion:** Some weaknesses in the methodological approaches of interventional studies were identified, many of which are regarded as common features of research relating to medical education. Future research would benefit from more rigorous methodological approaches and studies that measure outcomes of the intervention on the “does” level of Miller’s pyramid, over an extended period of time after the intervention, and compare results with a control group. Moreover, future research needs to establish whether feedback and reflection, that explicitly link what was learned in the classroom with workplace experiences, strengthen the connection between the two settings and enhance the transfer of learning.

**References:** Dyrbye LN, Starr SR, Thompson GB, Lindor KD. A model for integration of formal knowledge and clinical experience: the advanced

doctoring course at Mayo Medical School. *Academic Medicine*. 2011;86(9):1130-6.

Yardley S, Brosnan C, Richardson J, Hays R. Authentic early experience in Medical Education: A socio-cultural analysis identifying important variables in learning interactions within workplaces. *Advances in Health Sciences Education*. 2013;18(5):873-91.



## 8E Research Papers: Power relations

Location: 212 – P2

#8E1 (126453)

### Interprofessional Rhetoric and Operational Realities: An Ethnographic Study of Rounds in Four Intensive Care Units

*Elise Paradis\*, University of Toronto, Toronto, Canada*

*Myles Leslie*

*Michael A Gropper*

**Introduction:** Interprofessionalism – the idea that patient care is best delivered through collaboration among the professions – has gained prominence over the past few decades as evidence of its positive impact on care outcomes has grown. Interprofessional rounds (IPRs) are now a key strategy to improve collaboration in healthcare, and often serve as the main locus of interprofessional education in graduate medical education. In the four intensive care units (ICUs) we studied, IPRs aimed to improve patient outcomes by inviting heterogeneous groups of clinical professionals to discuss care plans in different units, yet they were peppered with conflict.

**Methods:** Our comparative ethnographic study of interprofessional collaboration and patient and family involvement in four intensive care units (see Paradis et al. 2014) sought to explain this conflict. Data were collected over one year in four tertiary academic hospitals in two American cities. The study included 576 hours of observation of team interactions, 47 shadowing sessions and 40 clinician interviews. In line with best practices in ethnographic research, data collection and analysis were done iteratively using the constant comparative method. Member check was conducted regularly throughout the project.

**Results:** IPRs were implemented on all units with the explicit goals of improving team-based and patient-centered care. Operational conditions on the units, despite interdisciplinary commitment and engagement, appeared to thwart ICU teams from achieving these goals. Specifically, time constraints, struggles over space, and conflicts between IPRs' educational and care-plan-development functions all prevented teams from achieving collaboration and patient-involvement. Moreover, physicians' de facto control of rounds often meant that they resembled medical rounds (their historical predecessors), and sidelined other providers' contributions.

**Discussion:** Our study of morning interprofessional rounds adds to previous evidence of interprofessional conflict during rounds (Lingard et al., 2004). The IPRs model we have described isn't well suited to the provision of team-based and patient-centered care for three main reasons. First, it required clinicians to accomplish more tasks with more players in less time and in the same physical space. Second, the organizational, teaching, professional and legal responsibilities of physicians allowed them to be the final arbiters of the form and content of IPRs, thereby

reducing interprofessional collaboration. Third, IPRs did not appear to encourage patient involvement during rounds, and rarely included physical exams or care conversations with awake and alert patients.

**Conclusion:** The IPRs we observed were often indistinguishable from medical rounds: adding providers from the other professions had not transformed medical rounds into spaces that foster team-based, patient-centered care. New and empirically-tested models for rounds are urgently needed if we are to deliver on the promise of interprofessionalism while also optimizing clinicians' time, the quality of medical education, and the care delivered to patients. In order to translate the principles of interprofessionalism into practice, we need to consider how healthcare providers enact it in situ.

**References:** Paradis, E., Reeves, S., Leslie, M., Aboumatar, H., Chesluk, B., Clark, P., . . . Kitto, S. (2014). Exploring the nature of interprofessional collaboration and family member involvement in an intensive care context. *Journal of Interprofessional Care*, 28(1), 74-75. doi:10.3109/13561820.2013.781141  
Lingard, L., Espin, S., Evans, C., & Hawryluck, L. (2004). The rules of the game: interprofessional collaboration on the intensive care unit team. *Crit Care*, 8(6), R403-R408.

#8E2 (128332)

### Longitudinal qualitative study of medical students' experience, motivation and attitudes towards participating in interdisciplinary teams providing hospitalized elders with preventive intervention and care

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*Stanisław Górski, (Department of Medical Education, Collegium Medicum, Jagiellonian University, Cracow, Poland)*

*Anna Bańbura (Department of Health Psychology, Institute of Psychology, Jagiellonian University, Cracow, Poland)*

*Monika Halicka (Institute of Psychology, Jagiellonian University, Cracow, Poland)*

*Michał Nowakowski, (Department of Medical Education, Collegium Medicum, Jagiellonian University, Cracow, Poland)*

**Introduction:** 45 undergraduate students participated in three years volunteer-based programme of preventive care for patients hospitalized at geriatric ward of university hospital. Giving care to elder patients within interdisciplinary teams (medical, nursing and psychology students) was accompanied with comprehensive practical and theoretical training, as well as regular supervision and psychological support. Longitudinal qualitative study was conducted to investigate students' experience, motivation and attitudes towards their future medical profession, volunteer-based work, activity in interdisciplinary

teams, care-giving to elder patients, emotional burden and doctor-patient relationship. Change that happened in their experience, motivation and attitudes throughout the period (in most cases one or two semesters for a person) of participation in the programme was of our special interest.

**Methods:** Each participant was subjected to semi-structured interview twice – before and after the period of participation. First interview concerned motivation to participate in volunteer-based prevention programme at geriatric ward and more general motivation for future medical profession, attitudes and previous experience with voluntary service as well as relationships and giving care to older people. They were also asked about their expectations and concerns about the beginning of participation in the programme. During the second interview they were again asked about their motivation and attitudes towards the volunteer-based work and their experiences of giving care to older people at the hospital ward. They were also interviewed about their activity in interdisciplinary teams and doctor-patient relationships. Other topics appearing in the process of interview, e.g. frequent theme of own identity as medical professional, were also very welcomed. Interviews were audiotaped and fully transcribed. Obtained data were qualitatively analysed in Interpretative Phenomenological Approach with the assistance of Atlas.ti software. Informed consent was given by each participant.

**Results:** As a result we obtained rich idiographic descriptions of complex and subjective individual experiences and attitudes towards different aspects of participation in interdisciplinary teams providing hospitalized elders with preventive intervention and care. We also had an opportunity to observe personal change that happened in most subjects throughout the period of participation in the programme, especially in the area of subjective motivation and attitudes towards their future medical profession, e.g. their future specialization. Secondary, nomothetic analyses allowed to observe variety of motivations underlying the participation in the project and, more generally, the choice of medical profession. We were also able to notice some interrelations between the type of motivation and the way of coping with difficulties present during the work on geriatric ward.

**Discussion:** Significant change in attitudes toward other medical professions (e.g. reformulation of mutual stereotypes) happened in the process of work in interdisciplinary teams. Participants reported positive effects of regular training, supervision and psychological support on emotional burden connected with giving care to patients hospitalized at geriatric ward.

**Conclusion:** Practical training of care-giving and doctor-patient relationship on geriatric ward accompanied with supervision, psychological support and possibility to freely and deeply discuss own values and professional identity are key factors to prevent excessive emotional burden for future medical professionals.

#8E3 (126722)

**Interdisciplinarity: Reality or fantasy? The experience of social scientists and humanities scholars working in Canadian faculties of medicine**

*Mathieu Albert\*, University of Toronto, Toronto, Canada*

*Elise Paradis*

*Ayelet Kuper*

**Introduction:** The academic background of the workforce of faculties of medicine has changed in the past decades: an increasing number of faculty members from medical education and other areas come from the social sciences and humanities (SSH). In Canada, interdisciplinary policies seem to have hastened this change. We sought to investigate how SSH faculty are integrated in their academic medical research environment. Three questions guided our investigation: How do SSH scholars adapt to the medical research environment? How do they navigate their career within a culture that may be inconsistent with their own? What strategies do they use to gain legitimacy?

**Methods:** Twenty-nine semi-structured interviews were conducted with SSH scholars working in 11 Faculties of Medicine across Canada. Participants were selected through purposeful and snowball sampling. Participants' resumes and publications were reviewed prior to interviews. Interviews were audio-recorded and lasted between 60 and 90 minutes. Follow-up interviews were conducted as needed. The interview script addressed several aspects of the definition of legitimate research, the evaluation criteria used in faculties of medicine and participants' career satisfaction. The data were analyzed by thematic content analysis.

**Results:** For most of our participants, moving into medicine has been a challenging experience, as their research practices and views of academic excellence collided with those of medicine. In order to achieve academic legitimacy, more than half of our participants altered their research practices. This resulted in a dissonance between their internalized appreciation of academic excellence and their new, altered, research practices. Only six participants experienced no form of challenge or dissonance after moving into medicine. Three others decided to break with their social science and humanities past and make the medical research community their new home.

**Discussion:** The results of our study show that the promise of inclusiveness at the heart of interdisciplinary research policies has yet to materialize for many social science and humanities scholars working in faculties of medicine in Canada. We argue that this challenging situation results, at least in part, from the decoupling between research policies favouring interdisciplinarity—which disrupt the stability of the medical research field—and the enduring epistemic habitus of biomedical scientists—the inertia of which impedes SSH scholars' successful integration in medicine.

**Conclusion:** Most participants had to modify their research practices to gain recognition from their biomedical colleagues, which indicates the low value assigned to their research practices. In order for SSH scholars to fully participate in the health knowledge production enterprise, including medical education, faculties of medicine in Canada should develop a better awareness that various criteria are needed to fairly assess works from various disciplines. Leaving it to SSH scholars to alter their practice to meet the medical doxa contradicts the principles behind interdisciplinarity: that experts from different disciplines collaborate to create better solutions to enduring problems.

#8E4 (127577)

**“It’s making contacts”: Notions of social capital and their implications for medical selection and education**

*Jennifer Cleland\*, University of Aberdeen, Aberdeen, UK*

*Sandra Nicholson*

**Introduction:** Low economic and/or social position relative to others is typically the underlying issue for groups targeted for increased representation within medicine. In the UK widening access (WA) to medicine reflects under-representation from lower socio-economic groups despite numerous initiatives linked to a political rhetoric of inclusive education. This is compounded by a discourse that portrays WA applicants and students as lacking the essential skills or attributes to be successful in medical education. Whether or not this is the case is currently poorly understood as much of the research to date has been weak. However, it is critical to know how WA applicants and students negotiate medical admissions and education as only by understanding this can we inform change.

**Methods:** In an effort to address this gap, and working from an interpretivist perspective, that there are multiple realities because meaning is grounded in experience and reality is context-dependent, we drew on data collected using qualitative approaches. We combined data from three qualitative studies of student experiences of WA to medicine (48 participants in total). Using this amalgamated, larger dataset we inductively analysed the findings using social capital as a theoretical lens to better understand student journeys in medical education.

**Results:** We inductively created, and clustered, codes into categories informed by the concepts of “weak ties” (Granovetter, 1973) and “bridging and linking capital” (e.g., Putnam, 2000). We identified three main themes: on lacking the necessary contacts or resources; on social capital, widening access initiatives and other sources of information; and on knowing what is important. Our data illustrates that WA medical school applicants recognise and mobilise weak ties to create linking capital but, once in medical school, students seem less aware of the need for, or how to create, capital effectively.

**Discussion:** Our data provides evidence of significant disadvantage for some students from lower socio-economic groups either within their applications and/or during their undergraduate studies. Raising awareness of this is important as medical schools with their inherent preference for meritocracy may not recognise such inequality. Applying a social capital lens to our secondary analysis of a larger amalgamated dataset has enabled us to think in a more nuanced way about the types of social capital and how possessing social capital facilitates access to valuable information and resources for both medical applicants and students.

**Conclusion:** WA efforts could be well-served by activities that support increasing the social capital of under-represented students, and future selection policy needs to take into account the varying social capital of students, so as to not overtly disadvantage some social groups.

**References:** Granovetter M. (1973). The strength of weak ties. *American Journal of Sociology*; 78: 1350-80. Putnam RD. (2000). *Bowling alone: The collapse and revival of American Community*. New York: Simon and Schuster.

## 8F Short Communication: Leadership

Location: MR 111 – P1

#8F1 (133913)

Becoming an educational leader – what does it mean?

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*Klara Bolander, Stockholm University, Sweden*

**Background:** Research on educational leadership emphasizes the importance of having institutional leaders heavily involved with advanced instructional programming. Best practices for developing educational leadership in higher education health care and medical faculties have to be better understood.

**Summary of Work:** Within the framework of a seminar series, researchers and practitioners were involved in a dialogical process of inquiry, coupled with an explicit activity oriented approach emphasizing empowerment among educational leaders. Based on reflective papers written by the 10 participants the meaning of becoming an educational leader was elaborated and analysed in relation to Wenger's (1998) Community of Practice framework.

**Summary of Results:** The findings show how educational leadership involves processes on the levels of students, teachers as community and at the organizational level and involve a movement from viewing educational leadership as an administrative task to taking up the role as inspirational and visionary leader.

**Discussion:** A complex picture emerged of what it means to be an educational leader. Educational leadership is seen as a process where different tasks involve the collaboration with students and teachers where communication around vision and objectives is integral. No matter if it is at a departmental, programme or faculty/university level; and the creation of a pedagogical culture where educational issues and learning is central for the learning organization.

**Conclusion:** By creating a community of educational leaders with a place for backstage conversations educational leaders can develop their thinking and build shared knowledge to be able to break new ideas into their own departmental or program communities

**Take Home Messages:** A systems approach is essential for the effective implementation of educational leadership to reach all levels via interaction and communication across an organization.

#8F2 (133624)

How medical students can learn from reflection on leadership and teamwork using Kolb's Experiential Learning Model

*Jayne Garner\*, University of Liverpool, Liverpool, UK*

*John Earis*

*John Jenkins*

*Vikram Jha*

**Background:** As increased emphasis is placed upon leadership skills for doctors, medical educators are challenged to incorporate these abilities into a crowded curriculum. In partnership with British Army 208 Field Hospital (Liverpool) the University of Liverpool developed a overnight leadership and team work training course. First year medical students were given unique, direct experience of leading and team work on a range of physical and mentally challenging tasks.

**Summary of Work:** 240 students completed a 1000 reflective learning assignment on their experience, and how it impacted upon their behavior, learning and reaction to the course. The reflective learning assignments were designed using the domains outlined in Kolb's experiential learning cycle (concrete experience, reflective observation, abstract conceptualization, active experimentation).

**Summary of Results:** The first 3 stages of Kolb's cycle provided an appropriate theoretical underpinning for the training method and reflection. Taking the students away from their familiar environment, putting them into randomly allocated teams of people they didn't know and getting them to engage with a series of planning and command orientated tasks gave them the opportunity to experience team work in a controlled environment. The range of activities they were involved with tested their perceptions of themselves and each other, enabling them to extend their friendship groups and to try new ways of working.

**Discussion:** The first 3 stages of Kolb's cycle provided an appropriate theoretical underpinning for the training method and reflection. Taking the students away from their familiar environment, putting them into randomly allocated teams and getting them to engage with a series of planning and command orientated tasks gave them the opportunity to experience team work in a controlled environment. The range of activities they were involved with tested their perceptions of themselves and each other.

**Conclusion:** The training provided students with the opportunity to learn about themselves and each other through a reflective process. Feedback has been very positive, with students saying the experience has been valuable personally and professionally. It is intended to take the cohort group for further training with nursing students in their third year of study.

**Take Home Messages:** Medical students can effectively learn about team work and leadership by reflecting on task orientated training experiences.



#8F3 (132622)

**Leadership competencies for medical education and healthcare professions: population-based study, published in BMJ**

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Switzerland, Gebenstorf, Switzerland*

**Background:** Objective: To identify and empirically investigate the dimensions of leadership in medical education and healthcare professions. Design: A population-based design with a focus group and a survey were used to identify the perceived competencies for effective leadership in medical education.

**Summary of Work:** Setting: The focus group, consisting of five experts from three countries (Austria n¼41; Germany n¼42; Switzerland n¼42), was conducted (all masters of medical education), and the survey was sent to health professionals from medical schools and teaching hospitals in six countries (Austria, Canada, Germany, Switzerland, the UK and the USA). Participants: The participants were educators, physicians, nurses and other health professionals who held academic positions in medical education. A total of 229 completed the survey: 135 (59.0%) women (mean age¼50.3 years) and 94 (41.0%) men (mean age¼51.0 years).

**Summary of Results:** Exploratory principal component analyses yielded five factors accounting for 51.2% of the variance: (1) social responsibility, (2) innovation, (3) self-management, (4) task management and (5) justice orientation. There were significant differences between physicians and other health professionals on some factors (Wilk's L¼40.93, p<0.01). Social responsibility was rated higher by other health professionals (M¼71.09) than by physicians (M¼67.12), as was innovation (health professionals M¼80.83; physicians M¼76.20) and justice orientation (health professionals M¼21.27; physicians M¼20.46). Conclusions: The results of the principal

**Discussion:** The purpose of the present study was to identify and empirically investigate the perceived competencies of leadership in medical education. First, a group of medical education leaders selected 63 of the most important leadership characteristics from a list of 107 identified in the previous research. Second, questionnaire data were used in principal component analyses to obtain five competencies of leadership that include Social Responsibility, Innovation, Self-Management, Task Management and Justice Orientation.

**Conclusion:** The results of the principal component analyses support the theoretical meaningfulness of these factors, their coherence, internal consistency and parsimony in explaining the variance of the data. Although there are some between-group differences, the competencies appear to be stable and coherent.

**Take Home Messages:** We have managed to frame the Leadership Competencies for Medical Educators. Leadership in Medical Education can be learned.

#8F4 (132111)

**Targeted needs assessment for a leadership curriculum for undergraduate medical students**

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*Rehana Rehman*

*Usman Siddiqui*

*Faiza Alam*

*Saniya Sabzwari*

**Background:** Leadership has been identified as an important competency for medical graduates. It is often equated with inherent dynamism and charisma, and while such attributes may be found in leaders, this stereotypical view excludes the possibility of developing the qualities required for effective leadership.

**Summary of Work:** We conducted a targeted needs assessment, using quantitative and qualitative tools to gauge perceptions of students, faculty and curriculum decision-makers at a private medical college in Pakistan regarding the required competencies in a leadership curriculum and the best way to achieve them.

**Summary of Results:** Students believe that knowledge of leadership theory, management principles, ethical principles, oral communication, time management, conflict resolution, negotiation skills and ability to be a team player are characteristics of an effective leader. Students identified problem-based learning, simulation/role play and case studies as the most pertinent teaching/learning methods for a leadership curriculum. Faculty members and curriculum decision-makers agreed that there is potential to nurture leadership qualities, which need to be properly defined and role-modeled appropriately.

**Discussion:** Perspectives of students, faculty members and administrators regarding the competencies necessary in an undergraduate leadership curriculum have revealed aspects of leadership currently being delivered through formal or hidden curriculum, additional content necessary, preferred mode of learning and assessment and potential benefit to students, institution and society.

**Conclusion:** The study has identified the existing leadership qualities/potential in undergraduate medical students and gaps therein to inform the design of a contextual, needs-based leadership curriculum for resource-constrained societies.

**Take Home Messages:** Prior to this study, there was no report in the literature of development or implementation of formal leadership curricula in medical colleges of Middle East or Asia, the graduates of which face unique challenges in practice different from those doctors working in areas with greater financial and/or human resources. Leadership can be taught and curricula should be designed for the context in which physicians will work.

#8F5 (136113)

**Alfaisal's Medical Student Association (MSA): An Innovative Multidisciplinary Model for Leadership Education in Medical School**

**Elhaitham Ahmed\***, Alfaisal University, Riyadh, Saudi Arabia

Ayman Mohamed, Alfaisal University, Riyadh, Saudi Arabia

**Background:** Leadership skills are identified as core competencies in multiple educational outcome frameworks designed for medical colleges. Such frameworks are aimed at enhancing medical student's abilities such as teamwork, career planning, self-management, operational and strategic planning, finance, resources and human capital management. However, not much attention is given to how medical schools can best implant such skills. Student associations can fill this gap if educators utilize them as educational tools.

**Summary of Work:** The college adopted a student initiative to formulate the first student association in Saudi Arabia. An innovative, phased mentorship-training model was developed collaboratively with an expert consultation office to train a cohort of students on strategic and operational planning. A survey of major student associations globally was completed to identify the best possible administrative structure. Need assessment of student body was carried out through surveys and focus groups from different years. Identified needs were then utilized in MSA's strategic framework, projects and their resulting programs.

**Summary of Results:** Since its establishment in 2008, 64 students obtained leadership positions and over 192 students were involved in leadership activities including project management, communication, national and international collaborations, journalism, resources management, fundraising and valuable sports and social activities. Furthermore, 15 major strategic projects, over 30 student-managed programs and collaborations with over 45 national and international institutions were established.

**Discussion:** Empowering medical students through student associations has an enormous impact on their leadership education. Through MSA, a periodically elected body, from both genders, consisting of a President and seven-committees corresponding to major student needs was formulated. A comprehensive constitution was adopted outlining MSA's administrative roles and authorities.

**Conclusion:** Student associations and combined multidisciplinary leadership mentorship training prove to be an effective leadership-training model. Therefore we encourage the implementation of such initiatives especially in the third world countries.

**Take Home Messages:** Adopting medical student associations is a neglected but effective approach to leadership education.

#8F6 (135414)

**Junior doctors as leaders: "We struggle to communicate, feel unsupported and lack confidence"**

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Jack Munro-Berry (Swansea University Medical School, Swansea, UK)

Judy McKimm (Swansea University Medical School, Swansea, UK)

Claire Vogan (Swansea University Medical School, Swansea, UK)

**Background:** Good leadership has been clearly identified as the factor most closely correlated with a good overall standard of care in the UK NHS (1,2). Junior doctors are seen as a key change force requiring leadership development. This inspired the establishment of an academic programme in clinical leadership and management in 2009. All students (N = 56) on the programme were recruited into a research project, which aimed to explore and identify core aspects of junior doctors' leadership development to inform future medical leadership development activities. This study forms part of the wider research project.

**Summary of Work:** Using grounded theory methodology (3) we analysed Critical Incident Analyses (CIAs) produced by students as part of their portfolio assessment. The CIAs reflected upon the underlying causes of specific leadership failures which they had experienced. We aimed to identify: • The challenges which junior doctors face when they assume clinical leadership roles; • How junior doctors perceive contemporary NHS leadership culture and what should change.

**Summary of Results:** Many respondents identified: • Feeling unsupported and isolated in their leadership roles due to understaffing; • Lacking confidence in these leadership roles due to their place in the medical hierarchy; • Lacking the ability to communicate clear instructions in leadership situations, particularly with other health professionals and seniors.

**Discussion:** Our findings have significant implications for medical education and patient safety. Doctors in training, at the frontline of service, need to feel supported in their leadership of clinical situations and not feel as if they are struggling.

**Conclusion:** If doctors in training are to lead confidently, effectively and safely in clinical situations they need good staffing levels; appropriate supervision; to feel valued as 'I' leaders in a shared leadership culture and not to be belittled by those more senior in the medical hierarchy.

**Take Home Messages:** More formal leadership, followership, assertiveness and communication skills training is needed to support doctors in training as leaders.

## 8G Short Communication: Simulated Patients

Location: MR 113 – P1

#8G1 (128033)

**Do Medical Students Respond more Empathetically to Real Patients than to Standardised Patients (Actors)?**

*Rory Plant\*, UCD Medicine Student, Dublin, Ireland*  
*Emily Pender (UCD Medicine Student, Dublin, Ireland)*  
*David Crampton (UCD, Dublin, Ireland)*  
*Suzanne Donnelly (UCD, Dublin, Ireland)*

**Background:** Empathy is a construct with cognitive (understanding) and affective (emotional) domains which must also be communicated successfully. Assessment of medical student empathy is usually conducted using self report scales or with standardised patients (SPs). The possibility that students demonstrate 'fake' empathy to attain marks in OSCE assessments has been raised.

**Summary of Work:** We hypothesised that genuine empathy is more likely to be engendered with real patients than with actors. Students undertook 6 interviews with patient educators (PEs) or actors, four identified, two 'blind'. Both parties reported on cognitive, affective and communicated aspects of empathy using a bespoke questionnaire. We coded interviews for 'emotional concordance' and 'understanding impact of disease'.

**Summary of Results:** Non-genuine (one-way) empathic interactions were found more frequently with actors (OR 1.33). Students were also more likely to report an emotional connection with a PE than an actor (OR 1.84). Furthermore, they described overwhelmingly positive emotions for real patients but frequently negative emotions with actors. Students' 'understanding of the impact of disease' did not differ between real patients and actors and was independent of emotional connection.

**Discussion:** This is the first study to investigate 'non-genuine' empathy in student interactions with patients and actors (SPs). Our findings suggest that student interactions with SPs and patients are similar for cognitive aspects of empathy but differ in terms of emotional engagement and the authenticity of affective empathy experienced by students in interviews.

**Conclusion:** We conclude that students can gain an understanding of the impact of disease from scripted actors, however genuine empathic engagement and positive emotions are more likely to be engendered with real patients. 'Fake' empathy does occur and is more frequent with actors.

**Take Home Messages:** Empathy is a complex construct, difficult to 'teach' and assess. Scripted SP interviews are as effective as real patient interviews to promote cognitive aspects of empathy, but those with real patients are more effective in engendering affective empathy and a positive emotional response in students. 'Non-genuine' empathy is reported in this

study, a phenomenon that merits consideration for empathy training and assessment.

#8G2 (132780)

**Evaluating the effectiveness of the world's first for-credit university course in human patient simulation**

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*PC Chan (Griffith University, Gold Coast, Australia)*  
*Libby Bancroft (Griffith University, Gold Coast, Australia)*  
*Kwong Chan (Griffith University, Gold Coast, Australia)*  
*Linda Humphreys (Griffith University, Gold Coast, Australia)*  
*Fiona Ellem (Griffith University, Gold Coast, Australia)*

**Background:** Since the simulated patient (SP) methodology was invented by Howard Barrows in 1963, a range of approaches has been used to train humans to perform in order to facilitate the learning of health professionals. Consensus has yet to develop, however, over the level and nature of education and training required for individuals to fulfil the multiple roles of SPs effectively. In 2015 we standardised the initial training of potential SPs through what we believe to be the world's first formal, for-credit, university course in human patient simulation practice.

**Summary of Work:** To evaluate the effectiveness of the course, we video-recorded each of the 20 students undertaking one of two randomly-selected history simulations at the beginning of the intensive week and the other scenario towards the end. The videos were rated by facilitators experienced in utilising SPs, who were blinded to whether each recording had been made 'before or after'. The judges rated each performance on four, seven-point, Likert scales: Technical aspects (TA), content accuracy (CA), authenticity (Au), and the quality of feedback to clinician (FB).

**Summary of Results:** Unpaired t-tests demonstrated no difference between the mean scores awarded for any scale on the basis of which scenario was attempted, confirming that the two scenarios were of equivalent difficulty. Comparing 'before' with 'after' videos for the same participants, using paired t tests, all four scales showed significantly improved mean scores (TA: 3.47 → 4.47 [P = 0.003]; CA: 3.47 → 5.20 [P = 0.006]; Au: 3.87 → 4.60 [P = 0.029]; FB: 3.3 → 5.2 [P = 0.016]). Student evaluation data were also overwhelmingly positive and reflective journals showed qualitative evidence of achievement of the desired affective learning outcomes.

**Discussion:** The course comprised a week-long, full-time 'intensive', supplemented by a reflective written piece undertaken over the following weeks. This appears to have been associated with clear evidence of learning across multiple domains.

**Conclusion:** An intensive, for-credit, university-level course in human patient simulation is feasible, valued by students, as well as being associated with substantial and significant improvements in multiple

SP skill areas, as judged by blinded experts and through analysis of reflective journals.  
**Take Home Messages:** A formal, for-credit, university course appears to be an acceptable and effective means to prepare individuals to begin practice as SPs.

#### #8G3 (135159)

##### Challenges for Simulated Patients in Language Barrier Scenarios

**Tanya Tierney\***, Lee Kong Chian School of Medicine, Singapore, Singapore

Naomi Low-Beer (Lee Kong Chian School of Medicine, Singapore)

**Background:** Poor communication can cause medical error and reduced patient satisfaction, and is more likely to occur if there is a language barrier. Singapore is a multilingual society with four official languages (English, Mandarin, Malay and Tamil), however some older people only speak other Chinese dialects. Language barrier is therefore commonplace, providing an important context to study the skills needed by medical students and the associated challenges for teaching and learning.

**Summary of Work:** At LKCMedicine, Clinical Communication is taught as a vertical course. To address the issue of language barrier we include a “Medical Language” theme, including role-play with Simulated Patients (SPs) simulating specific language barrier scenarios. We provided two types of training for SPs; a general workshop addressing the issues of language barrier and one-to-one SP training to support acquisition of specific patient roles. We explored the experiences of SPs in “minimal English speaking” scenarios through questionnaires and observation of teaching sessions.

**Summary of Results:** SPs did not experience difficulty in modulating their language when portraying minimal English speaking patients. SPs found that “filtering” of English was more challenging; they needed to deliberately decide “as this patient, have I understood the student’s question?” before answering.

**Discussion:** Pitching the language barrier, and thus the difficulty, of the scenario correctly enhances the realism of the role-play. SP training must address how SPs modulate their English, as well as their ‘filtering’ of the students’ English.

**Conclusion:** By identifying the specific challenges for SPs in language barrier scenarios, we can optimise SP training and enhance the students’ learning experience.

**Take Home Messages:** Role-plays with SPs portraying patients with minimal English is valuable in a multilingual healthcare context. Pitching the language barrier at the appropriate level requires SPs to “filter” the English used by students. SPs find this challenging and this must be addressed in their training.

#### #8G4 (134798)

##### Conveying practical clinical skills with the help of teaching associates - a recipe for success!

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Christina Stefanescu

Bernd Bender

Robert Sader

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**Background:** Ensuring that all medical students achieve adequate clinical skills remains a challenge, yet the correct performance of clinical skills is critical for all fields of medicine. This study analyzes the influence of receiving feedback by teaching associates (TA’s) in the context of achieving and maintaining a level of expertise in complex head and skull examination.

**Summary of Work:** The study is a two-armed randomized trial with two points of evaluation of clinical skills (i.e., after intervention and after four months). All third year students at a German university who completed the obligatory surgical skills lab training participated in the study. The Students were randomized into two groups - Control group: lessons by an instructor and peer-based practical skills training. Intervention group: training by teaching associates who are examined as simulation patients and provided direct feedback on student performance.

**Summary of Results:** A total of 181 students were included (90 intervention, 91 control). At both time points (i.e., directly after the training and four months after the training), the intervention group performed the examination significantly better than the control group.

**Discussion:** Barley et al. described the use of TAs in multiple clinical disciplines. However, there is a gap in the literature regarding studies on the long-term efficacy of the use of TAs. Our results clearly demonstrate the superiority of the use of TAs in clinical examination instruction. We believe that the main reason for the success of the TA group is that students receive continuous and immediate feedback on their examination techniques.

**Conclusion:** The use of TA’s for teaching complex practical skills is effective for short- and long-term retention. We anticipate the method could be easily transferred to nearly every patient-based clinical skill.

**Take Home Messages:** The use of TA’s is very in almost every clinical skill is a outstanding tool to teach practical skills.



#8G5 (133912)

**PsychSim - Reshaping learning experiences in psychiatry with Human Standardized Patients**

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**Background:** Lectures are not an optimal form when teaching clinical psychiatry, while a widespread use of the more efficient simulation-based training is too expensive for most medical schools. Human Standardized Patients, video-recorded actors who role-play a patient (HSP), could be an alternative, but there is sparse research on its use in psychiatric teaching. This study explores medical students' learning experiences using HSP in psychiatric teaching.

**Summary of Work:** The study was a controlled intervention in an existing psychiatry course for medical students. The control group received the usual instruction with text-based cases and the intervention group received instruction with HSP cases. The cases illustrated medical students meeting psychiatric patients. Data were collected from four focus group interviews. The interviews focused on students' attitudes to psychiatry, professional roles, and communication with psychiatric patients.

**Summary of Results:** The two groups experienced the patient-centered contents of the instruction differently. The intervention group highlighted their new insight into the importance of patient perspectives in communication with references to impressions from the HSP cases. The control group emphasized the importance of authority and the ability to set boundaries in patient encounters.

**Discussion:** It seems that the HSP cases function as important 'pedagogical disruptions' when the students reflect on learning about psychiatric patients. Anthropological liminal theory could be a relevant theoretical framework to explore the apparent transitional learning experiences initiated by HSP.

**Conclusion:** Findings suggest that HSP cases could be a contributing phenomenon in medical students' transition towards clinical professionalism as they influence students' attitudes and patient-centeredness more profoundly than text-based cases.

**Take Home Messages:** 1. HSP enhances students' focus on patient-centeredness 2. HSP stimulates to positive attitudes towards psychiatry better than text cases 3. Liminality may provide a deep insight framework to explore transitional learning experiences initiated by HSP

#8G6 (135448)

**Elementary school children as standardized patients in a summative OSCE: A mixed method study to evaluate fairness, acceptance, feasibility, and educational impact**

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**Background:** Assessment drives Learning (Cilliers et al. 2010). To enhance the educational effect of learning the handling of children as patients, it is necessary to have appropriate education, but also a realistic assessment method. There is little research concerning children as standardized patients inside this assessment process. Therefore, the goal of the present study is to evaluate perception, acceptance, fairness, and feasibility of an OSCE including children. Furthermore, the educational impact for students will be analyzed.

**Summary of Work:** The regular summative OSCE for fifth year medical students in Bern will take place on six consecutive half days in April 2016. 195 students will be tested in nine different OSCE stations – elementary school children will be engaged as standardized patients for the pediatric station. With regard to Darling and Bardgett (2013), by individual interviews, children will be asked afterwards which aspects they liked and disliked in taking part in the Paediatric OSCE. Moreover, the usefulness of children in an OSCE will be analyzed with concern to realism, fairness, feasibility, and acceptance. In addition the educational impact on students' learning strategies will be explored. Raters will be interviewed in focus groups to get a broader picture – especially with regard to fairness aspects.

**Summary of Results:** Because the OSCE will take place in April 2016, there are no results right now. But the described analyzes will be presented.

**Discussion:** The goals of OSCE examination are to have comparable and reproducible clinical situations to judge not only knowledge but especially clinical feasibilities to handle the situation and last but not least the patient. Thus, including children in testing this setting in pediatrics seems mandatory and worth the significant additional workload in performing this examination.

**Conclusion:** Conclusions regarding fairness, acceptance, feasibility, and educational impact will be drawn.

**Take Home Messages:** Children are special patients and need special treatments- this should also be reflected in OSCE examinations.

## 8H Short Communication: Medical Education in Difficult Circumstances

Location: MR 114 – P1

#8H1 (130791)

**An academic support programme in a South African context to cope with difficult circumstances: - celebrations and challenges**

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**Background:** Medical schools are challenged to widen access and address diversity. In South Africa the enduring consequence of "Apartheid" resulted in insufficient preparation for tertiary education. Medical students from diverse backgrounds face difficult academic and social circumstances. Choosing the correct model to support struggling students, is key to academic success.

**Summary of Work:** The Faculty of Health Sciences at the University of Cape Town established an academic support program for educationally disadvantaged students. All successful applicants enter as a single cohort. If students fail the first semester, they enter the program. A detailed description of the program will be given.

**Summary of Results:** The program has been running for 14 years. The majority of students leaving the program successfully continue with their studies and graduate. By year 3 no difference between students who entered the program and those who did not can be seen in overall performance, meaning that they do not perform at the bottom of the class anymore.

**Discussion:** The program's theoretical framework sheds light on reasons why educationally disadvantaged students demonstrate academic "at risk" behaviour. In a resource restraint environment, teaching and learning activities are designed to address specific academic needs of struggling students. Celebrations and challenges of the program will be shared.

**Conclusion:** Struggling students have to cope with difficult circumstances in order to succeed. Academic support structures for medical students should be designed to address underlying difficulties preventing academic success. Our model has provided evidence that cognitive and academic skills can be developed and strengthened for successful performance.

**Take Home Messages:** If students struggle academically, educators should be aware of the range and scope of interventions to shift students towards performing at their full academic potential.

#8H2 (131744)

**Clash of Paradigms. Missing Agenda of Medical Education: Case of Pakistan**

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**Background:** Health outcomes in most developing countries continue to be abysmal, especially for the poor and marginalized, even as averages show improvements. In developing countries like Pakistan, while state of the art treatment is available, diarrhea and pneumonia continue to be the major killers of children under 5

**Summary of Work:** Review of two international conferences in Karachi; and review of curricula of undergraduate medical education of medical colleges in Karachi, and review of Residency training in an institution.

**Summary of Results:** Public health was missing from the two international conferences on health; public health is barely 20 percent of undergraduate medical students in one medical college, and less in other colleges. Public health is not part of the curriculum of Residency training.

**Discussion:** In countries like Pakistan, where State is not adequately responsive to the health needs of its population, can clinicians champion public health? Can the dominant clinical model in medical education be penetrated so that public health can become an agenda of the clinicians also.

**Conclusion:** Medical education can integrate public health in the undergraduate curriculum to provide a sound basis for the creation of a critical mass for advancing public health measures. Medical educationists can introduce public health in undergraduate curriculum of liberal arts

**Take Home Messages:** Poor and marginalized populations have a right to health which is more than treatment of diseases. Medical education must focus on curriculum for better health, and not only curriculum for treatment of diseases.

#8H3 (135554)

**Evaluation and certification of Foreign Medical Graduates: Roots, global practice, and methodology**

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Yatish Agarwal

Anurag Agarwal

**Background:** Of the global human resource, physician workforce is a most precious wealth. Knowledgeable, clinically adroit physicians are the founding basis of quality healthcare services in a community. If a country's healthcare needs have to be met, a robust adequate taskforce of physicians, nurses, and paramedics is a must. With the demographic trends in developed countries favoring a burgeoning rise in aging population, a large majority of the global physician workforce must emanate from countries that enjoy the demographic dividend of a young population.

**Summary of Work:** In wake of mushrooming of exploitative medical schools in the former Soviet Union, Eastern European countries, China, Nepal, Philippines, and Caribbean countries, where entrance requirements were virtually nonexistent and standards of medical education and clinical training inconsistent and suboptimal, if not entirely dubious, the Medical Council of India incepted a licensure examination, a screening test for FMGs, in 2002. Conducted by the National Board of Examinations (NBE), the qualifying exam has come to be known as the Foreign Medical Graduates Examination (FMGE). The screening test, which is based on the curriculum and standards of knowledge in a graduate degree program in medicine, must be cracked before an FMG is given a license to practice medicine in India. The study deals with 13 years experience of screening test for FMG with 130,000 tests in the period.

**Summary of Results:** The study identifies the key countries currently contributing for foreign medical graduates being Russia, Ukraine, China and Nepal. The ranking of 125 medical schools globally based on the results of the screening test has been prepared and shared. Impact of instructional methodology, curriculum framework and teaching environment as factors impacting the quality of medical graduates certified.

**Discussion:** A robust qualifying exam for a license to medical practice avers to this philosophy and cements the place of a doctor in the community.

**Conclusion:** Licensing examinations are must to assess the knowledge and competencies before they are allowed to practice medicine or pursue a career in higher disciplines of modern medicine.

**Take Home Messages:** The licensing examination should not only be applicable for foreign medical graduates but for all medical graduates as a pre-requisite for registration with medical council.

#8H4 (136078)

**Using distance learning to develop Faculty and Interns in resource poor settings; an example from the UK and Somaliland**

**Nick Bass\***, East London NHS Foundation Trust and KTSP, London, UK

Djibril Ibrahim Moussa Handuleh

**Background:** Somaliland is a post-conflict country in process of re-building health services and a medical faculty among much else following a ruinous civil war 25 years ago. Material resources are negligible but innovation, goodwill, hard work and a mutually beneficial Global Health Partnership (King's THET Somaliland Partnership - KTSP) are helping to develop new ways of learning and service provision against the odds.

**Summary of Work:** In the absence of a pre-existing Faculty (most of whom had emigrated or been killed) a new generation of young doctors have qualified and have been taught by a few remaining or ex-pat senior faculty and guest faculty from the UK (KTSP). Teaching of qualified Interns and CPD have been less easy to develop but vital to maintain and develop health delivery and nurture future generations of doctors. We summarise a programme of direct Intern distance learning combined with Teaching the Teacher and, crucially, follow-up support to retain knowledge and skills and foster a CPD peer-support culture.

**Summary of Results:** Up to 25 Interns and existing/prospective faculty took part in a brief course (5 tutorials) on Psychiatric Emergencies aimed at specialists and non-specialists alike. Teaching was delivered on-line via the Medicine Africa platform. Faculty were invited to co-teach sessions with support from the UK. Feedback was sought from Interns and Faculty. Feedback was given to faculty. Subsequent tests of knowledge and application of skills covered in the course were sought from delegates. Follow-up of attitudes, clinical knowledge and skills and peer support within Somaliland and from UK tutors were recorded to determine sustainability of learning.

**Discussion:** 1) Logistical problems 2) Technical issues with clinical knowledge and skills 3) Cultural issues 4) Gains in confidence 5) Importance of mutual support and interdependence

**Conclusion:** 1) A cheap and effective resource to enhance field programmes 2) A powerful way to build self-sustaining learning culture if applied with commitment 3) This can engage delegates and 'spread' if key people involved 4) Enhances South-South knowledge transfer and opportunity for other partners to learn

**Take Home Messages:** The greatest health needs are in the poorest countries but education and research frequently by-pass those who need it most. But this can be achieved at low cost if commitment is there and all partners (rich countries included) stand to gain from mutual learning and health gains sparked by high quality low cost medical education. This is in everyone's interests.

#8H5 (135999)

**Telepsychiatry for continuing professional instruction in rural hospitals. An experience from the Region del Maule, Chile**

**Daniel Jiménez\***, *Universidad Católica del Maule, Talca, Chile*

**Background:** Rural hospitals in Chile do not have psychiatry specialists as a resource. Rural hospital staff shows a high rotation rate over time. New staff hired often is Younger and lacks of clinical experience. Continuing professional education has proved difficult for health workers who labor at rural sites. A mental health consultation system by means of telemedicine was applied to provide support to the mental health staff (Physicians, psychologists and social workers) working in rural hospitals of the Region del Maule, Chile. Patients were discussed and interviewed (when needed) by Telepsychiatry.

**Summary of Work:** Clinical cases presented by the team were used as an opportunity to teach some aspects of psychiatric practice to rural hospital staff. An online Questionnaire was developed to evaluate telepsychiatry system, including some questions on pedagogic aspects.

**Summary of Results:** 21 subjects answer the questionnaire. 100% find useful or very useful the pedagogic aspects of the system. 85,7% find that subjects discussed were useful in subsequent clinical practice, and 90,5% find that it was useful that the subjects were discussed in the context of a clinical case. 85,7% find that group discussion with the rest of the team contributed to learning.

**Discussion:** Discussion about real clinical cases seems an ideal way to introduce mental health instruction. Differential Diagnosis was identified as an important subject for instruction. Work pressure makes difficult to find time for a pedagogic discussion of cases.

**Conclusion:** Telepsychiatry seems a good way to give instruction and support to rural mental health staff, mixing teaching and specialized assistance.

**Take Home Messages:** Telpsyhchiatry consultation demonstrates itself as an instance suitable for instruction to a captive audience in need of formative instances. There will be necessary to establish brief lapses of time for pedagogic discussion of clinical cases and related themes.



## **8I Point of View 2**

Location: MR 115 – P1

**#8I1 (134573)**

**The three-letter point of view of self-directed, student-centered learning in medical education**

**Chiu-Yin Kwan\*, Shantou University Medical College, Shantou, China**

**Summary:** During the past five decades, medical education has gone through waves of changes, all aiming at a collective objective: to change students' learning attitudes from traditional passive rote learning via excessive teacher-centered teaching to establish self-directedness via student-centered learning. Lecture-based learning (LBL), globally prevailing, primarily teacher-centered and practically knowledge-oriented during the past century, has attributed considerably such passive learning attitudes. In mid-60s, an evolutionally new pedagogic philosophy, problem-based learning (PBL), emerged at McMaster University; it boldly flipped the concept and practice of medical education in the classroom forming the theoretical basis for flipped classroom learning (FCL), now well received pedagogy, especially in education areas not associated with medicine. In PBL, students persistently practiced self-directed learning in small tutorial groups, thus pioneering the prototype of team-based learning (TBL), which is now fashionably practiced in medicine and non-medical disciplines. When PBL is extended into work place as in clinics, it transforms itself into inter-professional learning (IPL), a newly emerging area of medical education. Despite being the most student-centered, self-directed, simulation/scenario-oriented approach so far in medical education, its popularity of PBL is steadily dropping in the face of emerging FCL, and TBL as the cost in medical education nowadays has become an emerging concern for many medical schools. Alternatively, PBL in small groups is being blended in a largely traditionally oriented curriculum forming several forms of PBL hybrids with varying and uncertain qualities. Also, it is being replaced with PBL in large group; in fact, it should be more correctly referred to as problem-based teaching (PBT). In this presentation, PBL, TBL, FCL and IPL will be re-defined and differentiated as my personal point of view.

**#8I2 (135451)**

**What would Boyer Say? Pushing Back Against the Scholarship Push**

**Sarah Wright\*, University of Toronto, Toronto, Canada**  
**Stella Ng**

**Summary:** There is increasing pressure on clinicians to pursue education scholarship, usually in the form of published research. Reasons for this pressure include closing the research-practice gap by combining perspectives of researchers and clinicians, and evaluating and sharing new education methods. Organizations, who often use publications as a key marker of success, also apply this push for publication. Thus, education scholarship is seen as a 'good thing' in its own right, helping to legitimize medical education as a rigorous field in an increasingly competitive academic climate. We argue that Boyer's framework for education scholarship has been misapplied, creating unrealistic expectations of all clinician teachers to engage in education research. What are the Effects of this Push? Clearly, researching and publishing upon education practice has the potential to improve and inform the medical education community. Yet without appropriate preparation and structural supports to do this research well, the push for education scholarship as research may detract from good education practice itself, and ultimately fail to make a meaningful contribution to the literature base. The increasing pressure to engage in education scholarship in the form of research results in a paradox: we simultaneously encourage education research among clinical teachers, yet recognize that they lack the supports and time to become education researchers. What's Being Done? PhD researchers are often employed to support clinical teachers in pursuing education scholarship goals. Questioning our Assumptions Who does 'the scholarship push' really benefit? When 26 years have passed since Boyer advocated for a pluralistic view of scholarship, why do we still privilege the scholarship of discovery (research) over other forms of scholarship? What Can We Do? This presentation will critically deconstruct the scholarship push, suggesting ways forward that accomplish the goals of education scholarship without de-valuing practice-based knowledge and scholarly education practice.

#813 (135697)

**Why AMEE needs to celebrate failure**

*Susan Kennedy\*, Health Education England, London, UK*

**Summary:** AMEE is a glorious celebration of successful pilots, projects, triumphs, creative thinking and progress. But AMEE needs a new session, a new perspective that welcomes failure, indeed, celebrates failure. Ultimately, failure is where the learning takes place. Failing is how we learn what went wrong, how we need to improve things, and how we personally lacked the skills/competence to succeed. Failing demands that we look again, that we reflect, that we either subtly or radically alter our approach, our method, our assumptions, our plans. As educators and learners we have lived this pattern of failing and trying again until we succeed. Failure is always an opportunity to improve and we can feel good when we're learning (failing) rather than postponing that feeling for when we are perfect! Even if we recognise this, failure is seen as private, something for quiet reflection, something to acknowledge and to move on from. Too little do we actually celebrate failure for what we can learn - individually, as a team and collectively as a community. Why not have a session at AMEE where people present their mistakes? Why not ask people to present on projects that have failed. What we would be asking of them is for them to present their learning. Tell us what you might do differently, tell us what you learned about yourself and what steps you've taken to improve who you are or what you do, tell us what you learned about your organisation, your team, the way projects are implemented, tell us whether this project has elements that were good and that are salvageable. Imagine going home from AMEE full of inspiration from the great ideas and success stories you've heard but imagine also, going home with a whole set of 'lessons learned' stories that could be equally inspiring.

#814 (135058)

**Should we aim for employability in veterinary graduates, not just competence?**

*Melinda Bell\*, Murdoch University, Perth, Australia  
Martin Cake (Murdoch University, Perth, Australia)  
Caroline Mansfield (Murdoch University, Perth, Australia)*

**Summary:** The last few decades of veterinary education has seen a shift to outcomes-led approaches in an effort by educators to ensure the capability of their veterinary graduates. This approach has evolved as a response to the demands of accrediting bodies and influential competence framework documents. It could be argued that this approach to education focuses upon technical skills and knowledge and the demonstration of a minimum threshold of competence, which does not reward excellence. Given the concurrent surge of literature surrounding stress and burn-out amongst veterinarians and concerns regarding over-supply of graduates, perhaps we need a different approach to preparing veterinary students for working life. Does the practice of teaching and assessing for 'competence' develop all of the capabilities most likely to influence longevity and success in the veterinary profession? Hinchcliffe (2007) defined employability as "having a set of skills, knowledge, understanding and personal attributes that make a person more likely to choose and secure occupations in which they can be satisfied and successful". We argue that teaching and assessing graduates for employability will result in veterinarians who have the skill-set and capacity for success and satisfaction in their chosen career path, whereas competence thresholds are more concerned with protecting the public from incompetence. What capabilities does an employable veterinarian possess? Technical skills and knowledge are obviously essential, but what of the "softer" skills? It would seem intuitive that many so-called professional skills are essential for success as a veterinarian, and yet little evidence exists regarding what these are. Research is currently underway with the intention of creating a multi-stakeholder framework defining veterinary employability (involving perspectives of the employee, employer, client and the profession), and the underlying premise that we should aim for success rather than a lack of incompetence as an educational end goal.

**#815 (134316)**

**Educating the Millennials: An invitation to evolve healthcare education?**

**Daniel Salcedo\***, Chiba University Hospital, Chiba, Japan

Kazuyo Yamauchi (Chiba University Hospital, Chiba, Japan)

Mayumi Asahina (Chiba University Hospital, Chiba, Japan)

Shoichi Ito (Chiba University School of Medicine, Chiba, Japan)

**Summary:** Special, sheltered, confident, team-oriented, achieving, pressured, conventional: we have all heard these terms before when reading about the millennial learner, but have we really done enough to reach out to them? Have we genuinely embraced the challenges of educating the next generation of health professionals? Generational changes are nothing new to health professions education, but the swift advancement of technology we have witnessed in the last few decades has dramatically altered our social and educational environment in a relatively short period of time. And we seem to keep failing to close the ever growing gap between educators and learners. Even with the availability of new evidence-based educational methodologies and technologies, which allow an unprecedented access to information, most institutions continue with the same approach from hundreds of years ago. Discipline-based curriculums, ineffective lectures, clinical shadowing without clear educational purpose, and memory-based assessments are among many of the pervasive pathological educational practices that we seem unable to eradicate. For a healthcare industry that thrives on technological innovation, and is the recipient of dramatic amounts of public and private funding, few resources are being directed towards improving educational strategies to train the future generation of health professionals in a way conducive to developing the knowledgeable, adaptable, safe, and humane care providers that our modern societies so desperately desire. It is imperative to approach the millennials in a new way and evolve our institutional and personal teaching practices to adapt to the needs of this new generation of learners that might be the right catalyst needed to finally take a more progressive approach to the way we train our future healthcare workforce using all the technological resources now at our disposal.

**#816 (134959)**

**Effects of Universities' architecture and layout on Interprofessional Education (IPE)**

**Raffael Konietzko\***, FAU, Erlangen, Germany

Johannes Binder, FAU, Erlangen, Germany

**Summary:** It has been argued that informal interprofessional learning is important (Freeth et al. 2005). In a systematic review by Hammick M et al. (2007), it was pointed out, that social times within IPE might enhance positive attitudes to others. Listed examples were coffee breaks and shared journeys. Yet, apart from official class time, possibilities for informal exchange between students vary greatly between medical faculties. From decentralized universities with or without a central meeting point for students to classical campus based universities, possibilities of contact between students have a wide range. So far it has been found, that architecture and design of schools can have a huge effect on the pupils' performance (Barrett P et al. 2015). Even though, results can not be directly transferred to medical faculties, in the speaker's opinion, IPE is influenced immensely by the design of universities as well. Special attention should be given to the availability of recreational areas. Self-directed learning areas, a skills lab and seminar rooms should be within proximity. Preferably these ought to be located closely to the clinics/institutes where students attend their classes. The combination of all locations invite students to spent time in an inspirational learning environment. Contact between professions could happen casually during their study breaks. IPE could be enhanced. But of course, the architecture of universities can not replace IPE itself. In the future, medical faculties have to put more thought into the layout of students' areas. Research should be performed on effects on IPE.

## 8J Short Communication: Content Determining/Curriculum Mapping

Location: MR 116 – P1

#8J1 (132926)

### A Centralized, Hybrid Tool to Supplement Understanding of Static and Dynamic Medical Literature

**Marc Succia\*, Harvard Medical School / Massachusetts General Hospital, Boston, USA**

Andrew Cheung (University of Toronto, Toronto, Canada)

Leah H. Carr (Seattle Children's Hospital, Seattle, USA)

David H. Roberts (Harvard, Boston, USA)

Vincent W. Chiang (Harvard, Boston, USA)

**Background:** Medical curriculums, often based on published medical textbooks, are typically delayed by 2-5 years in the analysis of current literature. There exists a tangible need to integrate both the foundations of evidence-based medicine with current medical reports of new.

**Summary of Work:** 2 Minute Medicine is a hybrid publishing organization designed to help physicians stay current with medical research. Data was integrated to summarize the most relevant and high-impact current medical studies from all journals. In addition, a curated list of 200+ "landmark" studies, selected as foundational by a physician board, were summarized by physicians. This 2-pronged hybrid approach targeted both needs of reporting on dynamic as well as static medical information. The organization rated studies according to the Oxford Centre for Evidence-based Medicine. Key outcomes measured included user engagement, page-views, demographics, content popularity, readership and qualitative reader surveys.

**Summary of Results:** Of the 105 that responded who responded, 36% were residents and 55% were trainees. Prior to using the site, readers reported consuming a mean of 2.92 studies per week. After using the site for at least one week, readers reported consuming a mean of 6.99 studies weekly ( $p < .0001$ ). 90% of readers Agreed or Strongly Agreed that the amount of detail in reports was suitable. 97% of readers Agreed or Strongly Agreed that they were more up to date with medical research.

**Discussion:** 2 Minute Medicine won the Massachusetts Medical Society Information Technology Award for innovation in medical education. 2 Minute Medicine has evolved to strategically target key deficiencies in medical education. This hybrid resource presents traditional static information but also covers the dynamic component of current medical literature, updated daily. As examined, this strategy has resulted in an effective supplement to medical education.

**Conclusion:** A centralized, peer-reviewed database of medical reports as implemented at [www.2minutemedicine.com](http://www.2minutemedicine.com) is a useful tool for medical trainees, clinicians, and the public. By tracking

key metrics and constantly refining the platform interface and content structure, it is possible to create an extremely efficient medical content education platform.

**Take Home Messages:** Medical school and residency curriculums can be effectively improved by combining multi-modality digital teaching for trainees.

#8J2 (134130)

### Occurrence of intuitive concepts in internal medicine – a pilot study with undergraduate medical students

**Sigrid Harendza\*, University Hospital Hamburg-Eppendorf, Hamburg, Germany**

Christopher Herr, University Hospital Hamburg-Eppendorf, Hamburg, Germany

**Background:** While in science studies genetic learning is frequently used to overcome intuitive concepts (misconceptions), not much is known whether medical students use intuitive concepts. Once memorized it is difficult to erase intuitive concepts. This can lead to malpractice, especially when pressed for time. The aim of our study was to identify intuitive concepts in internal medicine and to analyse their use by undergraduate medical students of different semesters.

**Summary of Work:** Interviews with eight internists revealed 21 intuitive concepts often observed being used by physicians of other specialties. Based on these concepts, 18 short patient cases were constructed for an online multiple-choice test with four possible answers: 1) the correct concept, 2) the intuitive concept, 3) "both concepts are incorrect", 4) "I do not know". Students from semester 2, 6, and 12 ( $N=1140$ ) were invited during a four-week period in 2015 to participate in this test which had to be answered within nine minutes.

**Summary of Results:** Of the 317 participants, students from semester 2 chose the intuitive concept on average in 38% (semester 6: 42%, semester 12: 41%). Comparing semester 2 with 12, seven of 18 cases were answered more frequently with the intuitive concept in semester 12. In two cases this difference was significant ( $p < 0.01$ ). The intuitive concept was chosen significantly less in semester 12 compared with semester 2 ( $p < 0.01$ ) in three cases.

**Discussion:** Intuitive concepts in internal medicine appear already in semester 2. Overall, they seem not to be significantly reduced during undergraduate medical studies. They occur most frequently in the subspecialty of endocrinology.

**Conclusion:** Medical teachers of internal medicine need to be aware that undergraduate medical students frequently use intuitive concepts when solving patient cases. Teaching methods need to be developed to support students to memorize the correct concepts.

**Take Home Messages:** Undergraduate medical students frequently use intuitive concepts when working with internal medicine cases.



#8J3 (131550)

**Concept Analysis: Value Based Curriculum**

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*Shahram Yazdani*

*Soleiman Ahmady*

*Leila Afshar*

*Syed Abbas Foroutan*

**Background:** Regard to the shortcomings currently existed in the curriculum of the medical sciences education in Iran, the design of a domestic model for the curriculum based on values was placed on the agenda through concept analysis method to reach a proper definition of the concept and its further development.

**Summary of Work:** To model the value-based curriculum, we chose the concept analysis model of Hugh McKenna. In this method qualitative approach is used, in which reality and fact is a relative issue and arises from researcher's mind and context values.

**Summary of Results:** Purposed Definition of Value Based Curriculum which is Value-oriented curriculum with its special goals; value-oriented content consists of modules, media, and narratives merged into existing courses or offered as a separate training or individual course; preferred education and learning methods and specific assessment strategies in a suitable atmosphere.

**Discussion:** To present a domestic and final model in Iran, considering the eighth stage of Hugh McKenna's method, attention to context and cultural values, and obtaining the views of experts regarding the concept of curriculum based on values, are necessary.

**Conclusion:** For teaching values we must, via value based curriculum, picture them from metaphysical and subjective space to a complete objective and physical form so that we could define and draw the expected educational purposes and consequences.

**Take Home Messages:** Value-based curriculum is not just a tool for perception of the educational contents, but it is a movement beyond reasoning and analytical methods and contemplation that usually takes place during education.

#8J4 (134361)

**Building a curriculum development process documentation and information platform**

*Kokeb Abebe\*, AO Education Institute, Dübendorf, Switzerland*

*Sandipan Chatterjee*

*Michael Cunningham*

*Miriam Uhlmann*

*Jane Wiedler*

**Background:** Each year, the AO Foundation organizes hundreds of courses worldwide. With growth of the Foundation and the creation of clinical divisions, each requiring tailored educational programs, the need to ensure high-quality education across divisions was recognized. To achieve this goal, a common reliable resource for all stakeholders was developed.

**Summary of Work:** Existing literature was used and adapted by curriculum developers at the AO, and together with volunteer surgeons, we created our own unique curriculum roadmap. Once finalized, the content was loaded onto a webpage. Although developed to suit the needs of the AO, the main elements of this resource can be adapted into the work of others.

**Summary of Results:** A prototype version of the website has been created. The materials are organized in a manner such that a chapter of interest can be viewed independently or the whole used like a step-by-step manual to help guide the development of a curriculum. The reasoning behind each step has been explained, along with Tips & Tricks based on our past experience. A glossary page was included to ensure consistency of the terms being used.

**Discussion:** In an organization with multiple clinical divisions, a streamlined approach to curriculum development can help ensure high-quality education of multiple programs.

**Conclusion:** A process documentation website would aid this by not only creating a reliable resource for CD managers, but also for providing an overview of the process either to planning committee members or new colleagues.

**Take Home Messages:** Process documentation in organizations can help streamline their educational plans by creating a go-to resource for all stakeholders.

#8J5 (132116)

**Moving towards competency-based medical education. A joint venture of curriculum mapping facilitated the change process in four German faculties**

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Marianne Giesler (Freiburg Competence Center for Evaluation of Teaching in Medicine - Baden-Wuerttemberg, Albert-Ludwigs-University Freiburg, Germany)

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Annette Wosnik (Dean's office, Faculty of Medicine, University of Tuebingen, Germany)

Maria Lammerding-Köppel (Competence Centre for University Teaching in Medicine - Baden-Wuerttemberg, University of Tuebingen, Germany)

**Background:** Corresponding to international moves towards competency-based medical education, the German National Competence-Based Catalogue of Learning Objectives for Medical Education (NKLM) was adopted recently. The catalogue provides a framework for reviewing and redesigning undergraduate medical curricula. Our study shows curriculum mapping being effectively organised in a joint venture with four faculties.

**Summary of Work:** In four German medical faculties, management of a joint curriculum mapping process (BMBF-funded) was investigated by questioning local change agents every six months since 2014 (semi-structured focus group and individual interviews, questionnaires). By qualitative content analysis, data was analysed with regard to strengths, weaknesses, chances and risks of strategies and argumentation.

**Summary of Results:** Under supervisory management of Tuebingen and with use of a common mapping database, > 85% of the curricular lectures and courses were mapped by the faculties. Local coordinators (change agents) were educated as multipliers in joint workshops. In regular meetings, key steps were coordinated, problems and potential strategies were discussed, visualized mapping data was presented.

**Discussion:** The joint NKLM-mapping facilitated the change process in the four faculties by simultaneous procedures and mutual consultations. Visualization of mapping data supported curricular transparency, increased positive competition and deans' visible support.

**Conclusion:** As an effective door-opener, the visualization of mapping data encourages teachers and departments to participate in mapping and future longitudinal development of competencies.

**Take Home Messages:** Curriculum mapping and its visualization is the key for goal-oriented curriculum development.

#8J6 (133168)

**Mapping the Assessments of Imperial College School of Medicine to the Course Curriculum**

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Veronica Cunningham

Natalie Green

Ryan Maginn

Amir Sam

Joanne Harris

Martin Lupton

**Background:** In April 2015, Imperial College London published its forward strategy (1); to meet with the requirement of the GMC to map medical curricula (2) and with the objective of aligning assessment to curriculum a bespoke curriculum software tool was created alongside introduction of new question bank software. 1) Imperial College School of Medicine: Our vision for the future 2015 2) The state of medical education and practice in the UK report: 2014

**Summary of Work:** A standardisation project was undertaken to align learning outcomes and exam questions by associating them with qualitative criteria: domain and specialty. In addition the entirety of the undergraduate question bank was standardised to national standards.

**Summary of Results:** Success of the project will be demonstrated by the ability to blueprint exams to current curriculum – this process is currently ongoing. The entire project will also identify shortcomings – for example question availability and learning outcome validity.

**Discussion:** The challenges of such a project inevitably involve the size and complexity of both the curriculum and the exam question bank. Ultimately each individual exam question will be linked to the relevant learning outcome, however there is a technical challenge to be overcome in programming the interface between software packages. Including redundancy measures to prevent curriculum changes reflecting on the curriculum and vice versa is of utmost importance to ensure future safeguarding of the project.

**Conclusion:** Blueprinting exam questions to curriculum learning objectives ensures transparency and enables reflection on learning opportunities provided within the course. This process may also be utilised to provide tailored student feedback on their performance within exams and provide a means for targeting individual professional development.

**Take Home Messages:** Standardising curriculum and question bank content is a time consuming complex process however it has potential to improve course content delivery and student feedback.

## 8K Short Communication: Situational Judgement Tests

Location: MR 118 – P1

#8K1 (134726)

**General Surgery Residency Selection Process:  
Situational Testing to Evaluate Surgical Non-Technical  
Skills**

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Singapore*

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*Wei Chong Chua*

*Win Nie Seek*

*Ming Terk Chiu*

*Qinghui Lu*

**Background:** Traditionally, surgical residency selection involves the evaluation of academic scores, recommendation letters, research pursuits and performance on the interview day. As part of a comprehensive General Surgery residency selection process, we report a novel assessment of situational testing to evaluate the non-technical skills of applicants.

**Summary of Work:** During the one-day selection process, which also included a formal interview and technical skills evaluation via a laparoscopic simulator system, applicants were randomly allocated into groups of 3 or 4. Each group was given a recipe, limited ingredients and equipment to bake soufflé within 90 minutes. This was performed in a hi-fidelity simulator complex and assessment, by a team of 5 trained assessors, was based upon the validated Non-Technical Skills of Surgeons (NOTSS) system by the Royal College of Surgeons of Edinburgh.

**Summary of Results:** In 2015, 21 applicants (14 males, 7 females) in 6 groups, underwent evaluation. The average age was 26 years-old and only 3 applicants had prior baking experience. The average score amongst the applicants was 31 (maximal score at 48). Krippendorff's alpha coefficient for inter-rater reliability was satisfactory at 0.665. The average scores of 6 successful applicants ranged from 34 to 45.

**Discussion:** We present here a novel assessment of situational testing to evaluate the surgical non-technical skills of residency applicants. The task of team soufflé baking with limited resources mirrors most surgical situations, for which situational awareness, decision-making, communications and teamwork and leadership are imperative. Based upon the validated NOTSS system, our assessment tool has satisfactory inter-rater reliability. Prior baking experience is not a confounder in the selection process.

**Conclusion:** Evaluation of surgical non-technical skills of General Surgery residency applicants may be achieved with a situational test, and with NOTSS system adopted as an assessment tool.

**Take Home Messages:** A situational test enables evaluation of surgical non-technical skills in residency applicants.

#8K2 (135061)

**Undergraduate medical course applicants' ratings of  
the value of a Situational Judgment Test (SJT) as a  
selection tool**

*Margaret Hay\*, Monash University, Clayton, Australia*

*Selina Tran*

*Irene Lichtwark*

*Wayne Hodgson*

**Background:** Candidate reactions to the SJT as a selection tool have been assessed in post-graduate medical selection<sup>1</sup>, and teacher training<sup>2</sup>, but not in undergraduate medical course applicants. No studies have investigated these candidates' ratings of the value of the SJT as a selection tool relative to other tools.

**Summary of Work:** Multiple Mini Interview (MMI) candidates applying for the MBBS at Monash University completed a pilot online 80 scenario SJT during the 2015 and 2016 admissions cycles (N=503, 57.9% female, mean age 18.2 years, SD 0.49). At SJT completion, candidates rated the difficulty of the SJT relative to the Undergraduate Medicine and Health Sciences Admissions Test (UMAT). Face validity of the SJT was assessed via ratings of scenario relevance, suitability as a selection tool, and ranking of the SJT relative to the UMAT, MMI, and Year 12 score. Open text boxes enabled candidates to describe reasons for their ratings

**Summary of Results:** Most (72.3%) rated the SJT as less difficult than the UMAT, and 70% could relate to the SJT scenarios. Nearly all (91.1%) rated the SJT questions as relevant for medical course selection, with 66.5% rating the SJT as a suitable selection test. The MMI was ranked as the most useful selection tool by 56.4%, with 31.6% nominating Year 12 score. The UMAT was ranked as the least useful selection tool by 45.5%, and the SJT by 23.6%. Open text responses revealed that candidates preferring the UMAT found the SJT repetitive, and lacking in variety of item type. Candidates preferring the SJT enjoyed the test, its shorter test time, realistic scenarios contextualized in medicine, and perceived relevance to future practice.

**Discussion:** This study provides evidence of higher face validity of the SJT relative to the UMAT, but not the MMI or Year 12 score. Despite their young age, most candidates were able to relate to the medically contextualized scenarios.

**Conclusion:** School leaver medical course applicants can relate to medically based SJT scenarios. The SJT has greater face validity in this population relative to the UMAT, with MMI perceived as the most valid selection tool.

**Take Home Messages:** The SJT is a viable tool for undergraduate medical course selection, in conjunction with other selection tools.

#8K3 (134172)

**Online Situational Judgement Tests: Implication and perspectives of group test taking in CASPer**

**Kelly Dore\***, McMaster University, Hamilton, Canada

H.I. Reiter

Amanda Baskwill

**Background:** As medical education increasingly involves some degree of online assessment, including in the selection process, implications of online testing must be examined. CASPer, an online- primarily situational judgement test (SJT) assesses medical applicants' personal/professional characteristics. CASPer is unproctored, requiring applicants to medical school to review 12 scenarios and respond to three open-ended questions regarding the scenario in only 5 minutes. As this is done online, without proctoring, concerns arises that applicants may collaborate in the development of their responses. This research assessed if CASPer scores were enhanced through collaborative test-taking in the 5-minutes/question time restriction.

**Summary of Work:** Participants were randomly assigned to complete CASPer independently or as part of a writing pair. Paired participants were either designated to be the "applicant" or their "helper". Outcomes included total CASPer score and results of an exit survey of their experience completed by all participants

**Summary of Results:** 52 total participants, 18 individuals and 17 pairings, completed the test. No significant difference was found in mean scores from those who completed CASPer independently ( $x = 5.9$ ) compared to those who completed CASPer in a pair ( $x = 6.2$ ,  $F = 1.31$ ,  $p = ns$ ). When asked if they completed CASPer again would they complete it independently or with assistance, 71% indicated a preference to complete CASPer independently. Reasoning for this included discord in response perspectives within the pair.

**Discussion:** The results of this pilot research support the notion that given the limited response time there is little benefit to having an additional person assisting you in the completion of CASPer.

**Conclusion:** Time restriction may allow additional test security of ensuring independent writing of online examinations

**Take Home Messages:** Online testing with a time restriction can be feasibly applied to selection.

#8K4 (133921)

**Design & Evaluation of New Situational Judgement Scenarios for Undergraduate Pharmacy Students in Australia**

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**Background:** Situational Judgement Scenarios (SJS) represent a practicable method for assessing non-academic attributes important for success in healthcare, using multimedia formats to expose students to workplace scenarios, requiring judgements about appropriate responses. Monash University's Faculty of Pharmacy and Pharmaceutical Sciences have implemented an SJS for students at the academic year's start.

**Summary of Work:** This study describes the design and analysis of an SJS to help to identify specific development areas for pharmacy students during the 2016 academic year. The scenarios target four non-academic domains deemed important for pharmacy students: Integrity, Empathy, Team Involvement and Critical Thinking and Problem Solving.

**Summary of Results:** The SJS will be piloted in February 2016; analysis will be undertaken to determine reliability and validity, and student reactions towards the SJS. Feedback on each domain will be provided for each student to assist with identifying potential development areas.

**Discussion:** Psychometric analysis results and student feedback will be discussed, along with practical implications. This will include the possibility of an SJS to identify low scorers in one or more domains and to inform the design of specific targeted interventions, for example, e-learning modules and access to university learning support services.

**Conclusion:** SJSs provide a useful method for assessing non-academic attributes across healthcare professions. In the context of pharmacy students, they will be used for the assessment of, and feedback about important attributes at the domain level, with a view to support the development of pharmacy students' skills in these attributes.

**Take Home Messages:** SJSs are useful because they allow the measurement of important non-academic attributes, and can provide specific domain-level feedback. This process allows the identification of development needs which can be addressed via targeted interventions throughout the course of healthcare trainees', (including pharmacy students') education and training.



## 8L Short Communication: Best Evidence Medical Education - BEME

Location: MR 119 – P1

#8L1 (135570)

**Patient participation in medical education (PatMed): a qualitative study of patient and student experiences of undergraduate medical education in general practice, developing findings of a meta-ethnographic BEME systematic review**

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Nada Khan

Fiona Stevenson

Alice Malpass

**Background:** We conducted a systematic review of undergraduate medical education in the UK general practice setting. Our meta-ethnography produced two models: general practice as a socio-cultural space for learning; and interpersonal interactions within the teaching consultation. This study explored and developed these findings with patients and medical students.

**Summary of Work:** We conducted 2 medical student focus groups and 9 patient in-depth interviews. These were analysed iteratively and coded thematically. We examined areas of agreement and dissonance with the existing meta-ethnography models to develop our findings.

**Summary of Results:** These results focus on development of meta-ethnography findings. Our original model positioned the GP as 'broker' of triadic interactions between GP, patients and students. PatMed shows that relationships and brokering roles can shift with time and experience: senior medical students brokering teaching encounters, and patients taking on roles as 'educator', framing them as a legitimate member of the teaching consultation. Consent was identified as a pivotal moment for re-negotiating these positions. Our model of socio-cultural spaces of learning positioned hospital and general practice as polarised spaces, leaving students to negotiate competing cultures. In PatMed, students described general practice as a space to put conceptual learning into practice. In the meta-ethnography, general practice was seen as a 'fact-free' space. This was refuted in PatMed, students describing general practice as a space to learn about common things and medicine that reflects society.

**Discussion:** Methodologically, this study has extended a meta-ethnographic synthesis of literature, exploring the authenticity of findings with students and patients. This process has affirmed many concepts developed from the literature, and helped refine and develop our models further.

**Conclusion:** Patients, students and GPs are all implicated in a dynamic re-negotiation of power within teaching consultations.

**Take Home Messages:** Exploring areas of agreement and dissonance with participants has enabled

development of meta-ethnography findings to help inform and shape contemporary practice.

#8L2 (135843)

**Defining clinical reasoning: preliminary findings from a BEME scoping study**

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Stuart Lubarsky (McGill University, Canada)

Tiffany Ballard (University of Michigan, USA)

Larry Gruppen (University of Michigan, USA)

Joseph Rencic (Tufts Medical Centre, USA)

Temple Ratcliffe (University of Texas San Antonio, USA)

Ana Da Silva (Swansea University, UK)

Eric Holmboe (American Board of Internal Medicine, USA)

Lambert Schuwirth (Flinders University, Australia)

Steven Durning (Uniformed Services University of the Health Sciences USA)

**Background:** In competency-based training, it is imperative to identify, observe and assess components of competent practice. Clinical reasoning (CR) is increasingly mentioned as a health professions competency. This necessitates careful and explicit discussion of what CR 'is' to support its development and facilitate assessment.

**Summary of Work:** Scoping study methodology (Arksey and O'Malley) was used in a BEME review to extract and identify the conceptualizations and definitions of CR and associated terms across health professions (HP) literature. Seven databases were searched using MeSH terms relating to clinical reasoning, assessment and HP. Calibration and usability testing refined inclusion and exclusion criteria, and the extraction form. These processes evolved iteratively; consensus was reached through team discussions.

**Summary of Results:** Description of the literature: 635 studies spanning 47 years (1968-2014), in 155 journals, from 583 unique first authors, across twelve health professions (e.g. medicine, nursing, dentistry, rehabilitation therapy, nutrition, midwifery). Of articles coded to date, 43% (18/42) used the term CR, and of those, less than 40% included an explicit definition of CR. Other terms referring to CR included: (clinical or medical) problem solving, decision-making (abilities or skills), error recovery, clinical judgment, diagnostic accuracy, diagnostic performance, clinical assessment, critical thinking, knowledge application. Of these, diagnostic reasoning was the most commonly used. Only 4 articles used the term CR exclusively.

**Discussion:** Manuscripts used terms interchangeably and rarely provided explicit definitions of the constructs or terms of interest. A lack of clarity in terminology and definitions likely lead to unclear communication within the CR community, and difficulty in operationalizing CR for teaching and assessment.

**Conclusion:** Varying definitions and different terminologies are common problems in the literature

on clinical reasoning, likely reflecting different conceptualizations of CR

**Take Home Messages:** Clinical reasoning appears to be an complex, multi-dimensional concept, linked to different conceptual frameworks, reflected in the use of different terms. We advise authors to make their conceptual frameworks and definitions of clinical reasoning explicit in their work

#### #8L3 (133398)

**Realising the synthesis: Facing the final hurdle of a BEME systematic review of the contribution of theory to the design and development of interprofessional curricula**

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Sarah Hean (Bournemouth University, Bournemouth, UK)

Chris Green (University of Essex, London, UK)

Liz Anderson (University of Leicester, Leicester, UK)

Cath O'Halloran (University of Huddersfield, Huddersfield, UK)

Richard Pitt (University of Nottingham, Nottingham, UK)

**Background:** The aim of this review was to offer guidance for curriculum developers who wish to design interprofessional curricula with strong theoretical underpinnings towards successful learning. The evaluation has had to grapple with defining inclusion criteria concerning theory and our deliberations have led to a richer understanding, resulting in a publication on theoretical quality.<sup>1</sup> We have progressed to grappling with how to synthesise our review, now at the final report write up stage and will share some of the difficulties encountered.

**Summary of Work:** Critical stages of the review process have been finding consistency in defining and assessing quality of theory, improving our inter-rater reliability, and synthesising a diverse and heterogenous literature. Understanding what constitutes interprofessional learning has not been difficult.

**Summary of Results:** There was a diverse range of theories used, primarily to inform learning activities and curriculum evaluation. Social-psychological theories dominate (e.g. contact hypothesis) along with educational (e.g. Knowles) and reflective theories (e.g. Kolb, Schön). Post-structural and critical theories (e.g. Foucault) have been used more recently to provide alternative 'perspectives'.

**Discussion:** More recent studies are tending to demonstrate higher theoretical quality, which is in line with the call for greater scholarship in educational research generally. Reports tend to be either theory-heavy/curriculum-light or curriculum-heavy/theory-light. Demonstrating the link between the two is, we suggest, most useful to educational practitioners.

**Conclusion:** Theory is shown to aid curriculum designers, providing explanations for observed interactive learning and allowing conditions for improvement to be implemented/experimented. This

presentation will discuss the difficulties encountered when evaluating our approach to synthesis, some preliminary findings and some good practice suggestions for future reviewers. 1.Hean, S., Anderson ES., Green., C., John, C., Pitt, R. & O'Halloran, C. (2015). Reviews of theoretical frameworks: Challenges and judging the quality of theory application. Medical Teacher, 1–8, Early Online.

DOI:10.3109/0142159X.2015.1075648

**Take Home Messages:** Theoretically informed curricula rely upon theoretically informed research to propel the field. Theory driven reviews are challenging, but addressing these challenges moves interprofessional education practice forward.

#### #8L4 (133146)

**Which professional (non-technical) competencies are most important to the success of graduate veterinarians? Findings of a BEME Review**

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Julie Williams (University of Bristol, Bristol, UK)

Susan Rhind (University of Edinburgh, Edinburgh, UK)

Sarah Baillie (University of Bristol, Bristol, UK)

**Background:** Despite the growing prominence of professional (non-technical) competencies in veterinary education, the evidence to support their importance for graduates is unclear. Using protocols developed by the Best Evidence Medical Education (BEME) collaboration, this review addressed the question "Which professional (non-technical) competencies are most important to the success of graduate veterinarians?", predominantly through two lines of evidence: consensus of stakeholder opinion (perceived importance), and evidence of an effect on a relevant outcome (empirical importance).

**Summary of Work:** A systematic search of electronic databases was conducted (including CAB Abstracts, Web of Science, PubMed, PsycINFO) from 1988-2015 and was limited to the veterinary discipline (veterinarian\* term required). 52 sources were included in the review, providing evidence from competence frameworks developed by expert consensus (10 sources), surveys of stakeholder perceptions (30 sources), including one from the previous category), and empirical research (13 sources).

**Summary of Results:** Communication skills were the only competency to be well-supported by all three categories of evidence. Other competencies supported by multiple sources of empirical evidence include empathy, relationship-centred care, self-efficacy, and business skills. Other competencies perceived to be relatively more important in a meta-analysis of stakeholder surveys (20 studies) included awareness of limitations, professional values, critical thinking, collaboration, and resilience.

**Discussion:** This review found a relatively sparse evidence base informing the review question, particularly high-quality 'best evidence' studies, which did not match the most highly-cited sources.

**Conclusion:** This review has highlighted the comparatively weak body of evidence supporting the importance of professional competencies for veterinary graduate success, with the exception of communication skills. However we stress this is more indicative of the scarcity of high-quality veterinary-based research in the field, than of the true priority of these competences.

**Take Home Messages:** Veterinary education as a discipline should strive to strengthen this evidence base from outcomes-driven research and 'best-evidence'-lead approaches.

#8L5 (136479)

**Examining the effects of interprofessional education: Findings from an updated BEME systematic review**

**Simon Kitto\*** (*University of Ottawa, Ottawa, Canada*)  
**Scott Reeves** (*Kingston and St George's, London, UK*)

**Background:** Interprofessional education (IPE) brings together different professionals to learn with, from and about one another to collaborate more effectively to provide safe, high quality care.

**Summary of Work:** An updated BEME review was undertaken to examine the effects of IPE since the publication of the first review in 2007. A series of standardised searches and screening methods produced 25 high quality IPE studies which were added to the 21 studies from the previous review for analysis/synthesis.

**Summary of Results:** Key education issues related to organisational context, participant characteristics and teaching/learning processes affect the delivery of IPE. Learners react positively to IPE, reporting improvements in attitudes/perceptions and knowledge/skills. There was still less evidence of the effects of IPE on behaviour, practice and patients.

**Discussion:** A range of contextual factors, characteristics of learners/facilitators and education processes affect the quality of IPE. A focus on gathering short-term self-report outcomes also limits evidence base.

**Conclusion:** IPE can improve attitudes/perceptions and knowledge/skills. While evidence for its ability to enhance behaviours and service delivery shows promise, further studies are needed to generate a more informed understanding of these longer-terms outcomes.

**Take Home Messages:** The IPE evidence base is strengthening with a clearer indication of the issues that affect delivery and the outcomes that it can generate for participants and service delivery.

## 8M Short Communication: Longitudinal Clinical Clerkships

Location: MR 120 – P1

#8M1 (131696)

Exploring integration, continuity, and longitudinality  
in Canadian clerkships

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*Beth Cummings*  
*Rachel Ellaway*

**Background:** Growing interest in and use of Longitudinal Integrated Clerkships (LICs) has reinvigorated interest in integration, continuity, and longitudinality (IC&L). We undertook a descriptive review of the clerkships in all 17 Canadian medical schools to explore how the principles of IC&L were realized in clerkships of Canadian undergraduate medical education programs.

**Summary of Work:** In the 2013-2014 academic year, we conducted semi-structured interviews with undergraduate deans and clerkship directors at Canada's 17 medical schools. We undertook a thematic coding analysis of the interview transcripts

**Summary of Results:** Rather than the two models (LIC and RBC) being confirmed as distinct, we identified varying levels of IC&L in all clerkship programs (both LICs and RBCs). Indeed, we were able to map the extent to which different curricula employed IC&L (in aggregate), thereby describing a continuum of IC&L and not two solitudes. We were also able to develop new definitions of IC&L as they were expressed in clerkship designs in general.

**Discussion:** IC&L were important factors in all Canadian clerkships but in different ways. Although there were similarities with previous studies, we found a more nuanced and multidimensional set of constructs around IC&L. While a very small proportion of Canadian students undertake an LIC, many RBCs intentionally embrace aspects of IC&L.

**Conclusion:** A more conceptually robust appraisal of the use of IC&L in medical curricula is required, not least as the basis for exploring what aspects of IC&L work best and for whom.

**Take Home Messages:** We found a more nuanced and multidimensional set of constructs around (IC&L) in LICs and RBCs. Many RBCs intentionally embrace aspects of IC&L. A more conceptually robust appraisal of the use of IC&L in medical curricula is required, as the basis for exploring what aspects of IC&L work best.

#8M2 (132497)

Supportive Learning Communities Emphasizing  
Strong Longitudinal Clinical Experiences Provide  
Medical Students a Springboard to Medical  
Leadership in the Real World

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**Background:** Medical school programs responding to the call for developing medical leaders report limited outcomes. Addressing this literature gap, we asked our school's graduates who are real-world medical leaders to identify factors contributing to their success. Our approach contrasts with evaluation strategies used by extant programs.

**Summary of Work:** We conducted a phenomenological, qualitative, interview study. Of 1,664 BA-MD graduates from a six-year school in 1976-1999, 213 met leadership criteria: documented achievement as administrators, clinicians, researchers, and/or educators in substantial national, regional, or local medical institutions, organizations, or societies. Nearly one-quarter (48) participated. The hypothesis that "graduates believe experiences, people, and personal characteristics contributed to their success" shaped the interview. It began with open-ended questions; specific prompts followed. Data analysis proceeded in iterative cycles of open-coding using the constant comparison method and reliability checks.

**Summary of Results:** Themes about the school's culture were prominent: nurturing, open, collegial relationships; innovative flexible curricular experiences emphasizing students' interests and longitudinal clinical training; expectations that students reach autonomy. Another theme involved the school's social structure: enduring learning community/patient-care-teams composed of a physician-mentor and longitudinal senior/junior student partners with graduated responsibility for patients over four years. These factors enabled graduates as new residents to demonstrate outstanding clinical acumen that identified them as leaders and generated further leadership opportunities.

**Discussion:** Our results recommend designing a school's culture and social structure to graduate exquisitely educated clinicians ready to excel in residency and able to seize leadership opportunities. The study is retrospective with limited generalizability. Yet, this work adds significantly to the literature because it comes from real-world leadership outcomes.

**Conclusion:** B. Thoma's 2011 literature synthesis suggests that a variety of longitudinal methodologies, tied to individuals' work lives, be utilized to foster leadership. Our results support applying this synthesis to leadership development among medical students.

**Take Home Messages:** Excellent clinical education in a nurturing environment prepares students for medical leadership.



#8M3 (134894)

### Umm AlQura Medical Students' Experience of Pilgrims' Welfare Program

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Anmar Nassir

Osama Marghlani

Hani Almoallim

Talal AlMetari

**Background:** Hajj and Umrah in Makkah is considered priority health concerns of the community of Makkah and the Faculty of Medicine, Umm AlQura University (UQU). The Faculty has taken many initiatives to direct their education, research and service activities toward such priority. The Faculty pilots a structural program "Pilgrims' Welfare" of involving UQU medical students in three major tracks during Hajj 2015; research, health promotion, and health services (Haram Rescuer and Hospitals). Hajj and Umrah is a vertical model in the reformed MBBS curriculum, which will be launched in sep 2016

**Summary of Work:** About 800 (55%) UQU medical students registered in the program of Pilgrims' welfare during Hajj 2015. Only 700 students (88%) were assigned to different programs and activities. This paper aims to investigate the experience of Pilgrims Welfare program from students' perspectives.

**Summary of Results:** About four hundreds students from Faculty of Medicine, Umm AlQura University completed the e-survey, about 57% of participants in the Pilgrims welfare program during Hajj 2015. Generally, participants had positive perceptions of the effect of the participation in the Pilgrims' Welfare Program on developing their competencies with mean score of 24/30. Students were relatively satisfied with the provided support by the Faculty, the induction program, and the provided information. Students' experience in the Pilgrim's Welfare program varied regarding to the facility or themes they joined. The group work in haram rescuer program (Holy Places Ambulance services), were the most satisfy group with the developed competencies (26/30) comparing to others.

**Discussion:** The piloted "Pilgrim's Welfare Program" during Hajj 2015, was a successful experience for students. It facilitates the development of students' core competencies in a rich clinical learning environment. It also develops student's responsibility toward Makkah and Muslim communities and fulfills the social accountability of UQU Faculty of Medicine.

**Conclusion:** The future of Pilgrim's Welfare Program and the longitudinal vertical module of Hajj and Umrah is very promising and considered a requirement in such rich and unique community.

**Take Home Messages:** The college reformed curriculum fulfills Saudi MEDs competencies national framework within a contextual curriculum that enrich students and graduates experiences

#8M4 (133041)

### Longitudinal placements: where are the expansive learning opportunities?

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Fatima Iqbal (University of Liverpool, Liverpool, UK)

**Background:** There is an increasing trend for longitudinal placements in medical education (Thistlethwaite et al., 2013). Improved student integration with clinical teams, increased opportunity to practice skills and student perceptions of feeling valued have all been cited as reasons to adopt longitudinal placements (Ogur et al., 2007, Bell et al., 2008, Worley et al., 2006). However, a recent curriculum review at the University of Liverpool found the longitudinal model a challenge to continuity of care and planning student learning opportunities (Coulby, 2013). We have since implemented immersive 8 week block placements as an alternative placement structure.

**Summary of Work:** To ascertain the effect of changes to placement structure on students' perception of learning opportunity and feelings of belonging a focus group was held with 14 third year medical students.

**Summary of Results:** Students stated they had more learning opportunities when on block placement 5 days a week in comparison with their previous 2 day a week longitudinal experience. In contrast to indications in the existing literature while some students felt increased ward time improved their feelings of belonging to a team, others still experienced feelings of isolation.

**Discussion:** While students experienced more as a result of increased clinical exposure their feelings of belonging did not automatically increase. The expansive or restrictive nature of learning environments depends on the attitudes of those within them and the self-efficacy of students (Fuller & Unwin, 2003).

**Conclusion:** While placement structure can influence learning opportunities, the nature of learning environments themselves dictate team integration and belonging.

**Take Home Messages:** Expansive placement learning environments are required to improve students feeling of belonging while training.

#8M5 (135368)

**Exploring the Why, the How and the What of an Undergraduate Medical Education Innovation: The First Year of the McGill Longitudinal Family Medicine Experience**

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Emmanuelle Bélanger (Université de Montréal, Montreal, Canada)

Peter Nugus (McGill University, Montreal, Canada)

Karen Willoughby (McGill University, Montreal, Canada)

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Marion Dove (McGill University, Montreal, Canada)

Yvonne Steinert (McGill University, Montreal, Canada)

**Background:** There is scant research about formal mentoring programs in medical schools. This study examines the Longitudinal Family Medicine Experience (LFME) course in the new McGill University MDCM curriculum in which medical student/family physician preceptor dyads meet for 16-20 clinical sessions in the preceptors' practice setting during the first year of medical school.

**Summary of Work:** The research questions were: (1) Why did family physicians decide to enrol as preceptors in the 2013-2014 McGill LFME course? (2) How do they define the role they played, and what is the meaning of their relational experience with learners? (3) What are first year medical students' and preceptors' perceived overall effects of the LFME? We conducted an exploratory mixed-methods case study. Participants were students (n=187) and preceptors (n=173). Data sources included 6 focus groups with preceptors and online questionnaires to both preceptors and students. Data analysis encompassed thematic analysis, Cronbach's alpha, factor analysis and one-way ANOVA.

**Summary of Results:** Three major themes emerged from qualitative analysis: (1) a broad range of motivations to become an LFME preceptor; (2) complex student/preceptor relationships; (3) ambiguous LFME preceptor identities. Students and preceptors globally rated the new course, as well as cognitive, affective, and interpersonal and clinical skills learning positively. Importantly, students considered the course improved their attitude towards primary care. However, a high number of students felt they did not have enough opportunities to practice their history-taking and physical examination skills, preceptors recommended the need to clarify learning objectives, and both questioned the utility of patient logs and reflective essay as methods for course evaluation.

**Discussion:** Family physicians appear motivated to become preceptors for first-year medical students for a wide variety of reasons. The mentoring process is not without difficulties, however, and preceptors' perceived roles are still in construction. At the same time, the McGill LFME provided a valuable context to help develop students' clinical skills.

**Conclusion:** While the role and meaning of being a family medicine preceptor is still in evolution, LFME

appears to provide a valuable way for helping develop students' clinical skills, and improving their attitudes towards primary care.

**Take Home Messages:** 1) Undergraduate educational initiatives such as the LFME can provide a valued clinical experience to students; 2) The mentoring role is complex.

#8M6 (133995)

**Positive impact of a longitudinal competency development course on the comfort level of clerks during direct observation of clinical skills**

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Sandra Houle

Jean-François Montreuil

**Background:** In September 2011 we introduced a longitudinal competency development course (LCDC) in our curriculum. The course provides students with feedback on their achievement of CanMEDS competencies as evaluated at different points in their training. It also features self-evaluations and remedial activities. We were interested in assessing the effect of student involvement in competency development during their preclerkship training on their attitude towards direct observations during clerkship.

**Summary of Work:** Junior clerks that were enrolled in the LCDC (N=226) and senior clerks that had not taken the LCDC (N=178) answered an online survey that questioned (1) the level of stress experienced by students during direct observations, and (2) if students tended to avoid direct observations. The two groups were generally comparable in terms of their educational background as well as age and sex distribution.

**Summary of Results:** Compared to senior clerks, a greater proportion of junior clerks reported feeling a high level of anxiety or panic during direct observation of their proficiency at performing a physical examination (9 vs 4%), taking a medical history (17 vs 7%) or performing a technical skill (17 vs 11%). On the other hand, among the clerks who reported anxiety or panic, avoidance of direct observation was more frequent in senior clerks: physical examination (57 vs 15%), history taking (75 vs 21%) and technical skills (30 vs 18%).

**Discussion:** The lower prevalence of anxiety in senior clerks is likely attributable to the clinical experience acquired during the junior clerkship year. The finding that avoidance of direct observation was more frequent in anxious senior clerks than in anxious junior clerks suggests that clinical experience alone does not enable them to overcome the anxiety associated with direct observation.

**Conclusion:** Exposure to constructive feedback on competency development during preclinical training facilitates a positive attitude towards direct observation during clerkship.

**Take Home Messages:** Early feedback on competency development boosts confidence.

## **8N Short Communication: Students in Difficulty**

Location: MR 121 – P1

**#8N1 (133429)**

**Distinguishing three unprofessional profiles of medical students using Latent Class Analysis**

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*Saskia Peerdeman (VUmc School of Medical Sciences, Amsterdam, the Netherlands)*

*Gerda Croiset (VUmc School of Medical Sciences, Amsterdam, the Netherlands)*

*Rashmi Kusurkar (VUmc School of Medical Sciences, Amsterdam, the Netherlands)*

**Background:** Identifying students' unprofessional behaviour is critical, since unprofessional behaviour of physicians is associated with unprofessional behaviour in medical school. Although teachers observe unprofessional behaviour in up to 20% of all students, they only report 3-5%, reflecting the difficulty in evaluating it. Instead of identifying isolated behaviours it might be easier to recognize behavioural patterns to evaluate students' unprofessional behaviour. We therefore aimed to identify patterns in the unprofessional behaviours of medical students.

**Summary of Work:** This study included three steps: (1) Content Analysis to review research articles describing observed unprofessional behaviours, and generating a template of unprofessional behaviours, (2) Latent Class Analysis of unprofessional behaviours mentioned in evaluation forms (collected during 2012-2014 at one medical school), and (3) profile descriptions based on teachers' narrative feedback provided in evaluation forms of 10 students who appeared to be prototypes of their class.

**Summary of Results:** Based on 23 articles an initial template of 93 behaviours was constructed (during coding iteratively extended to 109), which was used to code 232 evaluation forms of 194 students (3.9% students/year). Latent Class Analysis identified three classes: (i) "poor reliability" (43%), (ii) "poor reliability and poor insight" (20%), (iii) "poor reliability, poor insight and poor adaptability" (37%). The distinguishing (latent) factor appeared to be "capacity for self-reflection and adaptability." For each class a profile description was drafted.

**Discussion:** Earlier research has identified a diminished capacity for self-reflection and adaptability as crucial in medical school, since it tends to continue in residency and medical practice, with undesirable consequences for future patients. Further research could lead to specific remediation methods for students from each profile.

**Conclusion:** We identified three unprofessional behaviour profiles of medical students, which seem to

indicate to what extent a student's self-reflection and adaptability is diminished.

**Take Home Messages:** These profiles of unprofessional behaviour might be helpful to improve the evaluation of professional behaviour in medical school.

**#8N2 (134398)**

**"More Harm than Good": Examining Faculty Reluctance to Report Medical Students with Lapses in Professionalism**

**Heather Lochnan\***, *University of Ottawa, Ottawa, Canada*

*Deborah Danoff, McGill University, Montreal, Canada*

*Richard Frankel, Indiana University, Indianapolis, USA*

*J Harry Isaacson, Cleveland Clinic, Cleveland, USA*

*Deborah Ziring, Jefferson University, Philadelphia, USA*

**Background:** Ensuring a high degree of professionalism requires faculty to be willing to report lapses when they occur. Reluctance of faculty to report lapses could represent a missed opportunity to prevent future lapses. This study examines faculty perspectives on barriers to reporting lapses.

**Summary of Work:** Medical and surgical faculty at 4 medical schools were invited to describe the barriers to reporting a lapse in professionalism by medical students. Concept mapping enabled the creation of a collaborative conceptualization of the barriers to reporting based on participants' comments. The responses were reviewed and then a rate (for agreement) and sort (for themes) exercise was conducted. Analysis was done using Concept Systems Inc. project software. Collection of demographic information permitted a comparative analysis

**Summary of Results:** From 191 unique statements, key themes emerged including concern regarding damaging student career and fear of retribution to the faculty ("concern about backlash or a challenge to my opinion"). A strong correlation among male and female faculty was evident. Surgeons rated fear of retribution (toward the reporting faculty) as their highest concern.

**Discussion:** This study regarding barriers to reporting, enables the development of mechanisms to overcome faculty reluctance to report. Comparative analysis permits strategic development of initiatives to address concerns of each specialty. This survey of faculty from 4 medical schools ensures the results are broadly applicable.

**Conclusion:** Faculty reluctance to report professionalism lapses in medical students exists. Fear of retribution to the faculty member is a greater concern to surgeons and may require unique solutions to address this. Internists and surgeons worry about damaging the career of students by reporting and may require education about the benefits of remediation that might prevent future and serious lapses.

**Take Home Messages:** Lapses in professionalism are very likely under-reported due to faculty fears about

the negative impact on the student as well as fear of retribution and career jeopardy.

#8N3 (133196)

**Medical students' feelings of inadequacy during clinical practice**

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*Annalena Lönn*

*Håkan Hult*

*Robert Thornberg*

*Annika Wernerson*

**Background:** The clinical environment is complex and unpredictable. Students meet and interact with both patients and health care professionals. It is inevitable for medical students to experience potentially emotional challenging situations during their clinical education; they meet patients in vulnerable situations, they witness suffering and sometimes death. How do they handle these situations? The present study explores medical students' experiences of emotionally challenging situations during clinical practice and how they handle these situations.

**Summary of Work:** Data were collected from medical students by focus group interviews and written reflections where students were asked about their experiences of emotionally challenging situations during clinical training. Students in their third (n=8) and fifth year (n=6) participated in interviews, and 25 written reflections were included. Grounded theory was used to analyze data.

**Summary of Results:** Students' main concern was found to be feelings of inadequacy. Students in the middle of their education were mainly concerned with fear of not having the knowledge and skills they felt they need in their practical clinical work. Students at the end of their education were more concerned with fear of not being able to handle situations that demands emotional aspects, such as delivering difficult diagnosis or dealing with angry or disappointed patients or relatives.

**Discussion:** The students struggled to find a balance between closeness and professional distance. Their ways of dealing with these feelings were to talk to peers and relatives, close in time to the incident. In some situations, often concerning medical matters, supervisors that they felt confidence in were a support.

**Conclusion:** Students experience a range of emotionally challenging situation during their clinical education. These situations caused students to feel fear of being insufficiently prepared for their future professional role. Support from trusted peers or supervisors to handle these situations were important for coping constructively.

**Take Home Messages:** Many students need support from trusted persons to handle experiences during clinical practice.

#8N4 (132190)

**Following second-time successful medical students into practice**

*Dominic Johnson\*, Newcastle University, Newcastle upon Tyne, UK*

*Bryan Burford (School of Medical Education, Newcastle-u-Tyne, UK)*

*Gill Vance (School of Medical Education, Newcastle-u-Tyne, UK)*

*Phillip Bradley (School of Medical Education, Newcastle-u-Tyne, UK)*

**Background:** A relatively static proportion of students fail the MBBS programme in Newcastle University each year. The majority of these are successful at resit and so proceed to Foundation Programme. Little is known about the implications of first time failure on the students' experience of the repeated final year, and their progression and experience through the Foundation Programme.

**Summary of Work:** Using a mixed methods approach, we are exploring how the experience of failing medical Finals affects students' and Foundation year doctors' self-esteem, professional identity and career choice. Questionnaire data on self-esteem and professional identity was collected from final year medical student and foundation year 1 (F1) populations to compare those who have failed with those who have not. Qualitative interviews have been completed with samples of those who are repeating final year, and those who are now in F1.

**Summary of Results:** Qualitative analysis is ongoing. Initial observations suggest that people who fail Finals experience stages of emotion akin to grief. Whilst self-esteem is effected initially, over time confidence is enhanced by the survival of a difficult experience. Identity as medical students and doctors does not appear to be adversely affected, but respondents do see themselves as different to their peers. Quantitative data will also be discussed.

**Discussion:** Resilience is currently a buzzword in medicine, but little work has studied one of the greatest challenges to a medical student- the failing of the finals examination. This work hopes to develop a theoretical model that describes the experience of failing Finals and to suggest support improvement strategies.

**Conclusion:** Failing finals is a difficult experience for medical students, but not entirely negative, and one is which they appear to undergo significant personal development.

**Take Home Messages:** Support for students who fail examinations should consider the stage the student is at in dealing with their failure.



#8N5 (130655)

**The attitudes and the use of Methylphenidate among health care trainees**

**Tohar Rigler\*** (Soroka Medical Center, Beer Sheva, Israel)

Yair Sadaka (Soroka Medical Center, Beer Sheva, Israel)

Iris Manor (Geha Mental Health Center, Petach Tikva, Israel)

Adi Kalansky (Soroka Medical Center, Beer Sheva, Israel)

Zamir Shorer (Soroka Medical Center, Beer Sheva, Israel)

**Background:** in recent years there has been an increase in the use of prescribed and non-prescribed ADHD medications among students without a diagnosis of ADHD with the intent of improving academic performance. The attitudes and the use of these medications among health care trainees who will be involved in diagnosing and treating children with ADHD deserve specific focus since their current attitudes might influence their future practice

**Summary of Work:** students were evaluated regarding their attitudes, their use of methylphenidate with and without prescription, and for meeting the 18 DSM criteria. Sample of 312 students was taken from medical and psychology students and pediatric residents. Further 133 engineering students were sampled for comparison purposes.

**Summary of Results:** Overall, 22% of all healthcare trainees reported on MPH use to some degree. Healthcare trainees were far less formally diagnosed than engineering students (9% vs. 23%) although tend to meet diagnostic criteria to the same level (20% vs. 21%). They had higher tendency of using medications without formal diagnosis (only 37% of health care MPH users had formal diagnosis vs. 60% among engineering trainees), and they were far more likely to believe that MPH has an effect on people without ADHD (71% vs. 55%)

**Discussion:** These findings suggest that these professionals- to-be are not familiar enough with the diagnosis of ADHD. Hence, while they might use stimulants as cognitive enhancers, they will neglect their use as a treatment of a medical disorder, which might have implications on the form of stimulants treatment as well as the need of other, complementary treatments. It also means that these professionals- to-be are not educated enough as students nor as residents about the subject of ADHD, which has significant implications on their future clinical practice.

**Conclusion:** very high rates of health care trainees report using methylphenidate without appropriate diagnosis and are not educated enough about the subject of ADHD

**Take Home Messages:** Health care trainees should improve their knowledge regarding the importance of appropriate diagnosis and responsible use of methylphenidate

#8N6 (132472)

**Explaining variation on Canadian licensing examinations using medical school performance: A multilevel modeling study**

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Robert Hammond

Lorne Gula

Gary Tithecott

Saad Chahine

**Background:** Predicting student academic outcomes on national licensing examinations is invaluable to medical educators. While studies have investigated the predictive power of key variables on student outcomes, none have been able to draw conclusions using panel data. This study examined medical student data from admissions to graduation, across five cohorts to significantly predict student achievement.

**Summary of Work:** Five cohorts, (2011-2015) of data from a Canadian medical school (n=722) were collected and analyzed using a two-level Multi-Level Model (MLM). In this model, students were nested within cohorts, using performance on the Medical Council of Canada Qualifying Examination (MCCQE) Part 1 as the outcome variable. Through an iterative process, a parsimonious model was developed to account for the greatest variation on MCCQE scores.

**Summary of Results:** Results from our initial model showed significant variation at the cohort level, accounting for 2% of variation and student differences accounting for 98%. Using a stepwise process, the following student variables were not significant predictors: Gender, Location, Graduate Degree, Interview score, MCAT scores and Best Year Undergraduate GPA. The MCAT Verbal Reasoning score, Year 1 and 2 grade average and Year 4 OSCE were all significant predictors ( $p < 0.01$ ). The conditional model accounted for 46% of variation at the student level.

**Discussion:** This study identified several predicting variables at the student level that were found to be significant predictors of the MCCQE scores. The use of multiple cohorts, confirms similar results from other cross-sectional studies.

**Conclusion:** We suggest programs examine these variables longitudinally within curriculum to offer early remediation/intervention to support student success. These clues to learners, entering from diverse pre-matriculant environments, could improve exam outcomes as well as student understanding of content and curricular competencies.

**Take Home Messages:** These results could enable programs to predict future student performance, allowing them to better identify and support under-performance and improve the quality of program graduates and perhaps patient care.

## 80 Short Communication: Interprofessional Education – Undergraduate

Location: MR 122 – P1

#801 (136368)

**The effects of interprofessional simulation on attitudes to interprofessional learning and professional identity: a questionnaire study**

**Gillian Vance\***, Newcastle University, Newcastle Upon Tyne, UK

Paul Greig, Oxford, UK

Clair Merriman, Oxford, UK

Elize Richards, Oxford, UK

Michael Kelleher, Newcastle, UK

Bryan C Burford, Newcastle, UK

**Background:** Simulation offers experience of multi-professional working. However, there has been limited research into its educational benefits. We examined the effects of a simulation experience on students' perceptions of professional identity [PI] & attitudes to interprofessional learning [IPL].

**Summary of Work:** Two questionnaire studies of medical and nursing students were carried out using a pre-post intervention design. Study 1 was in Newcastle, UK. Study 2 included Oxford, UK where session delivery differed & medical students had passed final examinations ('Finals'). Attitudes to IPL were measured with Readiness for Interprofessional Learning Scale (RIPLS) & Professional Identity using validated scales.

**Summary of Results:** Data were obtained from 194 medical [study 1, 88] & 110 nursing students [study 1, 38]. In study 1, scores in RIPLS (Teamwork and Collaboration; Positive Professional Identity) and Strength of Identity increased over the session. Nursing scored higher than medical students in RIPLS and PI subscales. Stronger identity correlated with more positive IPL attitudes. In study 2, RIPLS scores again increased over the session & nursing scored higher than medical students in both RIPLS & PI subscales. There was a fall over the session in PI subscale scores relating to the 'team', & smaller differences between nursing & medical students for team identity scores than those for professional or student group. Newcastle medical students had lower scores than Oxford students in RIPLS subscales (Teamwork and Collaboration; Negative Professional Identity). There were no differences in PI measures.

**Discussion:** A single session enhanced students' attitudes to IPL. Effects on team 'fit' - high levels in anticipation of the scenario falling at the end of the session – were in keeping with clinical practice where transient 'knots' of collaboration are formed. Nursing & medical students post 'Finals' had more positive attitudes, which may reflect active roles in practice.

**Conclusion:** Interprofessional simulation can enhance attitudes to IPL.

**Take Home Messages:** Simulation can support undergraduate interprofessional educational initiatives.

#802 (135241)

**Interprofessional collaboration in a medical school: an oxymoron?**

**Ilse O'Ferrall\***, School of Medicine University of Notre Dame, Fremantle, Australia

Chris Skinner, University of Notre Dame, Fremantle, Australia

**Background:** Health organisations are complex systems made up of individuals with expertise and skills in a range of areas. The benefit of such diversity is realised when multiple perspectives are shared and applied to situations in a creative and positive manner. Nevertheless, problems arise when 'experts' are unable to view problems outside of their own professional reference (Tobin, 1993).

**Summary of Work:** Recruitment of staff in the medical school at UNDA has been shaped by the various value bases and cultural frameworks of competing paradigms. This paper examines the complex challenges associated with competing and different underlying frameworks and values. The competing values framework has assisted in analysing this complexity.

**Summary of Results:** A pilot study exploring language, spiritual and cultural differences will be presented. Characteristics (individual and collective) of effective interprofessional group work together with a practical framework for the facilitation of effective interprofessional group have been considered. An understanding of the complexities underpinning interprofessional group work (e.g., differences in language / terminology use, personality and ego traits, professional frames) was further explored. (Cameron & Quinn, 2005)

**Discussion:** An expectation that the integrated UNDA curriculum be seamlessly presented to students has meant that open and courageous conversations around different paradigms were important in curriculum design and integration.

**Conclusion:** Recognising the importance of various competing paradigms is essential for effective interprofessional collaboration. Failure to recognise and accommodate such differences can inevitably lead to frustration and conflict in the complex medical school environment. A developed facilitative framework can be helpful in dealing with such complexity.

**Take Home Messages:** An open discussion of competing values is essential for effective medical school engagement. A contextually specific framework relevant to particular medical schools' cultures is essential.

#803 (134348)

### Interprofessional Learning: A Cautionary Tale

**Anne-Marie Reid\***, St George's, University of London, London, UK

Shelley Fielden, University of Leeds, Leeds, UK

Janet Holt, University of Leeds, Leeds, UK

Joan McLean, University of Leeds, Leeds, UK

Naomi Quinton, University of Leeds, Leeds, UK

**Background:** IPL is a requirement of undergraduate training (Nursing & Midwifery Council, 2008; General Medical Council, 2009) but is time consuming and resource intensive. This presentation explores the process and both intended and unintended outcomes of delivering large-scale IPL.

**Summary of Work:** The IPL initiative involved 600 first year undergraduates (medical, nursing, midwifery, radiography and social work) in small mixed professional groups and teaching was focused on patient safety, a global health priority (WHO 2015). Quantitative and qualitative data was collected from student evaluation forms and uni-professional focus groups. Quantitative data was statistically analysed and qualitative data analysed thematically.

**Summary of Results:** Statistical analysis demonstrated the value of IPL to all groups. Midwifery students rated the patient safety focus most highly while medical students valued the opportunity to understand others' roles. Thematic analysis revealed four key themes: social roles & culture, stereotypes, perceived value & impact, and content. Findings suggested that students identified closely with their own profession and were sensitive to professional stereotypes from both students and facilitators.

**Discussion:** Although valuable in allowing students to explore effective team-working in patient safety, a number of unintended consequences emerged. Despite training and thoughtful preparation, some facilitators appeared to reinforce notions of hierarchy in the culture of healthcare practice and risked perpetuating some stereotypes.

**Conclusion:** IPL is important, but even with investment in time, training and resources, there is a danger that IPL will reinforce negative attitudes towards other professions which students have already encountered despite limited exposure to practice. A clearer understanding of the impact of facilitation of IPL and role-modelling in practice will help identify more effective ways of developing IPL.

**Take Home Messages:** This presentation highlights the need for curriculum developers to be sensitive to how (and when) IPL is introduced and to consider the skills required of facilitators given the potential for IPL to reinforce negative stereotypes.

#804 (133942)

### Student motivation for interprofessional clinical education, viewed from the perspective of the Self Determination Theory

**Tineke Westerveld\***, University Medical Center Utrecht, Utrecht, Netherlands

Cora Visser, VUmc School of Medical Sciences & VUmc Amstel Academy, VU University Medical Center, Amsterdam, The Netherlands

Gerda Croiset, VUmc School of Medical Sciences, VU University Medical Center, Amsterdam, The Netherlands  
Olle ten Cate, Center for Research & Development of Education, University Medical Center Utrecht, Utrecht, The Netherlands

Rashmi Kusurkar, VUmc School of Medical Sciences, VU University Medical Center, Amsterdam, The Netherlands

**Background:** According to the Self Determination theory (SDT), autonomy (feeling of choice), competence (feeling capable) and relatedness (feeling of belonging) drive autonomous motivation, which in turn can improve performance (1). Enhancing autonomous motivation for IPE might increase its success. This study investigates which elements of a clinical IPE ward influence students' feeling of choice, capability and belonging. (1)Kusurkar et al Acad Med. 2012;87:735-743.

**Summary of Work:** Thirty-six students from medicine, nursing, pharmacy, physiotherapy and dietetics attended a 3-week Internal Medicine IPE ward. Semi-structured interviews were conducted and analyzed with a realist approach. Two researchers independently identified meaningful information in the interview transcripts using open coding. Themes were identified in an axial coding process. Codes expressing autonomy, competence and relatedness were categorized.

**Summary of Results:** Twenty-one students were interviewed: 10 medical, 5 nursing, 2 pharmacy, 4 physiotherapy. Examples of factors that enhanced autonomy, competence or relatedness were: • Supervision aimed at giving students responsibility to contribute to the care plan (autonomy) • Creating situations in which the added value of the professions can be demonstrated (competence) • Dedicated space, facilitating informal contact (relatedness)

**Discussion:** In this clinical IPE ward, students experienced feelings of autonomy, competence and relatedness. The students' own IP team room, the scheduled and structured meetings to discuss patient care plans and the coaching supervision were elements of the IPE setting that enhanced autonomous motivation.

**Conclusion:** Viewing a clinical IPE ward from the SDT perspective offers opportunities to strengthen the learning experience and provides clues for new IPE designs.

**Take Home Messages:** Stimulate autonomy, competence and relatedness in IPE designs to enhance autonomous motivation.

#805 (132611)

**Sustaining a curriculum for interprofessional learning: Strategic development of undergraduate programs in medicine and health**

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*Annika Lindh Falk*, Linköping University, Sweden  
*Madeleine Abrandt Dahlgren*, Linköping University, Sweden

**Background:** Interprofessional education (IPE) and problem-based learning (PBL) have been corner stones of the pedagogy at the Faculty of Medicine and Health Sciences at Linköping University, Sweden since the inauguration in 1986. Global challenges of the changing health care system, institutional challenges of a new generation of teachers, and the increasing numbers of undergraduate students have been incentives to revise the IPE curriculum and think anew in terms of sustainability for the future.

**Summary of Work:** A group of professional health care educators across the faculty, representing all undergraduate programs, collaboratively developed a new interprofessional curriculum including all students: Biomedical Laboratory Science, Medical Biology, Medicine, Nursing, Occupational Therapy, Physiotherapy, Psychology, and Speech and Language Pathology. The process of interaction with critical stakeholders and the phases of educational development was guided by a theoretical model for interprofessional curriculum development (Steketee et al, 2013).

**Summary of Results:** Learning objectives were formulated with progression over three modules within the IPE-curriculum. A fifth competence domain was added, Pedagogy and learning processes, to support the development of competencies for teamwork and quality improvement. The curriculum over three periods, where all undergraduate students in the faculty come together for interprofessional learning activities under three themes, are: I) Professionalism in Health Care, II) Patient Centered Health Care, and III) Professional Perspectives in Collaboration.

**Take Home Messages:** Our ambition is to inspire and contribute to the field of educational development of IPE-curricula and interprofessional clinical practices.

#806 (135901)

**How can medical schools motivate students to understand interprofessional work?**

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*Renné da Silva* (Federal University of Rio Grande do Norte, Natal, Brazil)  
*Luana de Medeiros* (Federal University of Rio Grande do Norte, Natal, Brazil)  
*Ranna Pessoa* (Federal University of Rio Grande do Norte, Natal, Brazil)

*Maria Fernanda Carvalho* (Federal University of Rio Grande do Norte, Natal, Brazil)

*Rosiane Diniz* (Federal University of Rio Grande do Norte, Natal, Brazil)

**Background:** Interprofessional work (IW) is an increasingly relevant aspect of medical education, especially when students progress with their workplace-based experiences. In order to feel part of the environment and understand the importance of interprofessional teamwork, students must be progressively included and assigned important roles in the practice scenarios which they attend.

**Summary of Work:** The Interprofessional Clinical of Heart Failure is an academic clinic where undergraduate students and health professionals develop a collaborative work to approach patients with chronic heart failure. Composed of physician, internal medicine and cardiology residents, physical educator, psychologist, nutritionist and undergraduate medical students, the clinic works once a week since 2008. Undergraduate medical students are responsible for assessing patients' quality of life longitudinally. After all the patients are approached, clinical discussions involving all the members of the clinic are performed, with special emphasis on students' inputs about patients' quality of life.

**Summary of Results:** By assigning medical students the role of assessing patients' quality of life, the clinic not only gives the patients another important perspective of care, but also offers the students invaluable opportunities for the development of clinical skills, such as communication, management of emotions and teamwork. Students also learn how clinical care for chronic patients is not only achieved through medical interventions, and recognize the true importance of other professionals within the healthcare team.

**Discussion:** Undergraduate medical students often struggle to find their roles within an established healthcare team. By assuming a specific task, students become a true and important part of the healthcare team. Also, their opinions are truly valued during the discussions, since quality of life is one of the main outcomes for patients with heart failure.

**Conclusion:** In order to become aware of the importance of IW, students need to be progressively included in workplace environments and exert specific roles. Positive experiences of IW in undergraduate medical education help students develop their professional identities and valorize other professionals' contributions for clinical care.

**Take Home Messages:** Undergraduate medical students can further understand the concept of IW if they are recognized as part of the team, with well-defined and relevant roles.



## 8P Short Communication:

### Assessment: Progress Test

Location: MR 123 – P1

#8P1 (133079)

Designing a programme of assessment: a stepwise approach

**Angelique Timmerman\***, Maastricht University, Maastricht, Netherlands

Joost Dijkstra (Maastricht University, Maastricht, the Netherlands)

**Background:** Assessment of complex tasks integrating several competencies necessitates a comprehensive evaluation. There has been a shift in thinking about assessment from methods to programs, combining several assessment activities to meet assessment purposes. A programmatic design approach is a next step, for which an overarching framework with 73 interrelated guidelines has been developed. Purpose is to develop a practical approach for programmatic assessment design.

**Summary of Work:** All guidelines have been applied to the assessment program of a GP residency training. Data were gathered through stakeholder interviews and analysis of key (legal) documents on which assessment practices are based. A written interpretative summary was made analysing strengths and weaknesses, resulting in themes important for assessment design, which were input for developing the practical approach.

**Summary of Results:** A stepwise design approach has been devised, covering the areas of the overarching framework. Start with outlining the context in which the program has to function (A. Assessment environment/ organisational setting). Second, an initial approach has to be decided on, selecting those guidelines that are relevant (B. Overview and relevance of guidelines). Justification through documenting and underpinning is necessary to evaluate the robustness of design decisions and serve public accountability (C. Justification, expertise and implementation).

**Discussion:** The design and implementation of an assessment programme necessitates a holistic perspective, as all assessment activities are interrelated. The need of acceptance and expertise from stakeholders involved in running assessment activities makes a programmatic design approach always a team effort.

**Conclusion:** It is devised to start with a programmatic approach early in curriculum design, and involve context expertise, while looking at assessment not only as a psychometric design problem, but also as an instructional and organizational design problem.

**Take Home Messages:** Defining what the principal assessment activity is in a specific educational context is starting point for a programmatic design approach and development of a fit-for-purpose assessment programme through iterative cycles of redesign.

#8P2 (135598)

Large-scale computerized adaptive progress testing: individual precision estimates, test-retest reliability and developmental validity

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Jorge Eugenio Valdez García (Instituto Tecnológico y de Estudios Superiores de Monterrey, Mexico)

Cees van der Vleuten (Maastricht University, Maastricht, The Netherlands)

**Background:** Computerized adaptive testing (CAT) consists of a procedure in which an algorithm dynamically selects and administers the most appropriate items depending on previous responses in order to match items' difficulties to examinees' ability. Using a CAT approach for progress testing could potentially increase reliability while decreasing test duration.

**Summary of Work:** Two editions of a computerized adaptive progress test, configured to contain 50 items, have been administered in the same institution within a six-month interval (N = 1149 and N = 1217). Individual precision estimates were calculated based on Rasch model individual standard error estimates. Correlation of scores obtained in both test administrations was used to calculate test-retest reliability. A paired t-test and a Cohen's d coefficient were used to describe the difference of scores for all students who took both tests (N = 882).

**Summary of Results:** Mean reliability of the first test was 0,81 and the mean reliability of the second test was 0,85. None of the individual reliability estimates was below 0,7. Test-retest correlation was 0,67 (p < 0,001). Score increase was significant on the paired t-test (t = 13,505; df = 881; p < 0,001) with a moderate effect size (Cohen's d = 0,37).

**Discussion:** Individual reliability estimates were reasonably adequate, even for beginners and underachievers. Compared to other studies, the psychometric results were satisfactory, especially considering the reduced test length. A larger test could yield better reliability estimates and provide more comprehensive content validity. Students' perceptions and interpretation of scores still need further studies.

**Conclusion:** Computerized adaptive progress testing presented adequate estimates of individual precision, a reasonable degree of test-retest reliability and a significant increase in scores after 6 months, with a moderate effect size.

**Take Home Messages:** Computerized adaptive progress testing can be a reliable and valid solution, which is especially attractive to schools that cannot administer a test to all students simultaneously.

#8P3 (135792)

**A progress test to identify medical students with potential learning difficulties and to predict scores on the Canadian certification exam**

**Robert Gagnon\***, Université de Montréal, Montréal, Canada

Christian Bourdy (Université de Montréal, Montréal, Canada)

**Background:** A formative progress test has been elaborated at the University of Montreal in 2012. It was expected that this procedure could help students to develop a self-learning approach and help them to keep a broader use of medical knowledge.

**Summary of Work:** Medical students were invited to stand a 180 items test on 5 occasions during year 3 and 4. All tests were equated on difficulty level. Two cohorts ( $n = 550$ ) were used to get data on their performance. Data from pre-admission GPA, results on exams (year 1-2), and results on the official Canadian certification exam (Medical Council of Canada part I) were collected. Multiple regression analysis was used.

**Summary of Results:** A strong association between mean scores on all 5 tests and score on the MCC certification exam were observed ( $r = 0.68$ ). When combined with all predictors (GPA, year 1 and 2 scores); multiple R is estimated at 0.73 (explained variance = 53 %). Progress test mean score show the largest partial correlation ( $r = 0.54$ ). Analysis of the profile of students who failed on the certification exam ( $n = 19$ ) clearly shows that this outcome was predictable.

**Discussion:** Progress tests were formative but we know all clerks were fully engaged in doing them. Everyone have received an individual feedback after each progress test so they can adjust their preparation before the next one. Those with difficulties in a special discipline also have been met to help them overcome their deficiencies.

**Conclusion:** The use of progress test is a major asset in the early identification of students who may show difficulties in integrating medical knowledge, which is the essential criteria for medical certification in Canada.

**Take Home Messages:** Using progress testing is a powerful tool for medical schools for early identification of students who may need special attention. It is also an efficient tool for students as self-learners.

#8P4 (134768)

**Influence of curricula on medical students' knowledge acquisition**

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Debbie Jaarsma (University of Groningen and University Medical Center Groningen, Center for Education Development and Research in Health Professions (CEDAR), Groningen, Netherlands)

René A. Tio (University of Groningen and University Medical Center Groningen, Center for Education Development and Research in Health Professions (CEDAR), Groningen, Netherlands)

**Background:** Over the past decades, many medical curricula were changed to improve students abilities to apply their theoretical knowledge to real patient cases. These curriculum changes were expected to affect students' knowledge acquisition and the way they apply knowledge. Therefore, we compared students' knowledge development in four undergraduate medical curricula to better understand the impact of curricular differences on students' knowledge acquisition.

**Summary of Work:** Participants were 1440 medical students from four medical schools. To measure students' knowledge, we used their progress test results from 2008 to 2013. The progress test aims to assess knowledge at end of curriculum level and has the advantage that all students take the same tests four times a year. Questions requiring knowledge application to a case were classified as vignette questions. The other questions were classified as simple questions. We compared the growth of simple and vignette questions using mixed models.

**Summary of Results:** A cubic growth model best fitted our data for both type of questions. Initially, students scored higher on simple than on vignette questions. The initial growth was faster for simple questions whereas the acceleration over time was slower compared to vignette questions. At the end of the growth curve, the acceleration of simple questions decreased faster. Since curricula were significant predictors of both models, we analyzed growth curves per curriculum. The curricula differed in initial score, growth and acceleration but the trend of the curves was similar to the overall model.

**Discussion:** The way students acquired and applied their knowledge was similar in all curricula, but the growth was different for each curriculum.

**Conclusion:** Curricula have an important impact on knowledge acquisition and application.

**Take Home Messages:** Students' ability to apply knowledge increases over time, independent of the curriculum.

#8P5 (133774)

**Objective Structured Clinical Examination (OSCE) used as progress test in a Residency of Family Medicine**

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*Nadia Musarella*

*María Nieves Ganiele*

*Carlos Brailovsky*

*Eduardo Durante*

**Background:** Progress testing is an assessment of all students in different levels of training at regular intervals. These tests are designed to assess the final curricular competences. For each level, participants are expected to obtain increasing scores according to their acquisition of competences. The objective is to evaluate an OSCE for residents of Family Medicine (FM) used as progress test.

**Summary of Work:** we implemented the OSCE-progress test in the FM residency in a University Hospital in Buenos Aires. The purpose was to give students feedback, analyze the profile of residents in each dimension, define the progress of the acquisition of competencies across different years and design possible remedial plans. Reliability, discrimination rates and performance per year per student were calculated. Satisfaction was evaluated by a 5- point Likert scale.

**Summary of Results:** In 2015, 16 residents were assessed in a 14-station OSCE. Cronbach's Alpha coefficient was 0.83. The mean score per year of residency were 72.76 (SD 2.53) for fourth year, 65.05 (SD 2.19) for third year, 55.42 (SD 2.53) for second year and 50.89 (SD 1.96) for first year ( $p < 0.05$ ). Feedback was adjusted to the relative performance of each participant regarding their year of residency. Resident satisfaction grade was 4.3.

**Discussion:** We consider the OSCE- progress test is a powerful guide to the acquisition of competencies and clinical skills during Residency Programme. The provision of feedback based on its results stimulates reflection and deeper learning.

**Conclusion:** OSCE- progress test is useful to assess the acquisition of competences during the residency and give constructive feedback.

**Take Home Messages:** OSCE- progress test reflects the increasing performance for residents during their training.

#8P6 (132542)

**The unskilled are aware: insightfulness when reflecting-in-action**

*Mike Tweed\*, University of Otago Wellington, Wellington, New Zealand*

*Tim Wilkinson (University of Otago, Christchurch, New Zealand)*

**Background:** Clinicians making decisions require the ability to have accurate self-assessed certainty in being correct. Self-assessment and certainty of performance has been measured in various ways, generally showing that those with less experience and lower performance abilities are less accurate. This study investigates measuring certainty using descriptors authentic to practice, as reflection-in-action, for students with a wide range of experience and ability.

**Summary of Work:** Year 2-5 medical students ( $n > 1100$ ) gave certainty in their responses to two iterations of a progress test during one calendar year. Analyses compared correctness for response certainty, student year cohort and performance level, defined by criterion scores.

**Summary of Results:** For both iterations of the test, the number of correct responses increased with student certainty and year group. For any given level of certainty those with more experience and better performance gave more correct responses. Student subsets with less experience and lower performance groups still demonstrated an increase in correctness with increasing certainty. All these results were statistically significant (ANOVA for differences and linearity).

**Discussion:** Unlike previous work we have shown a degree of accurate self-assessment for those with less experience and lower performance.

**Conclusion:** We postulate that our finding of similar increases in correctness with increasing certainty, for all groups, relates to certainty descriptors being worded in a way that is authentic to clinical practice, reflection-in-action.

**Take Home Messages:** 1. Reflection-in-action descriptors are authentic to practice as a better way to document student response certainty 2. Even students in lower year groups and lower performance groups who scored fewer correct in total and fewer correct for any given level of certainty, still demonstrated an increase in correctness with increasing certainty. 3. Using reflection in action descriptors, which are authentic for self-assessment in practice, enable those of lower ability to confirm their appropriate certainty.

## 8Q Short Communication: Postgraduate Education 2

Location: Mr 124 – P1

#8Q1 (133008)

Developing an e-induction passport for doctors in training in the South West of England

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Adam Malin (Royal United Hospitals Bath, UK)

Selena Gray (Health Education England, Bristol, UK)

**Background:** Doctors in training rotate round different organisations, sometimes for short periods of times. Face to face induction and requirements for statutory and mandatory training can be very time-consuming. Streamlining these processes has potential to increase the amount of times junior doctors can spend on direct patient care, particularly important at the key times when new cohorts of doctors start work.

**Summary of Work:** In 2012, the hospital in Bath developed an on line e-induction package that also met all the requirements for statutory and mandatory training, which was completed by junior doctors prior to starting work in the hospital. The package was based on interactive patient scenarios, with in built assessment. In 2015, the e-induction package was implemented in 17 hospitals

**Summary of Results:** Early evaluation demonstrated that 87% of doctors completed the induction prior to and 90% within one month of starting work. Compliance levels with statutory and mandatory training reached 100% within 2 months of starting. There was a reduction in face of face induction time of 90 mins, resulting in an estimated additional 216 hours of availability of junior doctors hours on the first day of work. In 2015, 1244 trainee doctors and 219 non training grade doctors completed the e-induction programme with positive feedback.

**Discussion:** When originally developed, the e-induction package was designed to meet Statutory and Mandatory Learning needs. However, in 2015 it was implemented solely as an e-induction package. Work is now underway to develop the package to meet Statutory and Mandatory Training Requirements. This will allow the development of a passport arrangement, whereby training undertaken in one hospital will be recognized in another.

**Conclusion:** Induction and statutory and mandatory training requirements for junior doctors who rotate through many different hospitals can take up a disproportionate amount of time and remove them from clinical care.

**Take Home Messages:** An innovative interactive e-induction package can reduce face to face induction time and increase the amount of time doctors can provide clinical duties.

#8Q2 (133224)

What if Surgical Residents and Engineering Students Cooperate in Carrying Out a Joint Research Project into Computer-Assisted Orthopaedic Surgery? An Exploratory Study of University Surgeons' and Engineers' Views

**Olivier Cartiaux\***, Université catholique de Louvain, Brussels, Belgium

Pascale Wouters (Université catholique de Louvain, Louvain-la-Neuve, Belgium)

Olivier Cornu (Cliniques universitaires Saint-Luc, Brussels, Belgium)

Mariane Frenay (Université catholique de Louvain, Louvain-la-Neuve, Belgium)

**Background:** With the advance of digital technologies, surgeons have to work closely with engineers to meet their constantly-evolving clinical needs. This study explores the way surgeons and engineers involved in university training view the possibility of cooperation between orthopaedic residents and engineering students in carrying out a joint research project.

**Summary of Work:** The study involved semi-structured interviews with 4 surgeons and 3 engineers experienced in providing research training into computer-assisted surgery (CAS). Data collected on the research training practice and on situations where there is potential for a surgeon/engineer cooperation were analysed according to an existing collaborative research model.

**Summary of Results:** Participants identified hindrances to an effective training in research into CAS: the lack of added-value in scientific/surgical terms, difficulty in offering trainees the intensive support they need, and the unhelpful tendency to form a mere client-producer relationship. Participants identified preconditions that must be fulfilled before starting a research project involving cooperation between orthopaedic residents and engineering students: reaching a consensus on the research goals of the joint project, ensuring a positive interdependence between trainees, guaranteeing that the mentors engage with the trainees' research/training goals, and supplying scientific evidence to demonstrate the benefit of working and learning to work together.

**Discussion:** The results could be used to initiate a process of collaborative research-action and develop initial criteria for an operational surgical/engineering cooperation framework to train orthopaedic residents and engineering students in research.

**Conclusion:** Surgeon/engineer cooperation is a necessity that requires an operational framework to be developed for training in research of orthopaedic residents and engineering students who will be creating future surgical innovations.

**Take Home Messages:** Surgeon/engineer cooperation is a necessity that requires an operational framework to be developed for training in research of orthopaedic residents and engineering students who will be creating future surgical innovations.



#8Q3 (132496)

**Junior doctors changing complex hospital settings:  
An activity-theoretical analysis**

*Mads Skipper\*, Aalborg University Hospital, Aalborg, DK and CESU, Aarhus University, Aalborg, Denmark*  
*Peter Musaeus (CESU, Aarhus University, Denmark)*  
*Susanne Nøhr (Department of Clinical Medicine, Aalborg University and Aalborg University Hospital, Aalborg, Denmark)*

**Background:** The hospital setting comprises a complex working environment under constant change. This explorative case study employs Cultural-Historical Activity Theory (CHAT) to investigate junior doctors' perspectives on workplace learning and organisational change at Aalborg University Hospital, Denmark, derived from an institutionalised innovative process (3-hour-meetings).

**Summary of Work:** Data consisted of records (1062 word pages) of 1886 junior doctors' reflections and action plans for change from the yearly 3-hour meetings during the period 2006-2014. Records were analysed using a CHAT analytical tool called 'Change Matrix', which focuses on the object of change and assisted us in the analysis of change events taking place through the years as well as structural and cultural barriers.

**Summary of Results:** Junior doctors were successful in changing the learning objects by being instrumental in changing division of work, rules and their learning environment supported by management. Four themes relating to junior doctors' workplace learning were found: Supervision, skills acquisition, participation and continuity. Contradictions and central problems in the activity systems were delineated e.g. lack of resources.

**Discussion:** CHAT provided us with an analytic tool to identify and redefine the objects of activity and the positive as well negative organisational structures surrounding complex work practices. The historical analysis showed how changes in patients care pathway from in-patient care to out-patient care and educational reforms challenged how and where junior doctors participate in medical work as participants in specialist training.

**Conclusion:** CHAT is helpful in analysing the complexity of hospital workplace learning, amongst others by identifying organisational contradictions and tensions.

**Take Home Messages:** To redesign hospital workplace learning junior doctors are important contributors and they can often perceive the need for change, as they are experiencing first-hand the often conflicting demands of care and learning. Innovative methods of change interventions that include stakeholders and incorporate methods aligned with action research or in CHAT e.g. the Change Laboratory, could be recommended.

#8Q4 (132452)

**Disciplinary boundaries and integrating care: using Q methodology to understand trainee views on being a good doctor**

*Lynne Allery\*, Cardiff University, Cardiff, UK*  
*Esther Muddiman, Cardiff University, UK*  
*Alison Bullock, Cardiff University, UK*  
*Janet MacDonald, Cardiff University, UK*  
*Katie Webb, Cardiff University, UK*  
*Lesley Pugsley, Cardiff University, UK*

**Background:** Rising numbers of patients with multiple-conditions and complex care needs (Greenaway 2013) mean that it is increasingly important for doctors from different specialty areas to work together, alongside other members of the multi-disciplinary team, to provide patient-centred care. However, intra-professional boundaries and silos within the medical profession may challenge holistic approaches to patient care (Liberati et al. 2016). A better understanding of the views and perspectives of medical trainees from different specialty areas may help us to identify how to bridge disciplinary gaps and foster interdisciplinary work.

**Summary of Work:** We report Q-sort data and associated factor analysis (Watts and Stenner 2012) from post-graduate trainees (n=38) from a range of different specialty programmes. We explore whether trainees from different specialty areas have distinct views on what makes a good doctor.

**Summary of Results:** Despite high levels of overall commonality, three groups of trainees emerged, each with a distinct perspective on being a good doctor. Key differences relate to characteristics of patient-centredness, generalism and specialism.

**Discussion:** Our results show some divergence between those trainees planning to become specialists in a particular body area/system, compared to those seeking a career in primary care or specialising in a particular type of patient (e.g. paediatrics). However, our analysis also recorded high levels of similarity between groups, suggesting a high degree of shared values and priorities amongst these trainees.

**Conclusion:** Whilst distinct, the priorities and values of trainees in this study share some important aspects, which can be built on in a way that enhances interdisciplinary working.

**Take Home Messages:** A nuanced understanding of trainee views on being a good doctor, across different specialties, may help us to bridge gaps and foster interdisciplinary working.

#8Q5 (132140)

**Mentorship of quality improvement experiential projects in resident training: Faculty perceptions and experiences**

*Joanne Goldman\*, University of Toronto, Toronto, Canada*

*Jeannette Goguen (University of Toronto, Toronto, Canada)*

*Leahora Rotteau (University of Toronto, Toronto, Canada)*

*Elaine van Melle (Royal College of Physicians and Surgeons of Canada, Ottawa, Canada)*

*Ayelet Kuper (University of Toronto, Toronto, Canada)*

*Brian Wong (University of Toronto, Toronto, Canada)*

**Background:** The Co-Learning Quality Improvement (QI) Curriculum has the dual aim of teaching QI knowledge and skills to medical residents and faculty, as well as increasing faculty capacity to mentor and teach QI. A core element of this one-year curriculum, as in other QI training programs, is an experiential project. This study aimed to explore faculty's perceptions and experiences mentoring residents' projects from 2012-2015 to increase our empirically based understanding of this teaching approach and the factors that influence its overall effectiveness.

**Summary of Work:** This study used an interpretive approach in the data collection and analysis of 36 qualitative interviews with 28 faculty from 13 subspecialty graduate medical education programs who participated in the Co-Learning QI Curriculum. A conventional content analysis approach was used.

**Summary of Results:** The findings demonstrate that faculty discussed the QI project in relation to the topic being 'resident' versus 'division' driven and as a contained one-year initiative versus a component of a longer-term initiative. Faculty described successful and missed opportunities for interprofessional collaboration in the QI work, and variation in explicit attention to this issue. The findings also demonstrate the insights faculty gained over time in their mentorship role such as managing group dynamics and faculty leadership in topic selection and project progress.

**Discussion:** This study contributes insights to the empirical data of how experiential projects intended to support QI learning are carried out in practice, and the range of learner, faculty and organizational factors that shape this process.

**Conclusion:** A deeper understanding of the factors shaping the QI experiential project experience can optimize the use of this learning approach for QI training.

**Take Home Messages:** This study illuminates the learner, faculty, interprofessional and organizational factors that need to be considered as part of a QI experiential learning project.

#8Q6 (134052)

**Does a pre-visit, document-based review predict program quality? A pilot project of Canadian postgraduate medical education (PGME) accreditation**

*Sarah Taber\*, Royal College of Physicians and Surgeons of Canada, Ottawa, Canada*

*Anurag Saxena (University of Saskatchewan, Saskatoon, Canada)*

*Loni Desanghere (University of Saskatchewan, Saskatoon, Canada)*

*Kenneth A. Harris (Royal College, Ottawa, Canada)*

*Margaret Kennedy (Royal College, Ottawa, Canada)*

*Jason R. Frank (Royal College, Ottawa, Canada)*

**Background:** Accreditation of Canadian PGME programs involves both review of program documentation and an onsite peer review. However, the need for every program to have the onsite review was unclear. We conducted a randomized educational trial of paper versus onsite review of PGME programs at three Canadian medical schools undergoing accreditation.

**Summary of Work:** We set a priori rules to review programs' documentation for eligibility for exemption from onsite review; 178 programs were evaluated. 51 programs were automatically scheduled for onsite review; 127 were reviewed for exemption. 40% (28/71) of the programs recommended for exemption were then randomly selected for onsite review. We then compared the accreditation outcomes of programs as determined by onsite and document review. Sensitivity and specificity were calculated, for the ability of the document-based review to accurately predict the onsite review outcome.

**Summary of Results:** Document review had 80% sensitivity and 36% specificity when onsite review was used as the gold standard. The positive predictive value was 21%; the negative predictive value was 89%. Accuracy was 42.5%. 79% (44/56) programs identified as needing onsite review received a positive accreditation outcome (RS). 11% (3/28) of the randomly selected onsite programs received a negative accreditation status; two had serious concerns regarding the learning environment.

**Discussion:** Onsite program exemption was associated with modest accuracy, specificity and positive predictive value; several programs that could have been exempted were not, resulting in duplication and decreased efficiency. In addition, while associated with relatively high sensitivity and negative predictive value, the document review process resulted in some programs with serious concerns being recommended for exemption.

**Conclusion:** A document-based review cannot replace onsite reviews in the Canadian accreditation process.

**Take Home Messages:** The value of onsite review is espoused in medical education accreditation; this study was the first to examine effectiveness of another method as compared with the onsite visit, with implications for accreditation systems worldwide.

## #8S Conference Workshop: 20 Years of PBL: Challenges faced and lessons learnt (135373)

Location: MR 127 – P1

*Carol Ditchfield\**, University of Glasgow, Glasgow, UK  
*Joanne Burke\**, University of Glasgow, Glasgow, UK

**Background:** In 1996, the University of Glasgow Medical School implemented a new curriculum with Problem-Based Learning (PBL) at its core in response to GMC recommendations. This established Glasgow as one of the first schools in the UK to adopt this approach. PBL is now widely used in medical schools across the world and each setting has developed its own particular approach. Following 20 years of experience in Glasgow, PBL remains an important component of the early phases of the course but it has evolved in response to a number of challenges and developments in medical education. This workshop aims to discuss the difficulties faced in both implementing and maintaining PBL in the curriculum, with examples of how these challenges were addressed over the past 20 years.

**Structure of Workshop:** The workshop will be led by two experienced facilitators who were developers of the original 1996 PBL centred curriculum and who continue to deliver and quality assure the current programme. The workshop format will consist of a brief introductory session leading into focused, interactive, small group participant-centred activities. In particular, the challenges of writing cases, consistency in delivery, integration with the course, assessment and managing student expectations will be addressed. Challenges and solutions will be discussed to allow participants to collaborate and identify practical solutions to common concerns.

**Intended Outcome:** By the end of the session participants will be able to: • describe the core components that are essential for PBL • understand the common obstacles faced when implementing a PBL programme • suggest appropriate practical solutions to PBL challenges • describe possible ways to evolve a PBL curriculum

**Who Should Attend:** This workshop is appropriate for participants who are starting to use PBL in their courses or for those who are investigating ways to improve and evolve an existing PBL course.

**Workshop Level:** All levels

## #8T Conference Workshop: Create interactive and engaging learning resources focusing on the use of biomedical images in your teaching (134920)

Location: MR 128 – P1

*Stephanie Dowdell\**, UNSW Australia, Sydney, Australia  
*Nicholas Hawkins\**, University of Queensland, Brisbane, Australia

**Background:** Online education resources and technologies play a large role in today's learning, but creating and finding resources is time-consuming. The BEST Network ([best.edu.au](http://best.edu.au)) is a collaboration of academics committed to working together to solve this challenge. Our goal is to improve our student's educational experiences by developing and sharing next-generation biomedical teaching resources.

**Structure of Workshop:** 1. Introduction to the BEST Network and its tools, including the Slice image bank and the Advanced eLearning Platform (AeLP), an authoring platform licenced from Smart Sparrow. Slice contains over 18,000 biomedical images, ranging from whole slide microscopic images, through macroscopic images of normal and abnormal tissues and organs, to diagnostic radiology collections and more - all ready for use with interactive annotation tools. The authoring platform lets you use create your own online lessons, or use or adapt a public library of ~200 tutorials. (30 minutes) 2. Instruction on the setup of a variety of teaching activities that make use of Slice images. You will learn to create annotated images to share with your students, run activities where individual students annotate, and participate as a group in the real time annotation of an image, in the same manner that you could with your students. (45 min) 3. Instruction on how to integrate images from Slice into online lessons using AeLP, and on how to provide instant feedback to your students. (45 min)

**Intended Outcome:** \* Gain access to ready-made resources for biomedical education \* Be able to set up a variety of exercises using biomedical images \* Know the basics of the Smart Sparrow platform \* Be able to create learning activities to assess student understanding and provide feedback

**Who Should Attend:** This workshop is applicable to teachers of biomedical science. You should bring your own laptop or tablet.

**Workshop Level:** All levels

**#8U Conference Workshop: Auditing residency programs aiming for continuous quality improvement and good governance: challenges and opportunities (133987)**

Location: MR 129 – P1

*Jacqueline Mooij\**, University Medical Center, Utrecht, Netherlands

*Anneloes Berns\**, University Medical Center, Utrecht, Netherlands

*Edith ter Braak\**, University Medical Center, Utrecht, Netherlands

**Background:** Institutional self-evaluation is an indispensable component in quality improvement of medical education according to the World Federation For Medical Education (WFME). In the Netherlands auditing of residency programs on an institutional level is considered mandatory as reflected by applicable external regulations and the responsible supervisory body. In the University Medical Center Utrecht we perform internal audits by peers as part of a comprehensive institutional program for quality improvement (QI) and quality assurance (QA). All of our 37 residency training programs participated in an audit over the last three years. In this interactive workshop we offer suggestions for implementation of internal audits for residency programs by demonstrating tools and procedures and sharing insights gained from hands on experience.

**Structure of Workshop:** 1. Brief introductory presentation of our methods, actions and results over the past three years. 2. Practical exercise in small groups: participants get acquainted with different audit situations based on real cases and discuss the pro and cons of possible approaches. 3. Full group exchange of highlights of each subgroup's discussion. 4. Finally we offer 'tips and tricks' to implement audits successfully. Throughout the workshop participants are invited to share their experiences and comment from their own national and cultural perspectives and professional backgrounds.

**Intended Outcome:** Participants: - get acquainted with a practical and systematic approach to internal audits for residency programs. - understand aspects that need special attention and choices to be made concerning introducing audits. - are equipped with practical tips and tools helpful when implementing this type of audit in their own institution.

**Who Should Attend:** Program directors, residents, medical educators and administrators responsible for or interested in the design and implementation of audits for residency programs. Insights may be applicable in other situations such as rotations for other trainees.

**Workshop Level:** Intermediate

**#8V Conference Workshop: Understanding and Addressing Today's Wicked Problems (135927)**

Location: Mr 130 – P1

*Anita Glicken\**, University of Colorado School of Medicine, Denver, USA

**Background:** "Some problems are so complex that you have to be highly intelligent and well informed just to be undecided about them." In 1973, Horst Rittel and Melvin Webber first identified a type of problem that failed to respond to traditional approaches to problem solving. This workshop introduces a concept known as "wicked problems". "Wicked problems" are issues that force us to reframe our notions about problems and solutions, including expectations for strategic planning. Drawing on complexity theory, this concept challenges traditional approaches to problem-solving by exploring the nature of complex problems. Notably wicked problems are viewed in the context of potential solutions with recognition that solutions are neither right nor wrong.

**Structure of Workshop:** Following a brief introduction, participants are introduced to the concept of "wicked problems" in our rapidly-changing health care and education systems. This workshop will guide participants through a series of interactive exercises designed to increase awareness of the complexity and potential approaches to wicked problems. Strategies for coping with wicked problems are addressed, including activities designed to engage home institutions in a dialogue about these issues.

**Intended Outcome:** Participants will leave the workshop with new perspectives on leadership, problem formulation and resolution. Participants will recognize and describe defining characteristics of "wicked problems" as well as strategies for coping with varying degrees of "wickedness".

**Who Should Attend:** Any one interested in building collaborative problem solving, strategic planning and leadership skills.

**Workshop Level:** All levels



**#8W Conference Workshop: Towards a More Efficient and Safer Global Flow of Well-Trained Medical Doctors (135723)**

Location: MR 131 – P1

**Margaret Lambert\***, St. George's University, St. George's, Grenada

**Calum Macpherson\***, St. George's University, St. George's, Grenada

**Background:** Medical Regulatory bodies throughout the world struggle to assess the quality of medical education of almost 3,000 medical schools to protect their citizens while ensuring enough medical doctors are allowed into the country to meet health manpower needs. Due to the overwhelming importance of this task, and the fact that medical education is ever-changing as science and the philosophy of education change, these bodies are crafting more and more restrictive and reactive stipulations about the core medical degree of applicants for registration which may hinder the free flow of physicians while doing little to protect the public.

**Structure of Workshop:** We will query the audience for their most challenging problems and solutions in order to spark a discussion on the types of restrictions concerning their medical education imposed on doctors seeking registration, the reason for these restrictions, and their ultimate efficacy in assessing medical education. We will also provide examples. We will lead a discussion on intended and unintended consequences of the various individual stipulations.

**Intended Outcome:** We believe that through discussion, we will elicit the realization that disparate, reactive, and prescriptive regulations imposed by overworked and underfunded governmental agencies may not be the best way to fully assess a person's medical education. We will elicit the concept that countries' regulatory bodies accept the decisions of world-recognized accreditation bodies who spend months reviewing a particular medical school and assess them against rigorous standards.

**Who Should Attend:** This workshop is designed for medical school administrators involved in academic advising, career counseling, alumni affairs, placement, and tracking; medical regulators, those involved in making policy for the regulation of medical doctors, members of accreditation bodies, and anyone interested in the free movement of well-trained doctors around the world.

**Workshop Level:** Intermediate

**#8X Conference Workshop: A Practical Approach to Improving Institutional Professional Behavior (131546)**

Location: MR 132 – P1

**Kevin Dorsey\***, SIU School of Medicine, Springfield IL, USA

**Nicole Roberts\***, CUNY School of Medicine, New York, USA

**Background:** The culture of a medical school is created by attitudes and behaviors of those working and studying there. Faculty exert a powerful influence on culture and they serve as role models for learners. While most faculty behave professionally, those who do not disproportionately impact the learning environment. Students remember their actions, either as behaviors to avoid, or as behaviors that "got results". How can an institution monitor/ improve its culture?

**Structure of Workshop:** After a brief introduction, participants will discuss in small groups, followed by a report out and facilitated discussion. They will determine for their institution: who will be surveyed, how those reporters will be protected, who will meet with those identified as behaving unprofessionally, how they plan to monitor behavior longitudinally, and to what administrative body they will report their findings.

**Intended Outcome:** Participants will develop a concrete plan for their institution to identify and monitor faculty/ staff professional behavior which can be implemented during the current academic year. Faculty whose behavior is identified as unprofessional can receive feedback and be coached to improve specific behaviors. Participants will be offered the opportunity to discuss their progress, questions, and comments via the blog <https://medicalschoolprofessionalbehavior.wordpress.com/>

**Who Should Attend:** The workshop is aimed at faculty who see a need to improve the professional behavior and learning environment at their institution.

**Workshop Level:** Introductory

**#8Y Conference Workshop: New frontiers: evaluation and training using cognitive simulations (134477)**

Location: MR 133 – P1

**Usha Satish\***, Dept Of Psychiatry, Syracuse, NY, USA  
**Heidi Chumley\***, American University Of The Caribbean, St Martin, Netherlands Antilles  
**Satishkrishnamurthy\***, Dept Of Neurosurgery, Syracuse NY, USA  
**Tina Foster\***, Geisel School Of Medicine At Dartmouth, Lebanon, NH, USA  
**Robert Englander\***, University Of Minnesota Medical School, Minneapolis, MN, USA

**Background:** Medical education is continuously evolving and requiring dynamic evaluation and training tools. We have developed and are using a novel cognitive simulation methodology to enable better process learning in medical students and postgraduate trainees. These simulations are well-validated and correlate with real-world functioning, especially in unpredictable, ambiguous, and complex situations. Today's complex health care systems requires well trained professionals with well integrated professional capacities.

**Structure of Workshop:** There will be three short theory bursts which will take a deep dive into the uses of cognitive simulation along the continuum of UME and GME. These talks will focus on the frontiers of learning in medical schools, graduate education and the use of EPAs. Following this all participants will be given the opportunity to work with the cognitive simulations and debrief the experience in small group sessions.

**Intended Outcome:** Participants will understand the underlying concepts of cognitive simulation and presented with data on its successful applications in undergraduate and post graduate medical education. Key cognitive elements required for critical learning skills in medicine will be outlined and discussed. We will explore the concept of metacognitive skills and its significance in various evaluation methods including Entrustable Professional Activities (EPAs), a new framework for assessment across the continuum.

**Who Should Attend:** Faculty, learners, administrators; those interested in novel uses of simulation and technology; those interested in how health professionals think and learn.

**Workshop Level:** Introductory

**#8Z Conference Workshop: How do we identify and foster talent in medical schools? (133222)**

Location: MR 134 – P1

**Mette Krogh Christensen\***, Centre of Health Sciences Education, Faculty of Health, Aarhus University, Aarhus, Denmark  
**Sayra Cristancho\***, Centre for Education Research & Innovation & Department of Surgery, Health Sciences Addition, Schulich School of Medicine & Dentistry, Western University, London, Canada  
**Rune Dall Jensen\***, Centre of Health Sciences Education, Faculty of Health, Aarhus University, Aarhus, Denmark

**Background:** Talent is highly regarded in high performance sports as a key feature for athletes to succeed. In medicine, talent is not a commonly held conversation, even though, medical students are usually identified as high achieving, internally motivated individuals. We suggest that bringing talent into the conversation of medical education research, will help us enrich how medical schools design selection processes. In this workshop we will bring awareness into the notion of talent from sports science research and invite discussion around how to embrace talent identification and development in medicine. The participants in this workshop will gain a better understanding of the notion of talent across different professional contexts. Furthermore, the workshop will encourage participants to share their personal experiences and practices in identifying and selecting talented medical students. Finally, the workshop aim to extent participants' repertoire of strategies in identifying and fostering talent at their institutions.

**Structure of Workshop:** The latest research on talent identification and development will be presented and discussed. Participants will engage in an exercise including moderated focus group interview, poster production, and group discussions regarding how to identify, recruit, and develop talents at their institutions.

**Intended Outcome:** At the end of this workshop, participants will be armed with new strategies for securing and fostering talents at their institution, and a distinct plan for how, when, and where they can apply their new strategies.

**Who Should Attend:** Teachers, clinical supervisors, program directors, and other professionals with an interest in fostering talent in medical schools.

**Workshop Level:** Introductory

## #8AA Conference Workshop: It's not the same everywhere: Designing hidden curriculum projects with culture in mind (134195)

Location: M 215 + 216 – M2

**Ming-Jung Ho\***, National Taiwan University, Taipei, Taiwan

**Fred Hafferty\***, Rochester MN, USA

**Paul Haidet\***, Pennsylvania State University, University Park, PA, USA

**Background:** While the hidden curriculum accounts for most of medical students' learning, there have been few hidden curriculum research projects that take into consideration cultural differences across institutional and national contexts. The purpose of this workshop is to help medical educators to design hidden curriculum projects with cultural context in mind.

**Structure of Workshop:** The workshop will begin with a short presentation about the hidden curriculum, followed by a case study from an Asian cultural context. Participants will then engage in table exercises and small group discussions identifying potential hidden curriculum projects and facilitate the consideration of cultural factors in project design. Small groups of educators will work together and share the results of their exercises among all workshop participants. Once this process is complete, the larger group of participants will brainstorm collaborative hidden curriculum research projects that might be implemented across their respective institutions and cultures.

**Intended Outcome:** We envision that participants will:  
-Advance their knowledge of the hidden curriculum -  
Design hidden curriculum projects -Identify cultural factors that might affect hidden curriculum projects -  
Network with educators who have similar research interests, leading to potential collaboration on future hidden curriculum research projects

**Who Should Attend:** This workshop will be of interest to medical educators who are interested in designing and implementing projects related to hidden curriculum that are responsive to local contexts and cultures.

**Workshop Level:** Introductory

## #8BB Conference Workshop: Hacking MedEd Learning Spaces (144292)

Location: M 211 + 212 – M2

**Kimberly Northrip\***, University of Kentucky, Lexington, USA

**Rob Rogers\***, University of Kentucky, Lexington, USA

**Background:** This highly interactive workshop seeks to challenge medical educators to re-think spaces and tools commonly used in med ed. If, as McLuhan said, the medium is the message, the spaces and tools we use need significant re-thinking as we prepare 21st century learners to enter their professional work spaces.

**Structure of Workshop:** We begin with a brief discussion of typical space arrangements in medical education including the clinic, the classroom, the hotel ballroom, the simulation center. We will include an analysis of these spaces and their appropriateness for different educational goals based upon generally accepted principles of adult learning theory. We will then include a highly interactive discussion and a rearrangement of the space to more adequately fit needs of different scenarios. The objective for this part of the discussion is to hack an inappropriately suited space into one that meets the needs of this workshop as determined by the learners and facilitators. Often dictated by space, learning tools are necessary components of an impactful experience. We will begin the second part of our workshop with a discussion of general, discipline-agnostic tools for teaching, and the spaces in which they are most appropriate. This will include a brief discussion of educational psychology and memory management and how traditional Powerpoint slides are not always adequate to meet a learning goal. We will look at polling methods (Twitter, Pollev, SMS), survey tools, flash card builders, and a visual-based programming language (MIT Scratch). We will discuss methods for interactive sharing that can be hacked together with a few simple pieces of equipment. Lastly, we will discuss the merits of these new methods and question whether or not each is pedagogically sound.

**Intended Outcome:** \* Reorganize the space into an environment more suitable based upon learning goals; \* Identify appropriate learning environments for your learning goals; \* Identify at least one new strategy/tool to introduce interactivity in your learning environments.

**Who Should Attend:** Medical educators, instructional designers, and course/program directors

**Workshop Level:** Intermediate

## 8CC Posters: Humanities/Empathy

Location:

#8CCo1 (135974)

**Medical humanity, too young to learn? — Interactive medical humanity case-study class for year 1 medical students**

**William Huang\***, National Yang-Ming University, School of Medicine, Department of Urology, Taipei, Taiwan  
Ling-Yu Yang  
Yun-Jong Huang

**Background:** Competency in medical humanity is crucial for students to develop high quality ability of interpersonal skills and communication. In the traditional medical curriculum for 6-year program, Year 1 students are graduates of high school and starters in learning basic core university liberal arts contents. They have almost no experiences in clinical encounters, and are thought not ready to discuss clinical cases with hospital context.

**Summary of Work:** We report on our preliminary experiences to use interactive case-study method in learning of medical humanity for the young medical students. The course started with 8 core lectures covering different aspects of humanity, and followed by one field trip to hospital to observe the work of physicians, nursing staff and personnel of the other disciplines. The later half of the course is consisted of 5 interactive case-study using scenarios of hospital context. The case triggers are dispatched to students sequentially along the discussion. The teacher plays the role to lead the case-study, and, when necessary, to give 1-min explanation to medical term, specific disease, or clinical context when necessary. In some case-study discussion, we allow to include some senior medical students in the class.

**Summary of Results:** The students felt the course interesting and had little barrier in learning the objectives of medical humanity through using hospital context even though they had no prior knowledge of clinical contents or experiences in hospital. The senior medical students felt it also feasible for them, and found no difficulty to discuss with young students with no prior clinical rotation experiences. The course has been ranked one of the 2 most popular courses in the university according to students' feedback.

**Discussion:** Having background knowledge of clinical and hospital setting is helpful, but this should not be a barrier to young students.

**Conclusion:** Learning concept and philosophy of humanity should have no limitation in learners' age.

**Take Home Messages:** Year 1 students are not too young to learn medical humanity course if the course is given in a student-centered way. Interactive case-study is a feasible choice.

#8CCo2 (135969)

**Using reflection & digital stories to counteract the culture of overuse in medicine and enhance the patient/provider relationship**

**Daniel Nicklas\***, University of Colorado School of Medicine, Aurora, USA

Lindsey Lane (University of Colorado School of Medicine, Aurora, USA)

Jason Owens (University of Colorado School of Medicine, Aurora, USA)

Janice Hanson (University of Colorado School of Medicine, Aurora, USA)

**Background:** The Lown Institute is a grass roots organization whose vision includes that patients are safe from unnecessary diagnosis, treatment, and harm, and where patient's wishes are respected by their caregivers (RightCare). The Department of Pediatrics incorporates narrative and/or digital story telling in resident curriculum to engage learners in reflective practice around the humanistic components of patient care.

**Summary of Work:** Four EPAC (Education in Pediatrics Across the Continuum) students and 2 residents created single-photo digital stories that depict patient experiences that illustrate problems of overuse in medicine and how "RightCare" approaches in the context of strong patient/physician relationships can make a positive impact for patients and families. Subjects participated in small group discussions and self-directed learning focused on: A) The prevailing culture of overuse in medicine, B) What "RightCare" means, and C) The relationship between compassion, communication, the patient/physician relationship and shared decision-making for "RightCare" in healthcare. These subjects then created a single digital story during a three-hour digital storytelling workshop facilitated by the Center for Digital Storytelling.

**Summary of Results:** Six digital stories were shown during "Pediatric Movie Night" at Children's Hospital Colorado to an audience of 48 faculty, residents, students, and staff. Story themes included: Possible overuse, underuse, and misuse (often ambiguous) of medicine (5/6 stories); a bond made between clinician and patient or patient's family (4/6); possible absence of connection between provider and patient (3/6); an event that triggered a reaction/emotion within the provider (6/6); provider empowerment (recognition that they can have a positive impact on patient care) (5/6).

**Discussion:** Qualitative analysis of themes of the stories showed reflection on interactions with RightCare led to a preponderance of provider self-awareness, which included an evoked reaction/emotion within the provider and a sense of empowerment.

**Conclusion:** Self-reflection using digital stories leads to a process of self-awareness. After initial purchase of tools and expertise to build stories, it is a sustainable process that may effectively lead to changes in behavior. We will conduct focus groups and follow up surveys with audience members to this end.



**Take Home Messages:** Digital stories around RightCare lead to an increase in provider self-awareness, which often includes a sense of empowerment.

#8CC03 (135407)

**How are The Tutorial Scenarios of Problem-based Learning Reflecting the Bioethics Humanities' Attitude?**

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**Background:** An understanding of bioethics and medical humanities is an absolute provision that should be known by medical students to make and conduct a proper decision. One of the competency of ethics is taking ethical decisions. However, student still encountered difficulties to do it. These may caused by that competency has not been taught and practised in each scenarios. This condition make the students was not skilled enough for determining ethical decisions because they were not accustomed to take it. Study on learning of bioethics is still limited in Indonesia. Starting from these problems, the authors want to analyze the tutorial scenario in reflecting an attitude of bioethics and humanities.

**Summary of Work:** The study was a qualitative study. It used content analysis techniques to examine the 74 tutorial scenarios from 25 blocks at Medical Faculty UNS.

**Summary of Results:** From all scenarios, the sense of bioethics and humanities attitude was found implicitly. Only in one block, that was Bioethics block, which told the ethical decision in explicit way. In addition, it was found that many tutors were not aware of the ethical aspects from the scenario.

**Discussion:** The minimal reflections of bioethic and humanities competency could result directly to the students. First, the learning objective of the scenario did not contribute bioethic and humanities topic. The second is the tutor could not lead the student in practising to make decision. Because of those, the student would be more difficult to understand how to decide a proper attitude ethical decision.

**Conclusion:** Though the reflection of attitude bioethics and humanities were not optimal in tutorial activity, the existing scenarios have been reflected that competency implicitly and explicitly.

**Take Home Messages:** All scenarios should contain the topic of bioethics and humanities to be their learning objective. Tutor need to encourage the student in order to make them familiar with ethical attitude and decision.

#8CC04 (132790)

**Western and Chinese medicine students' differing perceptions of narrative medicine during an internal medicine clerkship**

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*Hsu-Min Tseng (CGU, Taoyuan, Taiwan)*

*San-Jou Yeh (CGMH, Taoyuan, Taiwan)*

*Shih-Tseng Lee (CGMH, Taoyuan, Taiwan)*

**Background:** While Western medicine is an evidence-based science, Chinese medicine is more of a healing art. Narrative medicine is offered as a model for humanism and effective medical practice. We aimed to compare the perceptions of the narrative medicine in internal medicine clerkship between fifth-year medical students (MSs) from the School of Medicine (learning Western medicine) and those of traditional Chinese medical students (TCMSs) from the School of Traditional Chinese Medicine.

**Summary of Work:** 465 MSs and TCMSs medical students participated in a four-activity narrative medicine program during a thirteen-week clerkship in internal medicine during the 2012–2014 academic years. Students' perceptions of their narrative medicine experience were determined by a questionnaire (10-items, using a 5-point Likert scale). Exploratory factor analysis was conducted. A total of n=412 (88.6%) fifth-year medical students participated in the study: n=270 (65.5%) MSs and n=142 (34.5%) TCMSs.

**Summary of Results:** Students' responses to the 10-question survey yielded a high reliability (Cronbach alpha=0.943). Factor analysis identified 3 factors: (1) personal attitude; (2) self-development/reflection; and (3) clinical benefit. Both student groups reported high levels of agreement on the enhancement of self-development/reflection (74.6%), but TCMS students reported significantly higher levels of agreement than MS students across all 3 factors.

**Discussion:** Both groups of students reported an enhancement of their self-development and reflection during a 4-activity narrative medicine program. However, perceptions of the narrative medicine course were more favorable in the TCMS group than in the MS group.

**Conclusion:** Given the different learning cultures of medical education in which these groups engage, this suggests that undertaking course in Chinese medicine might actually enhance one's acceptance to, and benefit from, a medical humanities course. Alternatively, Chinese medicine might attract more humanities-focused students.

**Take Home Messages:** The benefit derived from a medical humanities course differs across Western and Chinese medicine contexts.

#8CC05 (134799)

**Are medical humanities relevant to medical students in anaesthesia?**

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Amardeep Riyat (London North West Hospital Trust, London, UK)

**Background:** The value of humanities may not be immediately apparent to those focused on the medical sciences. Medical humanities offer a range of learning opportunities, complementing the sciences to enhance medical education<sup>1</sup>. This study examines whether the humanities enrich learning during an undergraduate anaesthetic placement. 1. Lake et al. A fresh perspective on medical education: the lens of the arts. Medical education 2015; 49: 759-772

**Summary of Work:** 26 third year medical students completed a questionnaire following a two-week placement in anaesthetics. Students had previously completed a compulsory humanities project. Inductive thematic analysis was carried-out on qualitative data by two independent assessors, before combining results to find common themes.

**Summary of Results:** 69% reported no experience of the humanities within their medical education. 80% considered studying humanities beneficial, through: - Increased personal insight - A 'rounded' education - Improved care and compassion for the patient and society 34% responded that humanities were significant to anaesthesia.

**Discussion:** A holistic approach to medicine and a greater understanding of the patients' perspective were common themes; respondents considered an understanding of humanities afforded the ability to 'think deeper', allowing greater insight to one's skills and abilities as a doctor. Students reported that spirituality and philosophy were relevant factors to anaesthesia, in particular the unconscious mind. This is especially interesting as it is a complex topic that is difficult to explore using solely the sciences.

**Conclusion:** An understanding and appreciation of the humanities enhances medical education.

Undergraduates report personal and professional maturation through deeper personal insight and greater understanding of the 'human experience' of illness. This is the first study to suggest enhanced learning in undergraduate anaesthesia through incorporation of the humanities.

**Take Home Messages:** The medical humanities are an important facet of the undergraduate curriculum; they may be particularly beneficial in developing non-technical skills in medical students during an anaesthetics placement.

#8CC06 (134067)

**Visiting tour of medical humanities museum for the promotion of medical humanities empathy**

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Jiin-Torng Wu  
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Hen-Hui Lien  
Shu-Chen Chen

**Background:** Studies of medical education curriculum related to medical humanities museum were limited. This study is to explore the innovative educational role in empathy through medical humanities museum touring.

**Summary of Work:** We arranged clerks, interns and PGYs in our hospital to visit the Museum of Medical Humanities of National Taiwan University. Participants were arranged to attend two 90-minute medical humanities courses. One course was "topic exhibitions in touring experiences". Participants practiced appreciation ability and self-reflection under the guided tour including Taiwan medical histories, sculptures & paintings, and group discussions. The other was "humanities issues in clinical scenarios". Participants learned observational skills and empathy through case simulations including role-playing and case discussions. The Jefferson Scale of Empathy (JSE) was evaluated before and after the touring.

**Summary of Results:** Our pilot study (from Aug. 2014 to Jul. 2015) showed that the participants (n=146) performed significantly higher in empathy scores after the touring. Thus, in this study (from Aug. 2015 to Jan. 2016), we continued to explore the empathy performance in depth. Totally 42 new participants were enrolled; 29 (69.0%) males and 13 (31.0%) females. There were 21 (50.0%) clerks, 11 (26.2%) interns, and 10 (23.8%) PGYs. The JSE difference before and after the curriculum was  $1.3 \pm 5.3$ . The overall course satisfaction was  $4.3 \pm 0.7$ .

**Discussion:** In this study, participants did not show significant change in JSE after the course. It might be because that the sample size was too small and the answering time for JSE during the course was not enough. Nevertheless, in the overall survey, most participants showed positive feedback and were satisfied with course designs and teacher's competencies.

**Conclusion:** Medical humanities museum touring differs from in-class courses. Participants would be influenced imperceptibly through medical humanities museum touring.

**Take Home Messages:** Can medical humanities museum touring enhance empathy of young medical participants?

#8CC07 (134019)

**Experience of bio-social topic division in clinical case conference**

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**Background:** Bio-psycho-social-spirit holistic health is an important issue on medical education. It is also the goal of clinical humanity. Most medical students take the humanity course on the first two years, but rarely has the opportunity when they practice in the hospital. Frequently, it is difficult to join the humanity discussion in clinical cases. Here we share our experience of bio-social topic division in student case conference.

**Summary of Work:** Scenario: A 27-year-old male, had the past history of mania-depression disease. He is a gay and attempted suicide several times since senior high school. He had two sisters but the relationship was not good, and quarrel with them frequently. His condition got worsen and began to have audio hallucination for one week. He grabbed her mother with his hands this morning. He was taken to hospital with ambulance under police guarded, entered the emergency room and registration. However, he ran away and escaped during waiting for psychiatric consultation two hours after registration. His parent call for help but the hospital security guard ignored. Unfortunately, he was taken to our ES again due to drowning one hour later, diving suicide from a bridge. Out hospital cardiac arrest was noted but regained vital sign after resuscitation. Quadriplegia was found when he was clear. A cervical spine plain film showed C5 burst fracture. He received mega-dose solu-medrol infusion and underwent cervical spine surgery, then stayed at intensive care unit for pneumonia. Tracheostomy was suggested two weeks later but he refused. His muscle power did not recover and his family signed "do no resuscitation" consent sheet. What shoulder we do for him next step?

**Summary of Results:** Students are divided to 5 groups to find the problems in the scenario divided as bellowing topic: 1. Medical law 2. Clinical Ethnics 3. Quality of health care 4. Evidence base medicine 5. Community health and gender issue

**Discussion:** Students are divided to 5 groups to find the problems in the scenario divided as bellowing: 1. Medical law; 2. Clinical Ethnics; 3. Quality of health care; 4. Evidence base medicine; 5. Community health and gender issue

**Conclusion:** Bio-social topic division is a good method in clinical case conference. The students feel both disease and psychosocial topics are equally important. It is beneficial to establish the ability of bio-psycho-social-spirit holistic health care for medical students.

**Take Home Messages:** We should found humanity topic in each clinical conference patient. The discussion is equal important in both disease and humanity topic.

#8CC08 (135154)

**Integration of e-learning in a medical humanities course: an evaluation study**

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Kyunghhee Chun (Kyungbuk College, Yeongju, Korea)*

**Background:** This study aims to evaluate medical students' perceptions of e-learning modules to promote active learning in a medical humanities course.

**Summary of Work:** Four e-learning modules on medical ethics were developed to support student learning in a medical humanities course for 2nd year students in the six-year undergraduate medical program at Yeungnam Medical School in Korea. Students studied topics using these e-learning modules, which were designed using a goal-based scenarios model, in preparation for active learning (i.e. debates) in the class. A 14-item questionnaire was implemented to two cohorts of students during 2014-15 at the end of semester. Additionally, 4 students participated in a focus group interview. Survey data were analyzed using factor analysis and a thematic analysis was performed of qualitative data.

**Summary of Results:** 94 students completed the questionnaires (94% response rate). Two factors were identified with eigenvalue greater than 1: (1) the learning activities in the e-learning modules were useful, (2) learning resources and the structure of this module was helpful for self-study. In particular, interview data revealed participants' perceptions that learning resources in the e-learning modules helped them prepared for debates in the face-to-face class sessions. Additionally, interview participants indicated that their engagement with e-learning modules was affected by how relevant the subjects were to them and the amount of learning resources embedded in the modules.

**Discussion:** Integration of e-learning can be effective in supporting active learning in medical humanities courses. Yet, student's perceived engagement in e-learning differed according to the relevance of the topics and the amount of learning resources embedded in the module.

**Conclusion:** Careful selection of learning resources to promote students' interest in the topics and lessen their cognitive load is needed to enhance students' engagement in e-learning.

**Take Home Messages:** Integrating e-learning modules is effective in supporting active learning and offering quality learning resources is key for student engagement in e-learning.

#8CC09 (132641)

**Evolution of students' empathy during medical studies and association with students' characteristics**

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Milena Abbiatti (UDREM, Geneva, Switzerland)  
Anne Baroffio (UDREM, Geneva, Switzerland)  
Margaret Gerbase (UDREM, Geneva, Switzerland)

**Background:** Empathy is an essential competence for clinical practice. We investigated whether empathy scores changed from the 1st to the 4th year of medical studies and associations of empathy with students' personal characteristics.

**Summary of Work:** 363 students from 1st and 4th year of medical studies completed two questionnaires, the Jefferson Scale of Empathy (JSE) and the Empathy Quotient (EQ), as well as standardized questionnaires assessing personality (Big Five NEO), learning approaches (SPQ) and stress coping (CISS). Analyses used unpaired t tests, ANOVA, multivariate linear regressions and Pearson's correlations, further stratifying by sex.

**Summary of Results:** An increase of JSE scores ( $111.4 \pm 9.2$  vs.  $114.6 \pm 10.4$ ;  $p=0.03$ ) and a decrease in EQ scores ( $47.2 \pm 9.0$  vs.  $44.2 \pm 9.8$ ;  $p=0.03$ ) were observed over time. Stratification by sex showed similar JSE results comparing 1st and 4th years for women ( $113.6 \pm 8.0$  vs.  $116.4 \pm 9.5$ ;  $p=0.03$ , respectively) and men ( $108.1 \pm 9.9$  vs.  $111.9 \pm 11.1$ ;  $p=0.04$ ). EQ scores remained relatively stable over time in women ( $53.4 \pm 5.8$  vs.  $47.0 \pm 9.6$ ;  $p=0.12$ ), but reduced significantly in men ( $44.4 \pm 9.9$  vs.  $40.3 \pm 8.9$ ;  $p=0.02$ ). Associations of these results with personal characteristics will be presented.

**Discussion:** While JSE scores increased throughout studies, EQ scores declined over time. The latter was particularly true for men students, but not women.

**Conclusion:** Contrasted findings were observed between empathy measures.

**Take Home Messages:** Empathy is steadily valued by medical students, but empathy capacity seems to attenuate with progression of studies.

#8CC10 (134471)

**Increasing in burnout but stable empathy while increasing clinical experience among young clinical trainees in Taiwan**

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**Background:** Empathy is one of key ability for patient care. Understanding the empathy change helps to develop empathy-promoting strategy. Our previous study reported a special finding that medical students might have transient empathy decline during the internship. The reason remains unclear. Burnout is common among young clinical trainees and related

with the medical error, depression, poor empathy and unprofessional behavior. The study aims to evaluate the association of empathy and burnout among clinical medical students and PGY trainees.

**Summary of Work:** All clinical medical students and postgraduate year one (PGY1) trainees from a single medical center (VGHTPE) in Taiwan were invited to join this study in Dec. 2015. Empathy perception was evaluated by Chinese Healthcare Providers Version of Jefferson Scale of Empathy (JSPE) and the extent of burnout was evaluated by Maslach Burnout Inventory. The correlation between burnout score and empathy was examined and the association of the empathy and burnout with grade change was analyzed.

**Summary of Results:** The mean JSPE scores of clerks ( $n=73$ ), interns ( $n=45$ ) and PGY1 ( $n=28$ ) trainee were 107.0, 108.1 and 107.1 respectively and have no statistical difference. Female had higher empathy perception than male ( $108.5$  vs.  $106.7$ ). The proportion of burnout increases with clinical year. 41.9% of clerks, 56.1% of interns and 80.0% of PGY1 reached the threshold of burnout. Individually, empathy perception has a negative correlation with burnout ( $r=-0.42$  for depersonalization and  $-0.33$  for emotional exhaustion). As the clinical experience increasing, the increasing overall burnout level did not have a negative effect on empathy ( $r=0.225$  and  $0.342$ ). The empathy perception during the early clinical years is stable in this study although the burnout rate is high and marked increasing with clinical experience. Burnout may have negative effect on empathy individually. But the increasing overall burnout may be not the only answer for empathy decline with clinical year in some studies. The trend of empathy change during training years may be not the same among the countries and generation. Besides, the medical educators should make more effort to prevent burnout.

**Discussion:** The empathy perception during the early clinical years is stable in this study although the burnout rate is high and marked increasing with clinical experience. Burnout may have negative effect on empathy individually. But the increasing overall burnout may be not the only answer for empathy decline with clinical year in some studies.

**Conclusion:** The trend of empathy change during training years may be not the same among the countries and generation. Besides, the medical educators should make more effort to prevent burnout.

**Take Home Messages:** 1. Burnout proportion is still very high among clinical trainee. 2. Burnout have negative effect on empathy individually. 3. The empathy change during training years varied among the countries and generation.



#8CC11 (133666)

**“To be or not to be”: learning the art of being in another person’s shoes through theater improvisation**

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Adilson Doniseti Ledubino

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**Background:** Medicine has a consolidated approach to diagnostic assessment. However, physicians need to interact meaningfully with their patients, responding accordingly to verbal and nonverbal cues. In this context, improvisation is mandatory, as well as focusing on the other and communication skills. Although new in medicine, improvisation is well established in Theater, with concepts that are learned and trained, such as scenic intelligence. It may have a distinctive relevance in medicine, being one’s ability to act and observe oneself at the same time, allowing adjustments in real time to guarantee the success of the scene or consultation.

**Summary of Work:** Second year medical students attended a curricular rotation based on Theater, mainly focused on improvisation. It comprises five meetings and a 20-hour workload. Each meeting has a stepwise approach to improvisation, following a sequence of activities with increasing complexity: 1)Physician-patient communication; 2)Unplanned improvisation games; 3)Planned improvisation games; and 4)Debate on improvisation scenes prepared by students. After each meeting, students conducted interviews with patients and wrote creative narratives inspired in works of art.

**Summary of Results:** Answering an anonymous questionnaire, 97% of students were positively involved with the activity. They reported being better prepared to establish links with patients and classmates. More than 90% think they will use what they learned at their professional and personal lives. There was a significant increase in empathy levels after the rotation in Jefferson Scale of Physician Empathy (120-123\*) and Interpersonal Reactivity Index (68-71\*), \* $p < 0,001$ .

**Discussion:** Adapting theater improvisation techniques to the context of medical education seems to help students to become more comfortable, increasing their confidence and ability to put themselves in another person’s shoes.

**Conclusion:** Theater improvisation may have a role in medical education, especially when dealing with empathy in the physician-patient relationship.

**Take Home Messages:** Theater activities based on improvisation techniques may increase medical students’ empathy levels.

#8CC12 (135910)

**A Cross-sectional Study on Empathy Among Pre-clinical Medical Students: The Saudi Arabian Perspective**

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**Background:** Physicians demonstrate empathy by openly appreciating patients’ predicament in terms of affect. Despite the fact that empathy is of significant importance, cross-sectional as well as longitudinal studies show a decline in empathy as students approach graduation.

**Summary of Work:** An observational cross-sectional study was carried out at Alfaisal University on 375 students in their pre-clinical years using the Toronto Empathy Scale .We also included a few survey questions on personal experience in regards to having a patient in the family. Other questions related to demographics, the choice of medicine as a career and future goals and priorities were also included.

**Summary of Results:** Females showed to be more empathetic than males ( $p$  value = 0.001), with a sudden drop of empathy in the two sexes between years 2 and 3. The reason for choosing the medical path had a higher association with empathy affecting more than five categories ( $p$  value= 0.001) when compared to the experience of a loss, which only related to one category of empathy ( $p$  value 0.003).

**Discussion:** Although many publications have discussed the decline in empathy among medical students, but non-have discussed it in a conservative environment such as KSA. In similarity with other publications, females showed more empathy than males and that empathy decreases as students become more senior. Unlike other publications that described a constant linear decrease, our study showed a sharp drop when students are exposed to pathology (year 2).

**Conclusion:** Empathy can be affected by sex, level of education, losses in the family and students’ priorities in life. Furthermore, we believe that the gender segregation culture might affect empathy.

**Take Home Messages:** Medical students show loss in empathy as they proceed through medical school, so medical educators should target increasing students empathy levels. Our study pinpoints several factors that affect empathy and could be of help in increasing empathy.

#8CC13 (134238)

**Empathy in Medical Students: A Four Year Prospective Cohort Study at Universidad Andrés Bello, Viña del Mar, Chile**

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**Background:** Empathy is one of the main characteristics that medical doctors should develop. Most studies show a decline in empathy scores as time passes by.

**Summary of Work:** Objective: Compare empathy scores for medical students during a four year follow up. A cohort study with 33 students (18 men and 14 women) was performed. The Jefferson Empathy Scale, was used to obtain baseline data, at the beginning of the third year; and for follow up at the end of third, fourth, fifth and sixth years. Cronbach Alpha, Pearson Correlation, t Student test, were used for statistic analysis. Informed consent was obtained.

**Summary of Results:** Cronbach alpha = 0,8. No significant differences were observed across years and gender for global empathy, perspective taking, and standing in patient's shoes; except for compassionate care in female which shows a tendency to decrease ( $r=0,6$   $p<0,05$ ).

**Discussion:** No decrease in empathy for any of the years studied was observed, as previous studies have shown. Possible explanations could be the homogeneous characteristics of the study group, and the small size of the groups during clinical rotations, which allows for personalized tutoring.

**Conclusion:** No significant changes in global empathy, in perspective taking, as well as in standing in the patient's shoes were observed. No significant differences in gender were observed either, except for compassionate care which in females decreases.

**Take Home Messages:** This cohort study should continue to keep observing the trends on empathetic behavior up to the end of the seventh year. A qualitative study should complement the data to provide for better understanding.

#8CC14 (135551)

**Altruism in Medical School: A Comparison of Medical Students at Vajira Hospital**

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**Background:** Altruism, defined as an unselfish concern for the welfare of others, has been considered an inherent part of a doctor's profession. Recently, however, it has been suggested that modern medical practice has led to a decline in altruism among medical practitioners. In this study we measured the altruistic behavior among medical students.

**Summary of Work:** A cross-sectional study was conducted with 67 first year, 76 second year, and 52 third year medical students from the Faculty of Medicine at Vajira hospital, Navamindhadhiraj University, Thailand. The altruistic behavior was measured using the Altruistic Personality Scale previously developed by Rushton, Chrisjohn, and Fekken (1981). The scale consists of 20 measurement items with responses ranging from Never (0) to Very Often (4).

**Summary of Results:** The altruistic behavior score was found to be highest among second year students ( $62.02\pm8.53$ ) while the lowest was recorded from third year student ( $55.13\pm8.71$ ). First year student ( $60.74\pm8.91$ ) demonstrated significantly ( $p<0.05$ ) higher altruistic behavior than third year student but did not different from second year student. However, factors such as grade point average and gender were not significantly ( $p>0.05$ ) associated with altruistic behavior score.

**Discussion:** This study showed that altruistic behavior score among medical students decreased by the increase in their educational years, as the first and second year students had the higher altruistic behavior score than third year student. It means that altruism reduces with higher educational levels among medical students.

**Conclusion:** In general, medical students in faculty of Medicine Vajira hospital had low altruistic behavior level and the amount of altruistic behavior reduces with increase in their age and educational level. These may be a cause for concern; as such we suggest a possible inclusion of courses on altruism in the curriculum.

**Take Home Messages:** It is recommended that we should become more involved in the design of curriculum that encourages future medical students to pay more attention on the importance of altruism.

#8CC15 (132999)

**Empathy evolution in Spanish medical students: a cross-sectional study in 2 Spanish medical schools**

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*Marta Elorudy*

*Montserrat Virumbrales*

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**Background:** Previous studies in different cultural contexts' show contradictory results concerning the evolution of empathy of undergraduate medical studies. The Jefferson Scale of Empathy (JSE-S) is one of the most commonly used self-report measures empathy proving to be valid and reliable across multiple countries and languages, including one translation developed in Mexico. The aim of the work has been to investigate the evolution of the attitude towards empathy in Spanish medical students

**Summary of Work:** This was a cross-sectional study using the Spanish version of the JSE-S, which has been previously adapted and validated. 1104 medical students (74% of students) from the 1st to the 6th year of two Catalan Universities (Barcelona UB n=689, a public university) and International of Catalonia UIC: n=415, a private university) answered the questionnaire. Students were asked about the preferred speciality. The gender proportion was 32% male and 68% female.

**Summary of Results:** Significant higher scores were observed in women. There were no statistically significant differences between schools in the average empathy scores. The year of medical training had a statistically significant effect on empathy with students attending the 5th year reporting lower empathy than those attending the 2nd and 6th. Yet differences were small, due to the small effect size found. Students preferring surgery report lower empathy than those preferring medical and medical-surgical specialties.

**Discussion:** This study reproduced the higher empathy scores of female students and lower scores of students interested in surgical specialties. Our findings suggest that the JSE-S scores for Spanish students in different years were comparable, and agree with previous studies that revealed stability of empathy. Studies involving more medical schools and following a longitudinal design are needed to evaluate whether there is score stability within the same student cohorts over time

**Conclusion:** The empathic orientation remains stable in Spanish medical students along the medical degree in the two Medical schools considered in the Spanish cultural context.

**Take Home Messages:** Empathic orientation in medical students can vary depending of the cultural context. Empathic orientation in Spanish medical students seems to remain stable along the medical degree

#8CC16 (135028)

**How do students learn empathy? The adventure and exploration in empathy-promoting activities**

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*Ming-Teh Lin*

**Background:** Empathy underlies one of the key professionalism goals of medical education. Various exercises and activities have been introduced to promote empathy and other humanistic values, yet it is not clear how students learn empathy in these activities.

**Summary of Work:** Two empathy learning activities – “Disease Lottery” and film discussion groups were implemented in the “Life and Death” course. In “Disease Lottery”, forty-five 4th year medical students drew lots to “obtain” a disease in the beginning of the semester. Students learned to enter into the patient’s world via interviewing the patient, imagining themselves as the patient, and then giving a presentation in a first-person narrative at the end of the semester. In film discussion groups, 6-8 students discussed in groups about how characters in the movie may think and feel after watching the movie.

**Summary of Results:** The authors interviewed these students, analyzed the audio records, and identified students’ empathy learning responses in these activities. Preliminary data suggested that students find these activities useful, and their empathy learning was triggered from the following three kinds of sources: peer interaction, the rich context of disease, the personal experience brought out by these activities, and the connection between students and the target patient. More detailed results will be provided in this presentation.

**Discussion:** Understanding about the sources to trigger empathy learning is important to enhance students’ empathy in medical education. Findings from this study may serve as a resource for educators to enhance teaching effectiveness.

**Conclusion:** Empathy learning is a complex process with many factors involved to determine the outcome.

**Take Home Messages:** The further understanding from this study about how students learn from empathy-promoting activities may help educators enhance teaching effectiveness.

#8CC17 (135312)

**Is adult attachment style associated to empathy? A study on a sample of Italian medical students**

**Maria Grazia Strepparava\***, *School of Medicine, Milano Bicocca University, Milano, Italy*  
Stefano Ardenghi

**Background:** Attachment literature recognizes two dimensions of attachment reflecting comfort with closeness and anxiety over relationships (Feeney et al., 1994). Individuals may display high or low comfort and high or low anxiety; hence, these two dimensions define four attachment styles labeled secure, fearful, preoccupied, and dismissing (Bartholomew & Horowitz, 1991). Central notion is that empathy is nurtured in the early rearing environment in relation to the quality of the early attachment relationships with a primary caregiver (Henderson, 1974).

**Summary of Work:** The issue investigated in the present study is the relationship between attachment styles and medical empathy. A sample of 286 Italian university students (140 females) is included in the study. All participants completed the Attachment Style Questionnaire (ASQ; Feeney et al., 1994), the Interpersonal Reactivity Index (IRI; Davis, 1983) and the Jefferson Scale of Physician Empathy – Student Version (JSPE-S; Hojat et al., 2002).

**Summary of Results:** Secure and insecure attachment have significant positive and negative correlation with global empathy measures. Regression analysis shows that secure attachment predicts about 15 percent of the variance in empathy variables. Gender effect is evaluated showing moderate effects on some empathy sub-scales

**Discussion:** Attachment style is one of the most important personality dimensions affecting interpersonal sensitivity and must be considered as a key variable in medical education to be adequately addressed for the relation with empathy and empathic behavior

**Conclusion:** Individual with secure attachment style develop a sense of trust with caregivers who respond to them empathically and therefore develop the capacity to respond sensitively and empathically toward others in later care relationships

**Take Home Messages:** The matter is complex and many are the open questions: a) stability of the baseline attachment/empathy profile in the six years; b) possible correlation with students well-being; c) influence on clinical practice (e.g. patient-doctor communication); d) protection against burnout during and after the medical course.



## **8DD Posters: Surgery**

Location:

**#8DD01 (136263)**

**The perceived benefits of being mentored by a Consultant Surgeon**

**Joshua Wong\***, *Barts and The London School of Medicine and Dentistry, London, UK*

Gayathri Bhaskaran (*Barts and The London School of Medicine and Dentistry, London, UK*)

Charmilie Chandrakumar (*Barts and The London School of Medicine and Dentistry, London, UK*)

Nithish Jayakumar (*Homerton University Hospital, London, UK*)

Sam Channon (*Barts and The London School of Medicine and Dentistry, London, UK*)

Shafi Ahmed (*Barts and The London School of Medicine and Dentistry, London, UK*)

**Background:** Recent trends have shown that UK medical students are less inclined towards a surgical career, this is most likely due to the lack of surgical exposure in medical school. Mentorship from surgeons could help ensure early, positive and effective influences in a medical student's career which could help stimulate and solidify their interest in a surgical career rather than dissuading them from a life in surgery, this can hopefully be achieved by mentorship. We aimed to assess the medical students' perceived benefits of having a mentor.

**Summary of Work:** A total of 191 medical students applied to be part of a surgical mentorship scheme. The students submitted an online application form where they had to state the level of surgical exposure they had in terms of clinic, theatre and ward times as well as any projects they were involved in along with a statement in why they wanted to be mentored by a surgeon.

**Summary of Results:** Students' perceptions of the advantages of being mentored by a Consultant surgeon were explored. 67% of total applicants were pre-clinical students and felt that they needed to have as much exposure to the world of surgery in order to decide whether to pursue it. Compared to clinical students who wanted to have opportunities in getting involved in audits and projects. All applicants stated reasons related to career-progression as for wanting a mentor.

**Discussion:** Clinical students are more job application oriented and have had some surgical experience compared to pre-clinical students.

**Conclusion:** Medical students at various career stages feel that mentorship would be beneficial to them, due to the increased surgical exposure.

**Take Home Messages:** For those interested or considering to pursue a surgical career, a mentor would be extremely useful, which the medical school could arrange to compensate for the lack of surgical teaching.

**#8DD02 (136242)**

**A randomized controlled educational trial of early surgical skills amongst medical students**

**Shareef Mahdi\***, *Barts and The London School of Medicine and Dentistry, London, UK*

Yasser Al Omran (*Barts and The London School of Medicine and Dentistry, London, UK*)

Charmilie Chandrakumar (*Barts and The London School of Medicine and Dentistry, London, UK*)

Aadil Hussain (*Barts and The London School of Medicine and Dentistry, London, UK*)

Ali M Ghanem (*Barts and The London School of Medicine and Dentistry, London, UK*)

**Background:** There has yet to be a study that evaluates the use of modalities of surgery in early surgical intervention. We aimed to evaluate the effect of a 6 hour intervention in open surgery, microsurgery and laparoscopic surgery on surgical performance in medical students.

**Summary of Work:** To evaluate the effect of the different surgical modalities on technical skill acquisition in surgery, 45 medical students with no formal experience in surgical skills were recruited. They received the minimal training required to complete the 3 assessment tasks (one in open surgery, one in microsurgery, one in laparoscopic surgery), before undertaking pre-training assessment to measure baseline performance. The following day, participants were randomized into 3 arms (n=15 in each arm), whereby each arm received additional training in one of the 3 modalities of surgery. Participants then underwent post-training assessment. Tracking of hand motions or instruments was used to assess performance.

**Summary of Results:** The improvements in the measured metrics in hand and instrument tracking between the pre- and post-training assessments were combined together (giving equal weighting) to provide an overall dexterity score. The microsurgery cohort demonstrated a significant difference in dexterity score between the open surgery group ( $p < 0.05$ ), and the laparoscopic group ( $p < 0.05$ ).

**Discussion:** These findings demonstrate for the first time that microsurgery may improve acquisition of technical skill in surgery amongst undergraduate medical students compared to other surgical modalities. Further work is required to validate findings.

**Conclusion:** Other modalities of surgery should be considered for early implementation in the learning of technical skills in surgery.

**Take Home Messages:** Microsurgery may provide an accelerate means of acquiring technical surgical skills compared to other modalities of surgery.

#8DD03 (135415)

**First provincial Minimally Invasive Surgery Fellowship Program for rural area in Thailand**

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Sakda Alpach  
Ragin Arora*

**Background:** Surgery field now is more and more becoming a neglected field in medical curricula. Because in Thailand, like many other countries, all surgery procedures e.g. appendectomy, cholecystectomy or colectomy usually performed in large-sized hospitals, not in a community hospital that all medical graduates go for work. To revitalize surgery, MIS could be one solution for this. It can make surgery more interesting for medical students and it is possible to do these procedures in community hospitals.

**Summary of Work:** During 2010 - 2014, we focused on MIS and advanced MIS procedures in the department of surgery, Hatyai Hospital. The procedures included single-incision laparoscopic cholecystectomy, appendectomy, hernioplasty to laparoscopic colectomy, and low anterior resection. We have implemented one-year MIS training program in Hatyai Hospital since 2014. Fellows needed to practice in common MIS procedures with academic activities in one year. At the end of the program, there is an examination that has 3 parts; 1. Unedited surgical videos performed by the fellow to review, 2. MCQ and Short answer questions, 3. Oral examination by external and internal examiners.

**Summary of Results:** Now we have graduated 2 fellows and 2 in training. Many general surgeons have showed their interested in this program. We also arrange Hatyai MIS Conference every 6 months. This kind of conference helps us to update in the field by gathering many MIS surgeons from central and regional part of Thailand and some international participants sharing their own experiences.

**Discussion:** There are many ways to boost up interest in Surgery. Just making new surgeons may not enough because they tend to stay in a large-sized hospital. That make other problems of high workload in a large-sized hospital and patients have a very long waiting list. As the disruptive technology of MIS, it is possible to perform some surgery in a small-sized hospital with patient satisfaction in a minimal risk.

**Conclusion:** "Local training for local people" is a principle. An Implementation of the MIS fellowship program in the local area could relieve the problems of maldistribution of surgeons and long waiting list for patients as well.

**Take Home Messages:** Provincial MIS Training program as in Hatyai Hospital could be a benefit for the local community and surgery itself.

#8DD04 (134833)

**A Novel End Product Assessment Tool for Simulation Microsurgery Training: Anastomosis Lapse Index**

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Aadil Hussain (Barts and The London School of Medicine and Dentistry, London, UK)  
Ali Ghanem (Barts and The London School of Medicine and Dentistry, London, UK)  
Bashar Shatta (Barts and The London School of Medicine and Dentistry, London, UK)  
Simon Myers (Barts and The London School of Medicine and Dentistry, London, UK)*

**Background:** Over the last decade, simulation has become a principal training method in microsurgery. With an increasing move toward the use of nonliving models, there is a need to develop methods for assessment of microvascular anastomosis skill acquisition substituting traditional patency rate. The authors present and validate a novel method of microvascular anastomosis assessment tool for formative and summative skills competency assessment.

**Summary of Work:** In this study, 29 trainees with varying levels of experience in microsurgery undertook a 5-day microsurgery course. Two consecutive end-to-end microvascular anastomoses of cryopreserved rat aortas performed on day 3 and day 5 of the course were longitudinally split and photographed for randomized blinded qualitative evaluation. Four consecutive anastomoses by two experienced microsurgeons were analyzed as expert controls. Errors potentially leading to anastomotic leak or thrombosis were identified and logged. Statistical analysis using the Kruskal-Wallis analysis of variance (ANOVA) and a two-way repeated measure ANOVA was used to measure construct and concurrent validity, respectively.

**Summary of Results:** A total of 128 microvascular anastomoses were analyzed for both student and control groups. Ten errors were identified and indexed. There was a statistically significant difference detected between average errors per anastomosis performed between groups ( $p < 0.05$ ). Average errors per anastomosis was statistically decreased on day 5 of the course compared with day 3 ( $p < 0.001$ ).

**Discussion:** Evaluation of anastomosis structural patency and quality in nonliving models is possible. The proposed error list showed construct and predictive validity.

**Conclusion:** The anastomosis lapse index can serve as a formative and summative assessment tool during microvascular training.

**Take Home Messages:** The anastomosis lapse index can be used in early microsurgery training to evaluate subjects' performance and to act as a feedback tool.

#8DD05 (135516)

**The effectiveness of a year long surgical mentorship for medical students**

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*Charmilie Chandrakumar, Barts and The London School of Medicine and Dentistry, London, UK*  
*Nithish Jayakumar, Homerton University Hospital NHS, London, UK*

**Background:** Many surgical trainees have benefitted from mentorship by their seniors, thus mentoring should have great relevance to medical students. Mentorship from surgeons provides students the opportunity to learn more about the work-life balance, academia and skills involved in surgery. We aimed to assess benefits and drawbacks of mentorship from Consultant surgeons to medical students in regards to pursuing a career in surgery.

**Summary of Work:** 121 medical students applied to be part of a surgical mentorship scheme; 38 students were selected due to the limited number of consultants. Students were selected on the basis of an online application which ascertained their commitment to the scheme, as well as their potential to benefit from the mentorship scheme. Students were then allocated a mentor from a specialty based on their preferences and their application score. Mentees completed two identical questionnaires assessing their level of surgical exposure and views on surgery and surgeons. One was undertaken before the scheme, and the second a year later, at the end of the mentorship scheme.

**Summary of Results:** The mentorship scheme has enabled the 38 students to increase their exposure to surgery. The average number of attended clinics and theatres before mentorship and after mentorship was 6.2 and 32.7, respectively ( $p=0.0003$ ). Mentees also had opportunities to participate in audits.

**Discussion:** Students found it difficult to attend everything offered by the consultants at their preferred times. Consultants are busy and are often unable to meet with medical students. Furthermore, some medical students had difficulty in attending clinics or theatre lists during university terms or holidays.

**Conclusion:** Medical students felt that the mentorship was beneficial and had a better understanding of the career, due to the increased exposure to surgery.

**Take Home Messages:** It is essential to ensure both parties are committed to putting in time and effort to make the most out of the mentorship scheme.

#8DD06 (133611)

**Communication Skills Crash Course for Surgical Residents– Effective and feasible?**

*Junice Wong\*, Tan Tock Seng Hospital, Singapore, Singapore*  
*Qinghui Lu*

**Background:** The ability to communicate adverse news well remains extremely relevant in surgical practice. However, designing an effective communications course with high take-up rates amongst busy surgical residents is difficult. We explore the efficacy of a one-day course targeted at senior surgical residents.

**Summary of Work:** A one-day program was designed around pertinent topics of breaking bad news, discussing end-of-life care, and open disclosure after bad outcomes. A mix of didactic lectures and videos were used to introduce core concepts and content, followed by role play sessions within smaller groups of 4 residents. Feedback was also given to each individual after their attempt. Program effectiveness was evaluated with pre and post course surveys. Fisher's exact test was used to analyse the data and statistical significance was accepted at  $p < 0.05$ .

**Summary of Results:** There was a 100% ( $n=16$ ) attendance rate with all senior residents agreeing pre and post-course that topics taught were relevant to their job. Post-workshop, more participants felt they had a mental toolkit to aid them in difficult communication situations (68.75% vs 100%,  $p 0.043$ ). Likewise, significantly more (68.75% vs 100%,  $p 0.043$ ) felt post-workshop that a dedicated course for disclosure of poor outcomes was necessary.

**Discussion:** Our results mirror other studies that highlight the importance of communication skills for surgeons. Our use of mnemonics and role-playing are just some of the means of teaching these skills. While these do not replace the "Cognitive Apprenticeship Model" in work-place based learning, these sessions allow for experiential learning and practice of the framework in simulated scenarios.

**Conclusion:** A short but focused workshop, incorporating a combination of didactic and role-playing, is an effective educational intervention. The condensed nature positions it to be a highly feasible part of a busy surgical resident's schedule.

**Take Home Messages:** Tailoring a curriculum to both the needs and the lifestyle of the learners maximizes learning and attendance rates.

#8DD07 (132230)

**Experience of implementing a surgical teaching programme for final year medical students**

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*Thomas Pepper*

*Eleanor Southgate*

*Jasmine Ehsanullah*

*Suveer Singh*

**Background:** Theories of adult learning suggest that students should be self-directed learners. Despite this, students value didactic tutorials through their requests. We implemented a four-week surgical teaching programme consisting of a booklet for self-directed activities and a tutorial series, in order to address students' needs while encouraging higher-order learning.

**Summary of Work:** A student focus group and questionnaire were used to identify learning needs. A booklet was subsequently designed by the authors, signposting self-directed activities. Eleven hour-long tutorials were planned by surgical trainees. The programme was evaluated using uptake records and a focus group on completion of the course.

**Summary of Results:** The initial focus group-elicited areas of concern were pre-assessment, assisting in theatre, drains, anatomy and acute illness. 93% (n=14) of previous students felt that a booklet would be helpful, and 100% (n=15) felt that tutorials would be helpful in achieving learning needs. 10 of 11 tutorials took place. Student attendance was variable, ranging between 30% and 83%. The post-course focus group elicited that no student used the booklet while on placement. Students volunteered that the tutorials were extremely helpful and cited reluctance to carry the booklet as a reason for non-use, however they intended to use it for revision.

**Discussion:** The students found the tutorials helpful in meeting learning needs but attendance was limited by need to attend consultant theatre or clinic.

**Conclusion:** The surgical teaching programme was valued by students and increased their confidence. Uptake of the booklet may be improved by making it pocket-sized and structuring it as a tool for revision.

**Take Home Messages:** 1. Didactic tutorials continue to be useful in medical education. 2. Course booklets must be concise if they are to be used on the ward.

#8DD08 (132128)

**Teaching clinical and operative surgery: the role of laparoscopy**

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*Alexey Bukin (Ziv Medical Center, Safed, Galilee)*

*Andrei Fedorenko (Ziv Medical Center, Safed, Galilee)*

*Oleg Efremov (Ziv Medical Center, Safed, Galilee)*

*Arkady Rapoport (Ziv Medical Center, Safed, Galilee)*

*Evgeny Solomonov (Ziv Medical Center, Safed, Galilee)*

**Background:** Teaching clinical and operative surgery to medical students is becoming increasingly challenging as modern working environments limit continuity of care and participation in operative surgery.

**Summary of Work:** At the Department of Surgery in Ziv Medical Center, Safed, Galilee, a programme of clinical teaching augmented with teaching from laparoscopic procedures has been practised over the last year. Students clerk patients about to undergo surgery, present to the operating surgeon and join them in the operating theatre.

**Summary of Results:** During surgery, where detailed explanations of procedures are not possible, students assist in relative silence, or watch laparoscopic procedures on screens. Procedures are, therefore, recorded, and, after the procedure, students are able to watch the video of the surgery with a surgical teacher who explains the procedures and correlates anatomy and pathology with clinical presentation, and explains the basis or potential complications and postoperative care.

**Discussion:** To date four rotations of students have experienced clinical teaching correlating with laparoscopic procedures. In all four rotations, students found the correlation helpful but in two rotations (where no students had plans to pursue surgery as a career), students found watching the videos together in the clinical classroom with a surgical teacher preferable to scrubbing for surgery or watching surgical procedures in theatre.

**Conclusion:** As both clinical and operative learning in surgery become less hands-on, there is a need to create learning opportunities that are both acceptable and expedient for students and surgeons. Clinical, pathological and anatomical correlations are helpful to both surgical and non-surgical students alike.

**Take Home Messages:** Laparoscopic surgery videos may be preferable for students with an aversion to operative surgery and also enable students to participate in surgical learning as a group (under less individual pressure).



#8DD09 (133803)

**Musculoskeletal Anatomy and Surgical Approaches – a multidisciplinary, high fidelity teaching session**

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**Stephen C Williams** (*University Hospitals of Leicester, Leicester, UK*)

**Background:** Simulator use for medical and surgical training has increased dramatically in the last few years. Reduced working hours, pressures for efficient service provision and ethical issues regarding training on patients have all contributed to this increase.

Training with cadaveric models has been described as the ‘gold standard for technical skills training’.

Cadaveric specimens allow trainees to understand anatomical relationships and develop insight into the technical aspects of the procedure.

**Summary of Work:** 17 orthopaedic specialty registrars performed common surgical approaches on full body cadaveric specimens during a 3 hour session. They were supervised by 4 consultant orthopaedic surgeons. The operating room environment was re-created with real operating instruments. 49 medical students and 3 theatre staff acted as assistants. All wounds were closed and students were taught to suture under supervision.

**Summary of Results:** All 49(100%) students ‘strongly agreed’(57%) or ‘agreed’(43%) that the clarity of teaching was appropriate, the registrar tutor understood the importance of the session (72% - strongly agreed, 18% - agreed) and that the teacher was prepared(53% - strongly agreed, 47% - agreed). 94% of the students ‘strongly agreed’(39%) or ‘agreed’(55%) that the session had changed their attitude to learning anatomy. 96% of the students ‘strongly agreed’(55%) or ‘agreed’(41%) that the session proceeded at an appropriate pace. When asked to identify useful learning points 84%(41) of students reported the opportunity to practise suturing. Orthopaedic registrars were asked to rate the value of the session by giving a score between 1 and 10 with 10 being the highest score possible and corresponding to excellent. Mean score for the session was 9.7 (range 9 to 10). 100% of registrars ‘strongly agreed’(71%) or ‘agreed’(29%) that the session had improved their confidence in the surgical approaches carried out. 94% ‘strongly agreed’ that the session should be run again.

**Discussion:** High quality training for practical procedures is of the upmost importance to produce safe and competent physicians and surgeons. It is no longer acceptable for doctors and students to perform procedures they are not experienced with on patients first. Clinical exposure for medical students and junior doctors is generally reduced so training opportunities must be maximised. High fidelity training on cadaveric specimens is now widely used but is costly and resource intensive.

**Conclusion:** In this paper we describe a multi disciplinary teaching session involving medical students, theatre staff, orthopaedic specialty registrars and consultants. The cadavers were the

standard specimens already used in the University dissection room so no additional cadavers were required. All specimens were closed so the cadavers could be used further as required. Feedback was exceptional

**Take Home Messages:** This session provided a time and cost efficient method of delivering high fidelity training. No additional cadavers were required and they will continue to be used for teaching Feedback was excellent and sessions will be integrated into the curriculum.

#8DD10 (133405)

**Time in Training Does Not Predict Performance Deterioration under Pressure**

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**Daniel Leff** (*Imperial College London, UK*)

**Harsimrat Singh** (*Imperial College London, UK*)

**Ara Darzi** (*Imperial College London, UK*)

**Background:** Stress in the operating theatre can be detrimental to motor performance, however modern surgical training programmes fail to address this issue by assuming stress-coping ability develops passively with experience. The purpose of this study is to determine whether duration of training or previous task experience determines trainees’ ability to maintain laparoscopic performance under temporal pressure.

**Summary of Work:** 28 surgical trainees performed a laparoscopic suturing task under two conditions: (1) “self-paced”, in which trainees took as long as required, and (2) “time pressure”, in which subjects were given a maximum of 2 minutes to tie each knot. Subjective workload was quantified using the Surgical Task Load Index and continuous heart rate monitoring was used to measure the physiological stress response. Technical skill was assessed by measuring a task progression score, an accuracy score, leak volume, and tensile strength of the knots.

**Summary of Results:** Time-pressure led to a significant increase in subjective workload ( $p<0.001$ ) and heart rate (stress) ( $p<0.05$ ). Performing the task under temporal demand led to inferior task progression ( $p<0.001$ ), greater leak volumes ( $p<0.05$ ), and lower knot tensile strengths ( $p<0.01$ ). There was no correlation between performance deterioration under pressure and level of training (Pearson Correlation Coefficient=0.037,  $p=0.852$ ) or prior experience with laparoscopic suturing (Pearson Correlation Coefficient=-0.249,  $p=0.201$ ).

**Discussion:** Time-pressure stressors increase trainees’ subjective workload and physiological stress response, and negatively impact their technical skills. However, level of training and prior task experience do not appear to predict performance decline under pressure.

**Conclusion:** Stressful operative environments are detrimental to technical performance, however surgeons’ ability to cope under pressure may be more related to factors other than duration of training or task exposure (e.g. inherent cognitive strategies).

**Take Home Messages:** Time in training or previous task exposure do not necessarily signal ability to cope with pressure in the operating theatre. Surgical training should place greater emphasis on fostering stress-coping ability in trainees.

**#8DD11 (132880)**

**Patient-specific 3D printed hip models for easier teaching and better understanding complex anatomical abnormalities before total hip arthroplasty in developmental dysplasia of the hip**

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Adam Tibor Schlegl (*University of Pecs Medical School, Pecs, Hungary*)  
Peter Maroti (*University of Pecs Medical School, Pecs, Hungary*)  
Ian O'Sullivan (*University of Pecs Medical School, Pecs, Hungary*)  
Csaba Vermes (*University of Pecs Medical School, Pecs, Hungary*)  
Peter Than (*University of Pecs Medical School, Pecs, Hungary*)

**Background:** Total hip arthroplasty in developmental dysplasia of the hip presents many challenges even to an experienced reconstructive surgeon. The complex changes of femoral and acetabular anatomy make the understanding of this disorder and its correction technically challenging. We hypothesize that 3D printed models of the hip can help assess the anatomy and to learn and practice the implantation technique for junior orthopedic surgeons.

**Summary of Work:** Based on pelvis and proximal femoral CT imagesets obtained as a part of routine diagnostic practice, life-sized 3D printed models were constructed. Five models were created pre-operatively using Slicer Software for 3D reconstruction and selective laser sintering (EOS P396) for printing. Three medical practitioners under the supervision of a senior orthopedic surgeon have discussed the cases based on the case-history, radiological imaging and the model. Using the model the implantation procedure was also simulated. In-depth interviews were carried out with the medical practitioners.

**Summary of Results:** All of the participating medical practitioners reported that the models made the understanding of the deformity easier, improved pre-operative planning possibilities and gave a good opportunity to acquire this challenging surgical technique in a safe environment.

**Discussion:** Preoperative patient-specific 3D printed models have advantages for patients and surgeons, and also can be useful tools in postgraduate education, as they assist understanding of the complex anatomy of the deformity, and make it possible to practice surgical techniques free from threat to patient safety. The high financial cost of printing models must be noted.

**Conclusion:** The patient specific 3D printed pelvis models proved to be excellent tools for orthopaedic surgeons' training.

**Take Home Messages:** The patient specific 3D models can open a new dimension of the orthopaedic surgeons' training.

**#8DD12 (132123)**

**Development and Evaluation of a Blended Learning Module on Minimally Invasive Spinal Surgery**

**Mike Cunningham\***, *AO Foundation - AO Education Institute, Zurich, Switzerland*

Roger Härtl (*Weill Cornell Medical College, New York, USA*)

Daniel Gelb (*University of Maryland School of Medicine, Baltimore, USA*)

Dean Chou (*UCSF Spine Center, San Francisco, USA*)

Staffan Kallback (*AOSpine, Davos, Switzerland*)

Jessica Kimball (*AO North America, Paoli, USA*)

**Background:** Various approaches to implement blended learning have been reported over many years, with recent focus on the "flipped classroom". AOSpine is an international provider of postgraduate education for surgeons and has some prior success combining a face-to-face event with online precourse activities.

**Summary of Work:** The curriculum for an existing face-to-face course on minimally invasive spinal surgery was updated by adding 3 hours of precourse content (self-assessment, videos of procedures, brief readings, and moderated cases discussions) online. Evaluation of the course included interviews with participants and a quantitative survey.

**Summary of Results:** The vast majority of participants completed most of the online materials, and many earned the additional CME credits available. Interviews and survey data from 26 surgeons showed the blended learning module was a positive learning experience and was appreciated for helping achieve baseline levels of knowledge before the live event.

**Discussion:** The blended learning module was well received by this cohort of spine surgeons and the faculty concluded that the online activities enabled more time to be spent on case discussions and practical exercises during the live event. The workload to complete the precourse activities was "too much" for some and improvement of the delivery platform was desirable.

**Conclusion:** Online activities and concepts from the "flipped classroom" may enhance education for this audience. Good faculty moderation of the online content is an important requirement for effective delivery.

**Take Home Messages:** Online content in a blended learning module is valued highly by most spine surgeons when the content is highly relevant and takes a reasonable amount of time to complete.

#8DD13 (134963)

**Mental training and its influence on gaining competences performing practical surgical skills**

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Jasmina Sterz (Department of surgery, University Hospital Frankfurt, Frankfurt)

Bernd Bender (Department of surgery, University Hospital Frankfurt, Frankfurt)

Maria-Christina Stefanescu (Department of surgery, University Hospital Frankfurt, Frankfurt)

Miriam Ruessler (Department of surgery, University Hospital Frankfurt, Frankfurt)

**Background:** The acquisition of practical skills in undergraduate medical training is of eminent importance. Complex procedures, for example such as taking a patient's history and subsequent wound treatment, can rise a major challenge for the students. The aim of the present comparative effectiveness research is to compare the effect of Mental Training (MT) with deliberate practice on students competencies in wound treatment.

**Summary of Work:** Study participants were 3rd year medical students. Students were randomly divided into 2 groups (MT versus Deliberate Practice). Both groups received the identical theoretical input and practical demonstration regarding wound treatment from a peer tutor. Afterwards, the Deliberate Practice Group trained the procedures under supervision of the peer tutor. The Mental Training Group received an instruction to MT. Total training time was 210min for both groups. Students' competencies were evaluated at three points of time: Directly after training in a formative OSCE, two weeks after training using the free recall method and at the end of the semester in a summative OSCE.

**Summary of Results:** 123 students participated in the initial OSCE, 74 students completed the free-recall-test and 119 students participated in the summative OSCE. In the station which was focused on preparing the wound for the sterile part of the treatment, achieved the control group 67,4% and the study group 71,6% ( $p=0,035$ ) in formative OSCE. Neither in other OSCE Stations nor at other time points significant differences were measured.

**Discussion:** One possible reason for the lack of significant differences is that it's impossible to make sure, that student practice MT on their own. In further studies MT should be used in the whole surgical internship under supervision by a trainer.

**Conclusion:** MT seems to be a successful method for gaining practical skills. Further work should focus on long-term-retention.

**Take Home Messages:** MT is an effective learning method.

#8DD14 (134664)

**Outcome Analysis in Robotic Training Program - 2 Years Experience in Taipei city Hospital**

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Thomas Y. Hsueh (Taipei city Hospital Ren-Ai branch, Taipei, Taiwan)

Ting-Fang Chiu (Taipei city Hospital zhongxiao branch, Taipei, Taiwan)

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Oscar K. Lee (National Yang-Ming University, Taipei, Taiwan)

**Background:** The aim of this study is to evaluate the feasibility and efficacy of robotic simulation program in a regional hospital.

**Summary of Work:** From January 2014 to December 2015, total 58 medical students under internship training in Taipei city Hospital were enrolled into this study. A one-day training course including didactic lecture and hand-on program was conducted while all participants received a 4-hour didactic lecture followed by a hand-on training program, simulating the real scenario for robotic surgery, including 5 sutures and knot-tying procedures. A robotic suture and knot-tying procedure was performed before and after the training program to identify the efficacy of this training program. A post-training survey was conducted to evaluate the satisfaction of the participants.

**Summary of Results:** The mean time of hand-on training program for each trainee was  $15.5 \pm 2.3$  minutes. After the hand-on training program, the mean time for one robotic suture improved from 5 minutes to 3 minutes, while the mean time required for knot-tying improved from 3 minutes to 1.5 minutes. the overall satisfaction was 74.8%, the satisfaction was 75.3% for didactic lectures, 82.1% for hand-on training program, while the satisfaction for training time was about 68.3%. The most common drawback of this training program was the length of robotic training time, while a longer training period was suggested by most participants.

**Discussion:** Since this study focused on novice trainees that have no experience in surgery training, which might have different results comparing to previous published studies in robotic simulation training.

**Conclusion:** We have demonstrated that a minimally invasive robotic simulation program can significantly improve the efficiency of learning in robotic surgery. Further evaluation of this program is required for the implementation in surgical training.

**Take Home Messages:** A minimally invasive robotic simulation program can significantly improve the efficiency of learning in robotic surgery in novice trainees.

## 8EE Posters: International Medical Education

Location:

#8EE01 (134414)

**Exam performance of local versus international medical students**

**Halima Iqbal\***, University of Malta, L-Msida, Malta

Nicola Darmanin

Martina Cilia

Zahraa Al-Herz

Isabel Stabile

**Background:** The aim of this study was to investigate the underlying reasons for differences in the examination success rate of local and international students at the University of Malta.

**Summary of Work:** The anonymised exam results from 2010/11 to 2013/14 were obtained from SIMS. An anonymous survey was circulated to all medical students and the results analysed by SPSS.

**Summary of Results:** International students failed 3.6 times more exams than local students. The 115 respondents (59% female, 64% single, 27% International) were representative of the student cohort. Local and international students did not differ in terms of sources of stress (e.g., finances, commute, prep time, loneliness), except that latter found making friends with local students 18 times more difficult than with their peers. 53% of international students were graduates compared with only 9% of locals. 2.5 times more international students admitted to drug/alcohol misuse and 1.7 times more reported feeling depressed (10% each) compared to local students. Three times more international students felt confident in their abilities and less panicked and twice as many felt in control of their life. However, four times more local students reported being happy and satisfied with their life.

**Discussion:** Although international students reported more confidence, less panic, less sleep deprivation and anxiety, they admitted to more drug/alcohol misuse, feeling more depressed and significant difficulty making friends with local students.

**Conclusion:** Lack of support structures may explain the poor exam performance of international students but issues such as language, motivation, perceived discrimination, culturally biased assessment need further exploration.

**Take Home Messages:** In spite of being significantly more likely to be graduates, international students appear to have fewer coping mechanisms for stress which may explain their poor exam performance.

#8EE02 (135442)

**Global health education in UK medical schools: a national survey and case study**

**Natasha Matthews\***, Imperial College London, London, UK

Helen Ward, Imperial College London, London, UK

Bethan Davies, Imperial College London, London, UK

**Background:** This project seeks to review the current provision of global health education (GHE) in UK medical schools, to identify gaps in outcomes covered in compulsory teaching and to explore the role of student organisations in the growth of GHE for medical students in the UK.

**Summary of Work:** The author performed a review of the literature and a two-part survey of GHE in UK medical schools. Information was collected from medical school faculty members, final year medical student representatives and national leads of the student global health network, Medsin-UK. The successful advocacy by the local branch of Medsin-UK at Imperial College London was selected as a case study.

**Summary of Results:** All 33 UK medical schools were contacted, with results obtained from 29 medical school faculty and 15 medical student representatives. The results indicate a wide variation in the nature of GHE in the compulsory curricula, optional teaching and pre-elective training. Whilst ≈75% of schools covered recommended global health themes (the 'Global burden of disease', 'Socioeconomic and environmental determinants of health', 'Human rights and ethics', and 'Cultural diversity and health'), <50% provided teaching on 'Global health governance' and 'Health systems'. Student advocacy has played a key role in developing GHE options for medical students.

**Discussion:** Despite strong interest in global health among medical students, significant gaps are apparent in current GHE, and the elective period remains relatively unstructured.

**Conclusion:** Large variability in the nature of GHE is indicative of a lack of uniform guidelines for comprehensive GHE for medical students.

**Take Home Messages:** There is a need for formal guidance and regulation of appropriate global health teaching in both compulsory medical education as well as electives preparation, to ensure that students are well equipped to tackle the global health challenges of our society



#8EE03 (127366)

**Launching a 'Fit-for-Purpose' Competency Screening Examination for International Optometric Graduates (IOGs)**

**Debra Sibbald\***, Touchstone Institute, Toronto, Canada  
Sandra Monteiro, Touchstone Institute, Toronto, Canada  
Sten Ardal, Touchstone Institute, Toronto, Canada  
Sarah MacIver, Touchstone Institute, Toronto, Canada  
Ralph Chou, Touchstone Institute, Toronto, Canada

**Background:** The appropriateness of this exam to discriminately screen IOGs for eligibility to proceed to the national Optometrists licensing exam (CACO) was validated in its launch through quantitative and qualitative analyses. A pilot test with Optometrists and exam-ready students established the test's defensibility and determined cut scores.

**Summary of Work:** 28 candidates completed a 140 item multiple choice exam and 12 station OSCE, rated by 29 examiners. Clinical simulations with standardized patients and optometric equipment assessed practice performance including procedural skills in relevant scope of practice topics.

**Summary of Results:** OSCE station and total test scores psychometrics were acceptable:  $\alpha$ -reliability 0.86. Stations discriminated levels of performance. Written test average score and percentage pass/fail results were acceptable ( $\alpha$ -reliability 0.86) and correlated with OSCE scores (0.70). Candidates' qualitative feedback affirmed relevance of content to current Optometric practice and essential National competencies.

**Discussion:** Valid cases, developed by content experts, conformed to an Entry-to-Practice competency blueprint aligning key features. Assessing simulated procedural skills on the eyes using actors vs. models or real patients augments standardization, critically important in screening candidates from countries with restricted scopes of practice, for competency and safety.

**Conclusion:** The test performed well with respect to operational feasibility, acceptability to all participants and psychometric results. Examiners, standardized patients, and support staff feedback supported practicality of logistical and operational issues.

**Take Home Messages:** This competency-based evaluating examination is offered to IGO candidates to assess equivalency to Canadian trained optometrists. It provides regulators with appropriate measures to validate competency and address public safety, and gives evidence of suitability to challenge licensing exams.

#8EE04 (133718)

**Creating a Novel Collaboration To Train Chinese Physician-Scientists**

**Margaret McDonald\***, University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania, USA

Jeremy M. Berg  
Shi Yigong  
Wu Li

**Background:** Tsinghua University, in Beijing, China, opened a new medical school in 2001, with a novel eight-year experimental curriculum and the goal of educating a new generation of physician-scientists, rather than simply clinicians, to become the future leaders in Chinese translational medicine. To achieve this goal, Tsinghua partnered with the University of Pittsburgh School of Medicine to provide structured research training to its medical students.

**Summary of Work:** Each year since 2012, a cohort of 10-30 Tsinghua students has come to the University of Pittsburgh for a two-year mentored experience learning basic, translational, and/or clinical research techniques. The students also engage in a twice-monthly self-directed "Methods and Logic in Biomedicine" seminar designed to develop their skills in critical thinking and application of the scientific method."

**Summary of Results:** To date 82 students have come to the University of Pittsburgh for two years of research training. These students have been placed with mentors in a broad range of basic science and clinical departments in the School of Medicine and in several laboratories/research programs in other Pitt health sciences schools. They have been co-authors on 40+ peer-reviewed publications and have given more than 70 oral and poster presentations at national scientific meetings. More than 75% of faculty who have supervised Tsinghua students would welcome a second scholar to the research group.

**Discussion:** The opportunity to mentor a group of high achieving and highly motivated students who have been trained in a different educational and research culture has given Pitt faculty a unique opportunity to evaluate their own approach to research and teaching through a fresh and novel lens. An additional positive aspect of the collaboration has been the opportunity to develop research linkages with Tsinghua faculty members through the students who have trained in Pittsburgh.

**Conclusion:** A hallmark characteristic of a culture of science is enthusiasm for the work tempered with skepticism and the ability to question one's own work as well as that of others. Trying to instill this important balance in young physicians-to-be with limited research experience is both challenging and satisfying when the students demonstrate that they "get it." One-to-one mentoring and a twice-monthly self-directed "Methods and Logic" seminar have been essential to this experimental program. Also helpful has been the presence of an on-site Tsinghua faculty liaison in Pittsburgh.

**Take Home Messages:** Teaching high-achieving international medical students the fundamentals of laboratory and other experimental techniques is relatively straightforward. The larger challenge is to equip them with the skills that enable them to reason correctly and critically

#8EE05 (135862)

**Selection Criteria for Successful International Medical Students: The Experience from the School of Medicine for International Students**

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Su-Ting Chen (*Eda Hospital, Kaohsiung, Taiwan*)

I-Ting Liu (*Eda Hospital, Kaohsiung, Taiwan*)

Sio-Meng Lei (*Eda Hospital, Kaohsiung, Taiwan*)

Chi-Wei Lin (*Eda Hospital and I-Shou University, Kaohsiung, Taiwan*)

San-Nan Yang (*Eda Hospital and I-Shou University, Kaohsiung, Taiwan*)

**Background:** The School of Medicine for International Students is newly established and fully government-funded for applicants from developing countries that have diplomatic relations with Taiwan, i.e. Swaziland and Honduras. Upon graduation, international medical students (IMs) must return and serve their home countries. To identify suitable candidates in a culturally diverse program remains a challenge.

**Summary of Work:** We perform a pilot study to examine the association between student characteristics, admission performance and average grades point average (GPA). Literature was reviewed to identify important cognitive and non-cognitive factors. Age, gender, college degree, previous working experience, score from admission committee, language ability, cultural competency were collected. The multivariate linear regression was used after adjustment with age and gender. All the analyses were performed with SAS 9.2 software.

**Summary of Results:** 32 sophomores and 34 junior joined the study. 44% of students were female. The age of students ranged from 21-37 years old. Language ability is the leading factor that positively affects the average GPA (8.9 s.e.: 2.5 p-value<0.001.) The admission score from written exam, not the overall ranking, also partially affects grades (0.9 s.e.: 0.3 p-value: 0.002.) Further, the age is inversely associated with it. On the contrary, neither relevant working experience nor premedical program related to learning outcome.

**Discussion:** IMs' communication ability, basic knowledge and age are fundamental to get higher performance. Future effort should be made on exploring if the associations remained and extend to clinical performance, so that to achieve the ultimate goal of the medical education.

**Conclusion:** The language ability, score from written tests and age are three key factors for IMs to affect GPA in a culturally diverse program in initial school years.

**Take Home Messages:** Understand selection criteria of IMs not only crucial to ensure a better learning outcome for cultivating international medical professionals but to achieve better global healthcare.

#8EE06 (135421)

**Does one-size-fit all?: Examining neurosurgical residency milestones developed in the USA in a Taiwanese culture**

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Hung-Yi Lai (*CGMRC, Taipei, Taiwan*)

Shih-Tseng Lee (*CGMERC, Taipei, Taiwan*)

Lynn Monrouxe (*CGMERC, Taipei, Taiwan*)

**Background:** In 2013, the milestone project of Accreditation Council for Graduate Medical Education (ACGME) subdivided Neurological Surgery competencies into multiple sub-competencies to assess the level of a resident in the USA. But, does one size fit all? We aimed to investigate whether this milestone system is suitable to assess the competencies of residents in Taiwan.

**Summary of Work:** This study used traditional Chinese version questionnaires based on the ACGME's established Neurological Surgery and Endovascular Surgical Neuroradiology milestone projects to assess 435 residents (residency year 1 [R1: n=4], residency year 2 [R2: n=7], residency year 3 [R3: n=73], residency year 4 [R4: n=109], residency year 5 [R5: n=132], residency year 6 [R6: n=110]) from 4 hospitals in Taiwan. Each resident was assessed at three different time points between 2013 and 2015.

**Summary of Results:** None of the R1 and R2 participants could be assessed on endovascular surgical neuroradiology, and 30% of all other residents had at least one sub-competency in which they were unable to be assessed, for example surgical techniques of brain tumor, pediatric and vascular operations. This indicates that the design of the milestones may not be a good fit for Taiwanese neurosurgery residency training programs.

**Discussion:** It is clear that for neurosurgery, one-size does not fit all: the ACGME milestones cannot simply be imported into different cultural contexts. Therefore milestones should be developed from within based on the specific cultural context, for competency assessment. We suggest that expert senior Taiwanese neurosurgeons should come together to establish an appropriate standard for objective evaluation tool in Taiwan.

**Conclusion:** Modified milestone tool should be established for different country or different training programs to fit the needs for evaluation of neurosurgical residency training program.

**Take Home Messages:** Milestones are culturally specific and therefore require modification according to the cultural / country needs.

#8EE07 (135418)

**Education in Global Health - A survey in the Medical and Nursing Schools in Greece (Medical Schools of Athens and Patras - Nursing Schools of Athens and University of Peloponnese)**

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*Michail Krikelis (University of Athens, Greece)*

*Agis Terzidis (University of Athens, Greece)*

*Theophilos Rosenberg (University of Athens, Greece)*

**Background:** Background Education in Global Health is one of the contemporary trends in Medical Universities. Though international guidelines have been developed about introducing Global Health to Medical Schools, there is no consensus in how it is being taught between different countries or even different universities of the same country.

**Summary of Work:** Our survey explores the way Global Health Education is provided in the academic institutions of Greece. Two out of seven Medical Schools (University of Athens and University of Patras), and the only University education Nursing Schools (University of Athens and University of Peloponnese) have been evaluated regarding inclusion of Global Health issues in their curricula.

**Summary of Results:** None out of the four schools have separate Global Health courses, either mandatory or optional, however all of them introduce Global Health issues in various subjects. Both Medical Schools provide international student exchange programs. Both Nursing Schools dedicate a higher percentage of subjects to global issues than the Medical Schools.

**Discussion:** There is no consensus between the Schools as to how is Global Health Education provided. Even the inclusion of Global Health issues in other subjects usually depends on the people who are teaching them.

**Conclusion:** Global Health has not yet come to be considered as an important subject in the Greek institutions.

**Take Home Messages:** As the need for a deep understanding of Global Health continues to grow as a result of the current socio-political development, Medical Education in Greek Institutions should evolve to meet the global standards, and even more, participate in their shaping

#8EE08 (136280)

**Impact of exchanges on medical students in Morocco**

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*Omar Cherkaoui (IFMSA-Morocco, Rabat, Morocco)*

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**Background:** Many studies conducted in the past decades show that international opportunities have a positive impact on medical students. While most studies have analyzed the impact of exchanges on students going from high-income countries to middle or low-income countries, research is lacking on what is the impact on students going from middle and low-income countries. Do they contribute in any way in their education and their understanding of global health issues? Do they contribute to their understanding of equitable health care access to all patients?

**Summary of Work:** While the popularity of the exchange programs has been growing amongst medical students all over Morocco, their impact has never been measured. In this study, we analyzed the impact international opportunities had on 100 medical students from Morocco, both on a professional and personal levels. As a sub-analysis, we also surveyed 100 medical students from Morocco on the reasons why they have never participated in an exchange.

**Summary of Results:** Our results indicate that offering these opportunities to work in a different health system contribute to the personal and professional development of medical students in Morocco. Most of them report that because of the exchange experience they could see and treat patients more equitably without any discrimination and that they are more enthusiastic to become a doctor. Furthermore, it had an impact on their future choice of specialization and they report being more interested in working with underserved communities in the future.

**Discussion:** International opportunities contribute to the education of future health professionals with a global vision, in many aspects. Further research is needed to assess the long term impact.

**Conclusion:** Universities should be aware of the positive impact of exchanges and should support and motivate their medical students to go on an exchange abroad by including these as part of their medical curriculum. Because of the strong correlation we found, it would be of high value to deepen what these exchanges could add to the learning outcomes in the curriculum of Moroccan students. Besides this, we suggest other middle or low-income countries to copy this study for their own population.

**Take Home Messages:** This study can serve as a tool for medical students to advocate for getting their exchanges accredited by their universities.

**#8EE09 (135904)**

**Finding Transparency Across Different Medical Curriculums in 30 Countries**

**Shanaz Khan\***, *Association of American Medical Colleges, Washington DC, USA*

*Jenny Samaan*

**Background:** BACKGROUND: The Association of American Medical Colleges (AAMC) recognizes that with ever-increasing globalization in medicine there is growing interest on the part of medical students and medical schools to incorporate international electives into medical education. Cross border medical exchanges enable students to work with different patient populations, develop cross-cultural understanding, and learn about health systems and approaches to medical care in other nations. The AAMC's GHLO Collaborative is a network with over 104 medical schools in 41 countries in which GHLO has been created to foster collaboration between American and international medical schools to facilitate student mobility through a web-based application service. These 104 medical institutions in the GHLO Collaborative are diverse in their medical program duration and medical curricula. In order to foster collaboration and increase medical student mobility between institutions, having a baseline understanding of the similarities in the medical curriculum was essential for increased transparency across different medical curricula to allow for a quality experience for the international visiting student.

**Summary of Work:** The GHLO Collaborative is growing network of medical institutions in 41 countries on 6 continents. The challenge of many institutions in a network is the diverse medical curricula, duration of medical programs, national regulations, as well as the emphasis on learning styles and core competencies.

**Summary of Results:** A medical education survey was sent to 40 medical schools in the GHLO Collaborative to understand the following questions: - What is the scope of your curriculum for your final year medical students? - What are the mandatory clerkships that your medical students must complete? - What actions/activities can final year medical students can perform in a hospital setting? - Are there national regulations in relation to their medical curriculum which could limit their participation in an international experience?

**Discussion:** Results from the survey illustrated the broad scope of each medical curriculum. Most medical institutions include 6-7 core clerkships for students in their medical curriculum in the early phases of their clinical years. These core clerkships include, Pediatrics, Family Medicine, Surgery, Internal Medicine, Obstetrics and Gynecology, and Psychiatry. In the scope of the final year medical curriculum, 40% of institutions required students to complete mandatory clinical clerkships as well as clinical electives.

**Conclusion:** By creating a global network of medical schools that is focused on improving the quality of clinical and research electives through a process of

examination, selection, evaluation and assessment, GHLO has increased understanding and transparency of medical curricula within the GHLO Collaborative. Understanding the competencies in each institution's medical curriculum, as well as any limitations final year medical students may have due to their medical curriculum allows GHLO increase transparency and flexibility with what hosting institutions offer.

**Take Home Messages:** The GHLO Collaborative has also allowed each institution to view other's medical curriculum to enhance understanding and engage in dialogue.

**#8EE10 (135925)**

**Development of international curricula in post-graduate medical education**

**Sharon Mitchell\***, *European Respiratory Society, Lausanne, Switzerland*

**Background:** The primary goal of post-graduate medical education is to train health professionals to become competent practitioners within specialty areas. Standards of medical practice vary considerably not only across international boundaries but within national borders (Harden, 2003). One of the primary aims of the European Respiratory Society (ERS) is the development of curricula for post-graduate and post-specialty training applicable and acceptable internationally. The design of curricula for implementation internationally has required careful planning, design and development.

**Summary of Work:** ERS have designed and published 9 curricula for specialty and subspecialty areas of respiratory medicine. Each curriculum is in a different area of a cyclical development over 5-7 years. For each curriculum review we rely on a task force of content experts representing 10 – 15 countries in Europe.

**Summary of Results:** ERS curricula have been endorsed and recognized by the European Union of Medical Specialties as well as a number of national medical boards and chambers for the specialty areas of respiratory medicine.

**Discussion:** We have looked to key theories and models within medical education to guide this task. The situational model promoted by M. Skilbeck emphasizes the importance of context in curriculum design. By mapping this model to ERS curricula we have adapted Biggs model of constructive alignment across the key curriculum elements of situational analysis, programme building (outcomes, teaching and learning, assessment) implementation, monitoring (Prideaux, 2003).

**Conclusion:** The models postulated by M. Skilbeck and J. Biggs have assisted ERS in the design and planning of curricula in respiratory medicine. It is hoped that these curriculum frameworks will assist medical training institutions across Europe to establish standards for post-graduate training in respiratory medicine.

**Take Home Messages:** Medical societies are playing an increasingly important role assisting medical



training institutions to bridge training gaps across international borders. The first step to achieving harmonised education is the design of applicable and acceptable curricula.

#8EE11 (136369)

**"Think globally, adapt locally": implementation of IFMSA in the French-speaking part of Belgium, a medical students' adventure**

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**Background:** Although the International Federation of Medical Students' Associations (IFMSA) was founded in 1953, its Belgian branch BeMSA (Belgian Medical Students' Association), was only founded in 2009 and its first active French-speaking local committee at Université catholique de Louvain, Brussels, in 2015. There are many reasons for this divided history, one of them being the Belgian State itself: we had to adapt to existing structures and do what Belgians do best: Negotiate and Compromise.

**Summary of Work:** several steps led to UCL now being one of the most active local committees in Belgium: the willingness to vote for the first Vice-President of Internal Affairs of the organisation to belong to a French-speaking university, the foundation of the local committee, up to the signature of the SCOPE and SCORE exchange contracts. There were many challenges along the way, a.o. the INAMI crisis: last year Belgian graduates were not assured of receiving an authorisation to practice. This was used to create conflicts between Dutch-speaking and French-speaking parts of the country, during which time BeMSA managed to keep its neutrality.

**Summary of Results:** We managed to integrate BeMSA UCL into the already existing web of student representative organisations, student exchanges as well as public health programs already done by students.

**Discussion:** It is hard to define a student organisation's success: being well-known, representing students in negotiations with the government, or simply offering them new opportunities?

**Conclusion:** The implantation of BeMSA at UCL has fulfilled all our goals so far and will hopefully help motivate other French-speaking universities to follow our example and guide other students in setting up their own branch of IFMSA.

**Take Home Messages:** "It is not your fault that the world is the way it is, it is just your fault if it stays that way."

#8EE12 (136244)

**Human Resources for Health: Biggest challenges and opportunities through students' eyes**

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**Background:** Ensuring healthy lives of our population is one of our region's highest concerns. Yet, without enough healthcare workers with the right set of skills, this cannot be accomplished. Estimates from WHO and World Bank identify one of the major challenges to attaining universal health coverage is the projected global deficit of nearly 18 million health workers by 2030.

**Summary of Work:** During the annual meeting of the International Federation of Medical Students' Association, that brings together medical students from over 100 countries and all regions, discussions were held and a survey was conducted that aimed to understand major challenges in human resources for health and healthworkforce planning worldwide, as well as best practices from different countries' perspectives. Results were projected into worldmaps showing average ratings by students on items such as perceived quality of medical education and perceived likelihood of workforce migration.

**Summary of Results:** Major challenges perceived by students lie in lacking quality of education and workforce planning. Rapid and uncontrolled scale-ups of the numbers of health professionals in training is increasing each day, while many faculties don't live up to the World Federation for Medical Education global standards in medical education, as well as poor health workforce planning mechanisms, where the number of medical students in training are not synchronized with the population's needs for specialization, distribution and recruitment and retention of health workers.

**Discussion:** Data was collected through single representatives of medical student associations per country to only portray a rough estimation of the situation

**Conclusion:** Health workforce planning mechanisms have failed to ensure quality of education when scaling up for the deficit in health workforce. There are still many challenges that students are recognizing that need to be overcome in all regions of the world.

**Take Home Messages:** There is a sincere need for educationalists, faculties, and students to be engaged in health workforce planning to ensure a well prepared health workforce by 2030.

#8EE13 (133135)

**Advancing your career as an educator - How to develop an Education Portfolio (EP)**

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Sandy Cook (Duke-NUS Medical School, Singapore, Singapore)

**Background:** When SingHealth became an Academic Medical Centre in 2011, an Education Institute (AM.EI) was formed to support the educational development of clinician educators in a set of core competencies in five key domains, as outlined by the Academy of Medical Educators, Professional Standards (3rd edition, 2014). As part of this initiative, and to help in promotion and tenure, it was deemed necessary to conduct a workshop to help educators understand what is deemed scholarly activity in education and how to develop an EP.

**Summary of Work:** From August 2014 to September 2015, my co-author and I conducted three workshops as titled above. The educational tools used include a PowerPoint presentation, Audience Response System using clickers, a group activity and a One Minute Paper exercise. The participants were given two pre-reading articles and told to bring along a brief Educational philosophy statement.

**Summary of Results:** Course evaluation data of the three cohorts were very positive but it was unclear how many participants actually completed their EP. We are currently working on a post-session follow-up to see how many of the 60 participants actually used it for the annual appraisal exercise in 2014 and 2015. This data should be ready by June 2016.

**Discussion:** Due to the present complexity of healthcare systems, it is increasingly becoming evident that a physician cannot excel in all the three traditional areas of excellence: Clinical services, Research and Education. To make the scholarship of education equally worthy as research, education related activities must be measured, evaluated, available for peer review and critique, according to accepted standards that are reproducible.

**Conclusion:** The majority of positive comments in the post evaluation forms (90%) showed the participants found it useful and wanted it continued for educators in the health professions.

**Take Home Messages:** To help educators understand what is deemed scholarly activity in education and to help them develop an EP that can be used for promotion and tenure.

#8EE14 (134720)

**Evaluation of the Quality of Conference Abstracts, Published Abstracts, and Manuscripts in Medical Education using the MERSQI score**

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**Background:** There is little evidence in medical education scholarship to demonstrate whether abstract quality compares to manuscript quality. The Medical Education Research Study Quality Instrument (MERSQI) was developed to evaluate medical education literature quality. We investigated the relationships among conference abstract, published abstract, and manuscript quality using the MERSQI.

**Summary of Work:** We compared overall MERSQI scores and MERSQI subcomponent scores among conference abstracts, published abstracts, and manuscripts accepted to a national internal medicine meeting. We included education interventions, curriculum development, assessment tools, and education surveys. We excluded qualitative research, systematic reviews, and meta analyses. Comparisons were performed using the signed rank test.

**Summary of Results:** The overall MERSQI score did not significantly differ between conference or published abstracts. Compared to conference abstracts, published abstracts had higher subcomponent scores in data type and analysis. Manuscripts showed a significant increase in overall scores compared to abstracts. Manuscripts also had higher subcomponent scores in data analysis and validity.

**Discussion:** Overall, quality increased from abstracts to manuscripts. Compared to conference abstracts, published abstracts were more likely to report higher quality data, such as objective measurements and more complex data analysis. Manuscripts were more likely to include a validity evaluation of assessment tools, possibly related to abstract brevity.

**Conclusion:** We demonstrated similar quality between medical education conference abstracts and published abstracts while showing a significant increase in quality of manuscripts. Many of these differences were due to missing information in the abstracts such as discussions of validity and reports of data type and analysis.

**Take Home Messages:** We report the first study to compare the quality of medical education abstracts to manuscripts using the MERSQI. Quality increased from abstracts to manuscripts. We demonstrated which MERSQI subcomponents were omitted in abstracts. Future research to develop a modified MERSQI for abstracts which omit these subcomponents could be considered.

#8EE15 (136097)

Special Interest Group in Medical Education

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**Background:** The exchange of experiences and interprofessional discussions are important to improve the health professions education. However, it is not always possible to bring together experts in education for the health professions for this purpose. To overcome this challenge we create the Special Interest Group in Medical Education (SIGEM) which aims to promote interaction and updating among health educators and stimulate research in medical education - especially integrating teaching to research and extension in the Brazilian Unique Health System (SUS).

**Summary of Work:** By using traditional video conferencing, web conferencing, and video streaming we held monthly meetings, two hours long, during a regular annual schedule. Each institution can coordinate the activity by choosing the topic being discussed. Each session begins with a 15 minute presentation, followed by discussion among the participants present in the session.

**Summary of Results:** Twenty seven different institutions participate in the SIGEM regularly. All meetings are recorded and participants are warned about the copyright in each session. Twenty two different themes were discussed, involving about 200 participants including physicians, dentist, pharmacist, physiotherapist, nurses, medical students and residents.

**Discussion:** Brazil is a continental country which has three different time zones, so protecting a national schedule for all medical schools exchange tools and expertise in medical education may contribute to health professionals education. New education strategies may be discussed in order to attend national demands such as the epidemic Zika virus and could be used to standardize "how to act" to improve institutional actions.

**Conclusion:** Working collaboratively encourages new teach and learning practices. The videoconference recorders can be used to spread this initiative nationally.

**Take Home Messages:** SIGEM could be an alternative to improve best practices in health professional's education. Its use should be stimulated since it's a free activity which enhances collaborative practices.

## 8FF Posters: Integration / Portfolios

Location:

#8FFo1 (135761)

**Perception of faculty and students regarding integrated curriculum in Alexandria medical school, Egypt**

**Noha Mahmoud\*, Alexandria Medical School, Alexandria, Egypt**

Soha Rashed, Alexandria Medical school, Alexandria, Egypt

Hoda Khalifa, Alexandria Medical school, Alexandria, Egypt

Nagwa Mashali, Alexandria Medical school, Alexandria, Egypt

**Background:** In 2009, Alexandria medical school responded to the needs of reforming its pre-clinical educational program by shifting its traditional discipline based undergraduate curriculum to become more integrated. This new integrated curriculum (IC) included 19 systems-based integrated modules taught over Pre-clinical phase. Taking into consideration the importance of program evaluations, this study aimed to explore the perceptions of the key stakeholders from faculty and students toward various aspects of the integrated curriculum.

**Summary of Work:** The study was a mixed methods design using both quantitative and qualitative data collection tools. A five-point Likert structured questionnaire was administered to 300 undergraduate students who completed their pre-clinical phase and 89 faculty members. Both faculty and students' surveys assessed whether IC achieved its aim or not, the implementation process of IC and the newly introduced instructional methods. Additionally, the faculty survey aimed to elicit their perception towards the change process. Open-ended questions were also included to gain a deeper insight regarding faculty and students' suggestions to improve IC.

**Summary of Results:** The study showed that Staff satisfaction levels were significantly higher than that of the students regarding Concept and utility of integrated curriculum and new instructional methods (63% vs. 54%), Integrated modules structure and organization (60% vs. 54%) and Assessment methods (51% vs. 45%). Faculty attitudes towards change management were the least valued (43%). Students' satisfaction with the teaching staff was also acceptable/ marginal (58%).

**Discussion:** Study findings revealed a considerable congruence among both groups regarding their perceptions of both the strengths and the shortcomings in the aim and implementation issues of IC. The overall level of satisfaction of faculty and students in Alexandria medical school regarding IC was less than one reported from similar studies that assessed perceptions toward integrated curriculum in different schools around the world.

**Conclusion:** Continuous evaluation of the IC is essential to ensure its quality and overcome

challenges in its implementation which affected the overall satisfaction of both faculty and students.

**Take Home Messages:** The findings of this study showed that change process was not well-accepted by both faculty and students. Therefore, involving them in the process of curriculum evaluation and decision making would be a valid way to help faculty and students feel more emp

#8FFo2 (135393)

**Pre-Clinical Skills: A competency-based assessment integrated course implemented early in the pre-clinical curriculum to prepare second-year medical students prior to entering clinical settings**

**Maria Rosa Fenoll-Brunet\*, Universitat Rovira i Virgili, Reus (Catalonia), Spain**

Veronica Piera (Universitat Rovira i Virgili, Reus, Catalonia, Spain)

Domenec Sanchez (Universitat Rovira i Virgili, Reus, Catalonia, Spain)

Maria Angel Lanuza (Universitat Rovira i Virgili, Reus, Catalonia, Spain)

Neus Garcia (Universitat Rovira i Virgili, Reus, Catalonia, Spain)

Pedro Cobos (Universitat Rovira i Virgili, Reus, Catalonia, Spain)

**Background:** In most preclinical courses laboratory practices are carried out, but the degree of acquisition of related skills is not usually subject to evaluation, or have little impact on the final score. While the acquisition of clinical competences has traditionally still been assessed mainly on the final courses.

**Summary of Work:** A Preclinical Skills course was designed to overcome the disadvantages of the traditional teaching methods. To help students to conceptualise rather than memorise and encouraging them to integrate basic science concepts and principles into future clinical practice.

**Summary of Results:** Since 2009-2010 about 130 students from second-year of Medicine performed this course while being enrolled in parallel in core-contents courses on Physiology, Anatomy and Histology. Students trained in small groups, discuss case studies, and learn to elaborate reports in Radiological Anatomy seminars, physiology and virtual microscopy laboratories. An integrated formative assessment included: 1. A clinical scenario that serves as the basis for developing 30 multiple choice questions (five are associated with the interpretation of medical images). 2. A tour of 10 stations to evaluate the acquisition of essential clinical skills. I.e., performing a Cardiopulmonary resuscitation, a Heimlich maneuver, writing a histologic report.

**Discussion:** This competence-based course to train preclinical medical students ensures that they can appropriately deal with the next stage of their training, work placements in health care institutions. The preclinical competences evaluated and their assessment methods emerge from previous review



works and a framework of quality assurance references from AQU-Catalunya.

**Conclusion:** Students recognize the usefulness of applying basic medical sciences knowledge in clinical case studies or even earlier allowing to respond adequately to medical emergencies that might happen in their everyday life.

**Take Home Messages:** Give him good methods and a proper point of view, and all the other things will be added as his experience grows" (Sir William Osler 1849-1919).

#8FF03 (136083)

**Do undergraduate medical students who learn through integrated teaching achieve better learning outcomes?**

*Joanna Tarr\*, University of Exeter, Exeter, UK*  
*Karen Mattick (University of Exeter, Exeter, UK)*

**Background:** There is increasing use of the integration of basic science and clinical concepts in undergraduate medical education. Teaching strategies such as problem based learning, case based learning, multidisciplinary teaching sessions and simulation based teaching are used to deliver integrated teaching. Little is known about whether these integrated teaching strategies lead to better knowledge and skill levels for these students. A systematic review was performed to assess the learning outcomes measured in integration studies and whether an integrated teaching approach lead to students achieving better learning outcomes.

**Summary of Work:** MedLine, EmBase, Web of Knowledge, ERIC, ASSIA and PsychInfo were searched for relevant empirical studies published between 2000-2014. Studies describing integrated teaching/curricula for undergraduate medical students were included. The bibliographies of included papers were also searched for relevant studies. Integrated teaching and its effectiveness were classified using existing frameworks and the quality of studies was assessed using a validated instrument.

**Summary of Results:** Ninety two studies were included in the review. Integrated teaching was found to have a positive effect in 77% of the studies. However, only 51% of the studies had outcome measures which assessed knowledge or skills gained after the integration. Many studies (49%) only assessed student satisfaction or self-reported knowledge gain as outcome measures.

**Discussion:** The studies in this review indicate that integrated teaching is an effective method to use for medical education. However, the way many of the studies have been assessed for effectiveness does not provide reliable data on knowledge and skills gained by students as a result of this teaching intervention.

**Conclusion:** Future integration studies should be designed to include assessed outcome measures which can clearly indicate whether integration is an effective teaching method for undergraduate medicine.

**Take Home Messages:** Integration studies should be designed to include clear outcome measures which can be assessed to allow for proper evaluation of the teaching technique.

#8FF04 (134258)

**A combination of system-based infections and infectious disease images effectively links between preclinical to clinical and long-term memory**

*Chaline Ronpirin\*, Preclinical Science, Faculty of Medicine, Thammasat University (Rangsit Campus), Pathumthani, Thailand*

**Background:** Medical microbiology course with numerous contents detailing correlations between clinical symptoms and infectious diseases is very difficult to memorize and comprehend. The implementation of teaching and learning approach was applied aiming to effectively link between preclinical to clinical and long-term memory using a combination of system-based infections and infectious disease images as a picture is worth a thousand words, thus making crucial points briefer and more highlighted.

**Summary of Work:** Third-year medical students with former knowledge of infectious diseases were recruited to this study. The impact on their learning was judged through pre- and post-test quizzes, and their satisfaction on improved and effective learning was evaluated through a questionnaire. Particularly, learners' attitudes were graded by a five-point Likert scale (from 5 strongly agree to 1 strongly disagree). Questionnaire was circulated to acquire their feedback towards the effectiveness of this methodology.

**Summary of Results:** With regard to test scores for learning performance, 1) the mean post-test scores were statistically higher than pre-test scores in all students. A total of 111 third-year medical students (62%) completed the pre- and the post-test. The average score increased significantly from  $54.96 \pm \text{s.d. } 13.69$  to  $77.25 \pm \text{s.d. } 11.15$  ( $p < 0.001$ ) as analyzed using paired-t-test.; 2) Overall teaching satisfaction was felt within the range of 4 agree to 5 strongly agree.

**Discussion:** The learning methodology implemented in this study should be considered to apply for new generations' education. Nevertheless, only quizzes, not other evaluation methods, were used to judge the learning performance in this study.

**Conclusion:** A significant impact on learning between the mean pre- and post-test scores was found. Questionnaire results showed most students expressed positive attitude with enjoyed learning.

**Take Home Messages:** Integrative approach to teaching and learning efficiently connects between preclinical to clinical studies, thus enhancing students' long-term memory.

#8FF05 (135956)

**Characterization of Brazilian Medical Schools with regard to Curriculum Integration**

**Helena Chini\***, *Federal Institute of South Minas Gerais, Alfenas, Brazil*

*Eliana Amaral (School of Medical Sciences, Unicamp, Brasil)*

**Background:** Aiming to attend DCN 2014 to encourage curriculum integration, different strategies have been adopted in Brazil, based on methodologies such as 'problematization', PBL (Problem Based Learning), CBL (Case Based Learning) and Back-to-Basic Science.

**Summary of Work:** 23 teachers were interviewed and 07 focal groups were undertaken with a total of 60 students from 04 medical schools. Interviews and focal groups discussions were recorded and transcribed in their entirety.

**Summary of Results:** In one school during the first four semesters there are modules to discuss in small groups clinical cases from primary health care, followed by a questionnaire with 10 questions elaborated by professors. In the second school, modules from the 1st to the 4th grades consisted of basic content were created, aiming to basic-clinical integration and integrative axes to teaching-primary health care. Curriculum integration of basic-clinical content occurs through case discussion experienced in primary health care, specialised ambulatory or in hospitals under preceptor supervision. In other school, curriculum integration is developed in tutorial sessions, with discussions in small groups of real cases experienced in the community and through fictional cases elaborated and supervised by teachers. In the fourth school, students participate in discussions regarding relevant topics faced in the community by the students and then projects are proposed. Project results are presented and discussed in seminars.

**Discussion:** To ensure that the combination of basic sciences with clinical practice might generate benefits of true integration to students.

**Conclusion:** 'Problematization' and other strategies are adopted in Brazilian Medical Schools to promote basic-clinical integration according DCN 2014.

**Take Home Messages:** Four models illustrate the use of different strategies aiming to the basic-clinical integration in Brazil.

#8FF06 (131516)

**Horizontal integration in basic sciences in Kerman University of medical sciences, Iran: Medical students' viewpoint**

**Habibeh Ahmadipour \***, *Kerman University of Medical Sciences, Kerman, Iran*

*Farideh Hajmohammadi, School of Medicine, Kerman University of Medical Sciences, Kerman, Iran*

**Background:** The integration of medical education as one of the new issues in educational planning of medical universities has been introduced and in some universities is running. In this study, students'viewpoint in Kerman University of Medical Sciences(KUMS),Iran, toward horizontal integration of basic science courses was assessed.

**Summary of Work:** This cross-sectional study carried out on 144 fourth and fifth year medical students of KUMS. They were selected using census method. Data collected using a questionnaire contained demographic data, 26 questions about different aspects of horizontal integration program in basic sciences and 2 questions about students' satisfaction with the program .The range of viewpoint and satisfaction scores were 0 to 104 and 0 to 5, respectively.Data analyzed by SPSS 19.

**Summary of Results:** The majority of participants 83(57.6%) were female. The mean of their viewpoint and satisfaction scores were  $58.44 \pm 10.61$  and  $3.2 \pm 0.2$  respectively. This score had no statistically significant difference according age, gender and entrance year and grade point average(GPA) .Only students' satisfaction had a significant direct correlation with GPA.

**Discussion:** our study revealed medical students had virtually positive viewpoint toward new educational method. However, besides relative satisfaction they feel confused and concerned. So,revision of new program seems logical and reasonable.

**Conclusion:** it is our duty to review the program and try to remove the bugs.

**Take Home Messages:** it is essential for our educational system to review the new program and try to remove its bugs.

#8FFo7 (135561)

**An integrated course on the essential concepts of disease and treatment: longitudinal findings on acceptability and retention of disciplinary knowledge**

**Fatima Baltazar\***, University of Minho, Braga, Portugal  
António Gil Castro (University of Minho, Braga, Portugal)  
Carlos Capela (University of Minho, Braga, Portugal)  
Margarida Correia-Neves (University of Minho, Braga, Portugal)  
José Miguel Pêgo (University of Minho, Braga, Portugal)  
Manuel João Costa (University of Minho, Braga, Portugal)

**Background:** There is a wide interest in the integration and concurrent teaching of basic science subjects in undergraduate medical curricula. “Biopathology and Introduction to therapeutics” (BPT) is 24-week course in year 3 of the 6-year program of the University of Minho, integrating Genetics, Immunology, Microbiology, Pharmacology and Pathology, with 12 years of experience. Here, we aimed to evaluate student success and acceptability of BPT.

**Summary of Work:** We present the academic performance and acceptability of 5 student cohorts. Acceptability was evaluated by: i. anonymous questionnaires delivered 2–4 weeks upon the conclusion of BPT, on student views on the course; ii. identified questionnaires delivered by the end of year 3 (5 months later), which collected self-perceptions of disciplinary knowledge retention (as part of an ongoing longitudinal study). The same questionnaires were used for all cohorts.

**Summary of Results:** Average response rates were 74% and 79% for i. and ii., respectively. A mean of 80.4% of students rated BPT course as “excellent”. The final academic performances were consistent over the years (mean of 12.9, scale of 0-20) and the mean percentage of failure was 10.6%. The percentage of students who considered that their level of satisfaction of year 3 as “satisfactory” or “very satisfactory” was 84.9%. The percentage of students who considered to have a “good” or “excellent” level of preparation on Genetics, Immunology, Microbiology, Pharmacology and Pathology, was 49.5%, 72.4%, 71.9%, 66.7%, 54.3%, respectively.

**Discussion:** The success rates of the students were good and consistent over the years. The self-rated level of satisfaction and perception of preparedness on the different disciplines was overall very positive, supporting the horizontal integration model.

**Conclusion:** The organizational and pedagogical approaches of the BPT course achieved high acceptability by students and resulted in very positive outcomes.

**Take Home Messages:** The overall coherency of this work’s longitudinal data suggests that BPT is a successful pedagogical approach.

#8FFo8 (134253)

**Reflective writing in e-portfolio: conceptions from the post-graduate year 1 (PGY1) trainees**

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Liang-Shiou Ou  
Peng-Wei Hsu  
Shih-Tseng Lee  
San-Jou Yeh  
Lynn Monrouxe

**Background:** Reflection is often initiated by a sense of unease in learners when they realize their knowledge is incomplete or inaccurate. It enables them to take their learning to a deeper level and have a definite outcome. Reflection appears to be intimately related to learning, yet the literature that links reflection to learning is lacking in detail. Medical ethics, care quality, personal development, and significant event analysis are typical components of reflective writing reports in e-portfolios. This study examines postgraduate trainees’ (PGYs’) experiences of reflective writing.

**Summary of Work:** During Aug 2014 and Jul 2015, 71 of 119 PGY trainees at a single hospital in Taiwan participated in a questionnaire and qualitative interview following completion of the reflective writing reports. The questionnaire comprised 11 questions about reflective writing (responses used a 5-point Likert scale). Qualitative data are being thematically analyzed.

**Summary of Results:** Scores from questionnaire items ranged from  $3.01 \pm 1.03$  to  $3.60 \pm 0.85$ , indicating trainees “slightly agree” their learning improved following reports. According to the questionnaires, “personal development report” appeared to be the least favorite due to the frequent repeatability and lack of instruction. “Significant event analysis” provided specific learning objectives and was acknowledged by most trainees. Preliminary results from the interview showed: (1) Poor perception of reflective writing; (2) Unsure of future performance benefits; (3) Feedback from clinical teachers affects reflection; (4) Confusion regarding what reflective writing comprises.

**Discussion:** Most trainees considered reflective writing reports as “casual reports”. To improve the learning effect of reflective writing, well-designed guidance is required. Understanding the theoretical framework and mechanism of reflection is important in improving the effect.

**Conclusion:** Instructions, structured format, and teachers’ feedbacks may emphasize the role and effect of reflection. Further study should be arranged.

**Take Home Messages:** Learning through reflection requires appropriate guidance.

#8FF09 (135008)

Teaching portfolio and resource redesign for seamless usability

*Fiona Spence\*, University of Auckland, Auckland, New Zealand*

*Pauline Cooper-Ioelu*

*John P Egan*

*Mark Barrow*

**Background:** A faculty online 'Teaching Hub' already existed but analytics data showed it was under-utilised. Staff reported it did not address their primary need for quick access to relevant teaching resources in digestible bites of best practice information to guide teaching skills development. As well, an accompanying online teaching portfolio linked to the 'Hub' was not flexibly structured.

**Summary of Work:** Two learning designers worked in partnership with the Associate Dean, Academic to redesign both resources. Feedback was sought from key staff about the existing resource and their future teaching needs. Existing materials were edited and updated in line with feedback; software specific information was refined to improve portfolio usability.

**Summary of Results:** The redesign process resulted in the development of two aligned online resources. The Faculty 'Everything Teaching' website (<https://www.coursebuilder.cad.auckland.ac.nz/flexicourses/3228/publish/1/>) brings together a complex array of resources and best practice information available to staff to support their teaching and further their teaching careers. The online Faculty Teaching Portfolio designed around University policy, performance standards and criteria, allows staff flexibility to create entries tailored to their own professional development plans.

**Discussion:** The evaluation phase of a design project is often overlooked: responses to feedback and refinements of resources do not always occur. Time and energy invested in developments then lie fallow with the resource. An iterative approach to design is essential.

**Conclusion:** Faculty support has enabled the review and improvement of an initial concept, building on the positives of the original and addressing identified gaps.

**Take Home Messages:** Time pressured staff need easy access to resources and best practice information that will support the attainment of teaching excellence. Aligning a portfolio space, structured around performance criteria (Biggs & Tang, 2011), to these resources means staff can move seamlessly between performance requirements, portfolio writing, and best practice teaching information.

#8FF10 (134611)

Portfolio in medical school : King Abdulaziz University experience

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*Mohammed Shahid Shamim*

*Mohammed Hassanein*

*Reem Alafari*

*Rania Zeini*

**Background:** The portfolio provides a tool for collecting and managing multiple types of assessment evidence from multiple contexts and sources within the curriculum to document competence and promote reflective practice skills. The objective of this study was to evaluate the effectiveness and acceptance of using portfolio in assessing skills & reflection in undergraduate medical students during basic and clinical years at King Abdelaziz University (KAU), Jeddah, Saudi Arabia

**Summary of Work:** Formative and summative portfolios were introduced in the 2nd, 3rd, 4th and 5th undergraduate medical years at KAU for 2 years (2013 – 2015). At the end of academic years, students were asked to complete a mixed questionnaire that included their perceptions and reflections on skills learned and assessment through the use of a portfolio.

**Summary of Results:** A total of 910 students participated in the project, of which 470 (51.6%) were male and 440 were female (48.4%). Of the students, 242 (26.6%) were from the basic years (2nd, 3rd and 4th years) and 678 (73.4%) were from the clinical year (5th year). The results showed a difference between basic & clinical years about skills, in basic years, there are focused on basic clinical skills but in clinical years there are focused on more complex skills including identifying & managing problems. About reflection area in the study, the booklet provides a lot of chance for students to practice in writing their reflection both directly in the page of the reflective journal and indirectly by asking them several questions about their perceptions of the curriculum & the environment and also by asking them to provide suggestions to improve their performance. The results of distribution questionnaire about the perception of mentors & students for using portfolio revealed a good trend for acceptance.

**Discussion:** The use of portfolios in undergraduate education has met with mixed success, and has been more successful when not used in isolation but as a part of other educational activities, for example, in tutorial groups. Portfolio learning encourages students to debrief challenging events that occur during the course of their learning. It provides a safe environment in which they can reflect, receive feedback, and engage in discourse around context-specific experiences.

**Conclusion:** Portfolios are well accepted by Saudi medical students. They find it useful for learning and developing skills. The requirement for development portfolio in the early undergraduate years gave



students the skills to prepare their own clinical skills guidelines in subsequent years  
**Take Home Messages:** Portfolio weather summative or formative should be used as a part of educational activities & reflection by students is essential for learn and becoming life-long learners.

#8FF11 (133585)

**Survey of e-Portfolio Practice at Medical Schools in Japan**

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*Raoul Breugelmans*

*Yoshikazu Asada*

*Michito Hirakata*

**Background:** Electronic portfolios (ePFs) which can be accessed from personal computers and mobile devices are gaining in importance in medical education.

**Summary of Work:** We sent out by post written invitations to participate in an online survey to the medical education units of all 80 medical schools in Japan.

**Summary of Results:** Of 70 schools from which replies were received, 16 use paper-based portfolios, 14 use ePFs, 8 use both, and 32 do not use either. The most commonly used ePF systems are Mahara, manaba folio, and WebClass, and they are used in particular for clinical training. Increased burden on faculty is considered a demerit of ePFs. Compared with paper-based portfolios, ePFs facilitate timely feedback and better storage and sharing of data, but on the other hand they are demanding in terms of infrastructure and technical administration.

**Discussion:** Current ePF solutions are not considered optimized for medical education. Teachers of medical school feel the burden of administrating the information communication technology, such as ePF.

**Conclusion:** In Japan, most university feel need for ePF, but only 20 of 70 universities adopted ePF.

**Take Home Messages:** There is a need for the development of a common ePF environment for use in medical education.

#8FF12 (136362)

**Introducing portfolios in Speech Therapists' undergraduate education: a pilot study at the University of Milan**

**Lucia Zannini\***, *University of Milan, Milan, Italy*

*Flavia Spalletti (University of Milan, Italy)*

*Giuseppina Bernardelli (University of Milan, Italy)*

*Maria Benedetta Gambacorti-Passerini (University of Milan, Italy)*

*Ingrid Tonni (University of Brescia, Italy)*

**Background:** Portfolios are useful tools to document students' learning in the clinical field and to give feedback, in undergraduate/postgraduate education. In the literature, three types of portfolios are reported: learning, assessment and presentation portfolio. Even if portfolios have been implemented with many healthcare professionals, no study involving speech therapists was available.

**Summary of Work:** The study was aimed at constructing a learning portfolio for students in Speech Therapy. Expert teachers/educationalists defined the portfolio structure, which was later experimented by five students. A scoring rubric was used by two blinded evaluators to analyze the portfolios. Students' and clinical supervisors' satisfaction was investigated through a questionnaire.

**Summary of Results:** Portfolio structure and contents have generally revealed useful to document students' clinical competences. Portfolio was appreciated as an effective instrument to support learning in the field, in particular to develop reflexivity. Time needed for portfolio preparation and amount of documentation required were considered the critical aspects of this pilot experience.

**Discussion:** As described in other studies on portfolios, students and supervisors reported difficulties, due to the time needed in preparing materials. The amount of data collected has revealed not manageable by the existing supervisors/teachers. Besides, they considered the experimented portfolio as not completely appropriate for documenting third year students' clinical competences.

**Conclusion:** The study results show good acceptance and satisfaction with portfolio in the Speech Therapy students involved, especially for its capacity of stimulating reflexivity. Therefore, one of the main goals of portfolio was achieved. Nevertheless, further research has been advocated to improve the portfolio feasibility in the Speech Therapy bachelor degree.

**Take Home Messages:** Portfolios can effectively respond to some educational needs of Speech Therapy students, as the demand of reflecting on their clinical experience. Nevertheless, the introduction of portfolios in undergraduate Speech Therapist education must be carefully evaluated, considering available resources to implement them and, above all, to give feedback to students.

#8FF13 (135458)

**The clerking portfolio: an exploration of student, doctor and patient perspectives**

*Joy Hollamby\*, North Bristol Academy, University of Bristol Medical School, Bristol, UK*

*Justin Morgan (North Bristol Academy, University of Bristol Medical School, Bristol, UK)*

**Background:** The University of Bristol Medical School mandates the completion of an assessed clerking portfolio during the junior and senior medicine and surgery blocks (JMS and SMS). The practicality of using inpatients as learning resources needs to be understood alongside potential effects on student and patient experience.

**Summary of Work:** Qualitative and quantitative data has been collected from students, doctors and patients in the form of questionnaires for all groups, complemented by focus groups for students.

**Summary of Results:** The 95 student questionnaires show that JMS and SMS students spend on average 3 hours per total portfolio case of which 60 minutes are with the patient. 36% of students reported that patients they clerk have been seen before by a student multiple times ( $\geq 3$ ) and gave the difficulty of finding a patient to clerk a rating of 5.2/10. 63 doctor questionnaires show that availability of inpatients is considered 30% for a full clerking and 50% for a short encounter. Qualitative data from doctors and students report the portfolio to be a 'time inefficient' process. Initial analysis of patient data (collection not yet complete) shows that 80% of patients are happy to see medical students however 100% would feel unable to close an encounter prematurely.

**Discussion:** The time students spend with patients per case will be compared with final data from patients regarding how long they are prepared to spend with students. We will explore the reasons behind the quantitative and qualitative data provided and discuss the learning outcomes of completing a clerking portfolio.

**Conclusion:** Preliminary conclusions: specifying 'full clerking' portfolio cases limits patient availability to 30%. Less specific portfolio requirements could potentially increase inpatient resource by 66%.

**Take Home Messages:** We will consider whether the clerking portfolio is the most appropriate tool to assess learning when attempting to create a sustainable balance between teaching and patient care.

## 8GG Posters: Outcome & Competency-Based Education

Location:

#8GG01 (134303)

**Authentic Learning Outcome and Expected Learning Outcome of Graduate Medical Students by Thai Qualification Framework for Higher Education**

**Soraya Kaewpitoon\***, *Institute of Medicine, Suranaree University of Technology, Muang, Thailand*

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Rattana Rujirakul

Noknoi Sripho

Taweesak Tongtawee

Natthawut Kaewpitoon

**Background:** Institute of Medicine, Suranaree University of Technology (SUT) is the medical school of Thailand since 2006.

**Summary of Work:** Qualifications Framework for Thailand's higher education system is designed to support implementation of the educational guidelines. The Framework provides the skills and capabilities of graduates. This study was to compare between authentic Learning outcomes by work supervisors' satisfaction and expected learning outcome of graduate medical students using by Thai Qualification Framework for Higher Education.

**Summary of Results:** The results of study were following Level of learning outcome of graduate students in 6 domains 1) the ethics and morals, 2) knowledge, 3) cognitive, 4) the numerical, communication and Information technology Skills, 5) the Interpersonal skills and responsibility, 6) psychomotor skills. The graduated medical students and employer were completed the performance satisfaction questionnaire. The results showed the comparison of expected of learning outcome was lower than authentic Learning Outcome by work supervisors' satisfaction in six factors with significantly. This finding presents expected of learning outcome was lower than authentic Learning outcome by work supervisors' satisfaction.

**Discussion:** The results showed the comparison of expected of learning outcome was lower than authentic Learning Outcome by work supervisors' satisfaction in six factors with significantly

**Conclusion:** Longitudinal study is an influence of changed therefore the academic performance needs to be performed with efficient developing in graduates' desirable attributes.

**Take Home Messages:** Qualifications Framework for Thailand's higher education system is designed to support implementation of the educational guidelines. The Framework provides the skills and capabilities of graduates. Expected of learning outcome should be equal authentic Learning outcome.

#8GG02 (131254)

**Establishing Clerkships Competencies for Brazilian Medical Schools (BMS) using a Delphi method modified**

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Dione Tavares Maciel

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Derly Silva Streit

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Milton de Arruda Martins

**Background:** In Brazil, after the medical school graduation, is permitted to work as physician and does not exists clear competencies established for the news doctors. Since 2006, Brazilian Medical Education Association has made in its annuals conferences, forums about clerkships teaching and learning models, supervision, evaluation and establishment of desired competencies.

**Summary of Work:** It was done discussions in 3 forums about competencies necessities in the main areas of Medicine with more or less 200 participants in each. The participants were medical students, teachers and BMS directors. The suggested competencies were validated in 3 meetings with 68 BMS clerkships coordinators using a Delphi technique.

**Summary of Results:** Validations meetings started first in 5 groups by areas: Internal Medicine, Surgery, Pediatric, Gynecology/Obstetric and Public Health and after with all participants in the two first meetings. The suggestions were discuss with theirs BMS and finally in the third meeting the competencies were defined in consensus by all participants.

**Discussion:** The 3 initial forums discussions with participation of students, teachers and directors from BMS of all Brazilian regions permitted included different competencies needs for the Brazilian physicians. Using a Delphi method in the 3 validation meetings, the competencies suggested were validated by clerkships experts' professors not in specific medicine areas.

**Conclusion:** It was important that the competencies were discussed by the majority of BMS members initially and after validated by experts in clerkships and also worried with the competencies necessities for Primary Care and Urgency/Emergency Units main areas were the new Brazilian physician will work in the beginning of his career.

**Take Home Messages:** The definition of what are the competencies wanted of a medical student at the graduation must be done considering the job market and population health needs. The use of a modified Delphi method, with the participation of all BMS members, helps the BMS to establish these competencies in Brazil.

#8GG03 (134514)

**Evidence-based practice in Entrustable Professional Activities: A scoping review**

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Kenneth McLean (University of Edinburgh, Edinburgh, UK)  
David Hope (University of Edinburgh, Edinburgh, UK)  
Alan Jaap (University of Edinburgh, Edinburgh, UK)  
Helen Cameron (University of Edinburgh, Edinburgh, UK)

**Background:** Entrustable Professional Activities (EPAs) have been implemented widely particularly in postgraduate medical education over the last ten years, a trend continuing to Undergraduate Medical Education (UME). Now that EPAs are being developed internationally in all areas of medical education it is essential to thoroughly review the literature already produced and evaluate whether EPAs improve reliability and validity, have positive educational impact, are acceptable to stakeholders, and are cost-effective.

**Summary of Work:** A systematic search of the literature identified 199 full-text articles for review. After screening, 122 of these articles were accepted for inclusion in a scoping review to analyse the state of the literature and present research questions for future work.

**Summary of Results:** There is a lack of empirical evidence for EPAs; only ten percent of studies concentrated on evaluation of EPAs. Additionally there is considerable variability in methods employed to create EPAs: who is consulted in the process and who is considered an 'expert' during the process. The literature also covers a wide range of specialties but less than five percent of the literature focuses on UME.

**Discussion:** Many of the projects described in the literature should be able to produce good quality evaluations of the EPA implementation, but have not yet done so. Those evaluations which exist appear favourable to EPAs, but are few in number.

**Conclusion:** There is no conclusive evidence that EPAs improve assessment reliability, validity or educational impact, particularly in UME. Without evaluations it is difficult to determine the utility of EPAs as an assessment tool.

**Take Home Messages:** The medical community should commit to publishing evaluations of their EPA programmes to address the gaps in the literature and ensure we continue to adopt best-practice in our assessment methods. When accepting papers for publication journals should consider requiring a statement on plans for evaluation or a follow-up publication once evaluation is complete.

#8GG04 (135158)

**Context Matters for Supervision Decisions about Entrustable Professional Activities (EPAs)**

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**Background:** Entrustable Professional Activities provide a framework of assessment for which medical educators are developing ways to gather and interpret data. Essential data needed for valid entrustment decisions have not been determined.

**Summary of Work:** We developed clinical performance assessment forms on which medical students record reflections before, during and after a clinical encounter, solicit preceptor feedback and record a plan for learning. Preceptors add written observations and feedback. A Clinical Competency Committee reviews these narrative data and makes judgments about required level of supervision on core EPAs. We reviewed longitudinal data from 8 students across 18 months to identify aspects of clinical context that affected decisions about required supervision levels.

**Summary of Results:** Several aspects of context influence students' performance on EPAs. For example, a student may do complete, reliable histories and physicals for well child visits and simple acute complaints, but be less thorough, organized or effective with multiple complex diagnoses or urgent situations. Context includes: a. Clinical diagnoses/medical situation: diagnoses, complexity of medical situation, clinical setting b. Family situation: family's language, need for a translator, social/economic needs c. Parent/child characteristics: communication, patient's age, child's behavior, development and cooperation with exam d.

Support/resources: preceptors, team members, community resources, computers, electronic records

**Discussion:** Students' reflections and narrative from preceptors provide insight about the influence of context on performance. We need data about multiple contexts to make summative decisions about entrustability; if decisions are based on limited contexts, we must specify level of challenge of observed contexts. Research is needed about how context affects faculty decisions about entrustability and the number of contexts in which students must be observed for valid summative decisions.

**Conclusion:** Contextual factors affect entrustment decisions, so we need data about the context of learners' performance.



**Take Home Messages:** We must gather data about clinical contexts in which learners practice and incorporate contextual data in decisions about readiness for practice.

#8GG05 (136047)

**The influence of work years and faculty development hours on using emergency medicine milestones as assessment tool**

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Fremen Chihchen Chou

**Background:** Milestone project is an emerging topic of competency-based medical education. It is interesting to know whether the milestones themselves are suitable for clinical teachers to use for evaluating residents' performance and whether the differences on faculty development hours and the work years in Emergency Department influence clinical teachers' performance on using milestones as assessment tool.

**Summary of Work:** Shift-based milestone evaluation (SBME) was a simple assessment tool developed by Taiwan Society of Emergency Medicine by transforming milestone as the observation anchor to evaluating workplace-based performance. In the beginning of daily work, the residents needed to inform their supervisors which subcompetency they want to be observed in today's clinical work. In the end of the shift, the supervisors evaluated the performance by milestone description. This study collected 1487 SBME from 30 clinical teachers and 11 residents with 23 subcompetencies since July to December 2015. Teachers' work years and FD hours were also collected. ANOVA was applied to analyze whether these experience influence teachers' performance on evaluating residents. Pearson correlation was used to evaluate if each physician assess every subcompetency in similar rigor or consistent standard. We analyzed 6 classical ones' data out of the 23 subcompetencies.

**Summary of Results:** Work years and faculty development hours has no significant effect on teacher's performance of using milestones as assessment tool. Correlation analysis revealed teachers who are strict in evaluating one subcompetency tend to also strict on all the other relevant subcompetencies.

**Discussion:** No significant effect on work years and FD experience might reflect the EM milestones were quite intuitive to understand especially for the patient care part.

**Conclusion:** The descriptions of milestones might be easy to realize and friendly to use for evaluating resident performance during daily work.

**Take Home Messages:** The emergency medicine milestones and the shift-based milestone evaluation might be useful tools for emergency clinical teachers.

#8GG06 (136175)

**Medical teachers' rating and perception of professional roles – a key element to curricular change?**

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Steffen Wiechers (University Children's Hospital, Department of General Paediatrics, Oncology and Haematology, University of Tuebingen, Germany)  
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**Background:** In Germany, competence-based medical education is currently being introduced. The National Competence-Based Learning Objectives for Undergraduate Medical Education (NKLM), adopted in 2015, defines seven professional roles as guiding principles similar to the CanMEDs. International experiences show that a common understanding of role content is needed in the communication between medical schools, faculties, and students to facilitate change. As the roles can be perceived differently, especially teachers' (mis)conceptions may establish barriers in role understanding and implementation. This study aimed to analyse German medical teachers' understanding of NKLM roles to reveal differences to official definitions.

**Summary of Work:** A two-step mixed methods design was used, combining a questionnaire survey and focus groups with participants of teacher trainings from four German universities. The questionnaire asked for demographic data and appraisal of professional roles' importance (5-point-Likert-scale). In the focus groups, the participants were asked to write down formulations describing their individual concepts of the roles. The comments on the roles were classified into categories derived from the official definitions of the NKLM by independent raters.

**Summary of Results:** N=80 medical teachers of different disciplines participated in the study (41% female; Mdn=7yrs teaching experience (IQR=4.9)). The teachers highly valued the importance of the Medical Expert ( $M=4.90 \pm 0.30$ ) and understood it comprehensively (75.4% codable formulations). Intrinsic roles like Health Advocate ( $M=3.78 \pm 0.80$ ; 40%) and Scholar ( $M=3.51 \pm 0.98$ ; 44.2%) showed less importance and clear deficits in perception.

Manager/Leader ( $M=4.01 \pm 0.77$ ; 66.3%) and Professional ( $M=4.67 \pm 0.61$ ; 48.5%) showed one-sided weaknesses either in importance or perception.

**Conclusion:** Medical teachers considered roles important for medical practice, although their perception of some roles differed substantially from official definitions. The role framework seems to be a useful structuring element, but not self-explanatory. A value and risk matrix interlacing rating and perception may visualise the specific role profile of a Medical Faculty and offers strategic implications for NKLM communication and handling, thus supporting change management.

#8GG07 (134978)

### Comparing Brazilian and European Veterinary Day One Competences

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**Background:** In 2003, Brazilian Ministry of Education published the veterinary day one competences, which are called “Diretrizes Curriculares Nacionais” or DCNs. These competences included 6 general and 17 specific skills and competences. Since then, many veterinary schools made changes in their curriculum, but none of the public schools has adopted a competence-based curriculum yet.

**Summary of Work:** We have compared Brazilian DCNs to RCVS and EAEVE day one competences in order to research if all education establishments are targeting similar professions. If so, European Educational innovations have the potential to be implemented in Brazilian Veterinary Schools.

**Summary of Results:** Regarding the text structure, Europeans competences are more concise and objectively described while Brazilians are more broad and generic. However, it was possible to see that all the Brazilian general competences and 12 of the 17 specific are covered in Europeans one.

**Discussion:** The main differences are that Brazilians also includes planning and management of agribusiness and agro industrial projects as well as of animal production, reproduction and biotechnology projects. It is possible that these activities in Europe are a professional field of other professionals like animal scientists, and for this reason are not emphasized in veterinary day one competences.

**Conclusion:** Also, Brazilian competences have not explicit cited the ability to adapt to changes and the recognition of personal limits and seek for a professional support when necessary. We understand that these skills are underlying Brazilian competences but if they were explicit cited professors would seek methods direct teach these skills. Brazilian and European day one competences have little differences but have approximately 80% of its content in common with each other.

**Take Home Messages:** Brazilian and European Veterinary schools are aiming the same professional and so, many exchanges in veterinary education could and should be pursued in order to benefit schools in all the countries involved.

#8GG08 (135970)

### Pedagogical tools in surgery rotation on medical internship based on the Model for Developing Entrustable Professional Activities. A mixed methods study

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Alicia Hamui Sutton

Michael Sandoval Torres

Jorge Enrique Pereyra Arzate

Felipe Flores Morones

**Background:** Competencies have turned around worldwide Medical education, the National Autonomous University of Mexico, since 2010 has implemented a new curriculum by subjects but focuses to competence. To execute it, we designed a Model for Developing Entrustable Professional Activities, which retrieves the proposal from the Association of American Medical Colleges (AAMC), on the Entrustable Professional Activities (EPA's), and the Milestone Project proposed by the Accreditation Council for Graduate Medical Education (ACGME) to achieve compatible skills with daily practice of medical students.

**Summary of Work:** Mixed methodology was used; in the qualitative section, the technique of focus groups with teachers and students was used with a total of 22 persons to explore clinical practice in the fifth year of general surgery rotation. Subsequently a team analyzed and triangulated information to build milestones with its different levels (novice, advance beginner and competent). In order to achieve consensus the Delphi technique was used in three rounds, with experts to determine whether levels of specific EPA's in general surgery were appropriate for student in the Mexican context.

**Summary of Results:** Five milestones for clinical practice in general surgery rotation were constructed: 1) wound assessment, 2) participation in the operating room, 3) care in acute abdomen, 4) diagnosis for no abdominal surgical care and 5) outpatient surgery.

**Discussion:** This model has not been yet tested in real clinical settings, it is thought advisable to check their validity and reliability to determine whether the milestones will be used as part of the evaluation.

**Conclusion:** This pedagogical tool aims to be used as a mean for teaching through competitions in our environment.

**Take Home Messages:** Milestones of EPA's could be considered in the process for teaching and learning in clinical settings because they articulate curriculum and practice under the new paradigm of competency-based education in Latin-American settings.

#8GG09 (135681)

**University of Missouri-Kansas City School of Medicine Development and Implementation of the Core Entrustable Professional Activities in a Six-Year Combined Degree Program**

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*Emily Haury (University of Missouri Kansas City School of Medicine, Kansas City, USA)*

*Jennifer Quaintance (University of Missouri Kansas City School of Medicine, Kansas City, USA)*

**Background:** In 2014 the Association of American Medical Colleges released the Core Entrustable Activities (CoreEPAs) for Entering Residency for Curriculum Developers which identify a list of integrated skills expected of all M.D. graduates. At the University of Missouri-Kansas City School of Medicine, a six-year combined baccalaureate-medical degree program, we have noted a gap in our curriculum: students did not consistently have opportunities to learn, practice and demonstrate key skills prior to their transition to residency. By utilizing the CoreEPAs, learning activities, brief clinical observation tools, and multi-source assessments, we can remedy this gap and integrate these activities into our curriculum.

**Summary of Work:** UMKC has a unique longitudinal Internal Medicine curriculum called the Docent Team. Students complete two months of inpatient Internal Medicine over three years and participate in weekly Continuing Care Clinic over four years on the same Docent Team of students lead by a single faculty. This curriculum design project will implement activities to support the CoreEPAs within the Docent Team along with other clerkships. The goal is for students to demonstrate entrustable performance through assessment before graduation.

**Summary of Results:** The following demonstrates our curriculum approach: Clerkships: Years 4-6 Docent Rotation: EPA 1, 2, 3, 4, 5, 6, 7, 8, 9; Assessments Year 4 CPA, Year 5 Clinical Performance Assessment (CPA), Clerkship Observation and Assessment (COA) Years 3-6 Continuity Clinic: EPA 4, 5, 7; Assessment: COA Emergency Medicine: EPA 10; Assessment: COA Surgery, Family Medicine, OB/Gyn: EPA 1, 11, 12; Simulation and COA

**Discussion:** We will implement the curriculum this upcoming academic year and will evaluate through student CoreEPA assessments, student and faculty evaluations, and a questionnaire of residency program directors of our graduates.

**Conclusion:** We believe our curriculum design incorporating the CoreEPAs and assessments within the Docent Team and key clerkships will demonstrate our medical students' readiness to be entrusted with these tasks in residency training.

**Take Home Messages:** By utilizing the CoreEPAs, learning activities, brief clinical observation tools, and multi-source assessments, this serves as a model for other medical schools to integrate this curriculum without resulting in increased costs or demand for faculty time.

#8GG10 (136014)

**Is it possible for nursing students to achieve their learning objectives at the outpatient-clinic in the clinical training in hospital? Experiences from the students.**

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*Elisabeth Beisland, University College of Bergen, Norway*

*Anne-Marie Lerner, Haukeland University Hospital, Bergen, Norway*

*Margareth Haukom, Haraldsplass University College, Bergen, Norway*

*Hilde Smith-Strøm, Betanien University College, Bergen, Norway*

**Background:** Recent years tendency in Norwegian hospital is increasing number of patients being examined and treated in outpatient-clinics instead of in the wards. Nurses working in these departments often have expertise that could be important in the clinical training of nurse students.

**Summary of Work:** The objective was to explore if it is possible for nursing students to achieve the learning objectives at the outpatient-clinic. Twelve outpatient-clinics and 51 students from three University Colleges were involved. The nurse-students completed supervised training for 6 or 8 weeks. Questionnaire were used to collect experiences just after completed training; 39 students (N = 51) responded.

**Summary of Results and Discussion:** Approximately 2/3 of the students (24) reported that outpatient-clinic largely were a suitable arena for learning. When it came to learning-outcome almost all students (36) experienced developing their skills in communication in the outpatient-clinic. A majority of the students (32) stated that outpatient-clinical training to a very large/largely extent contributed to the development of their professional security and independence, their capacity for reflection and confidence in taking responsibility. The students also had a high score (very large/largely extent) in performing procedures (26), guidance and teaching to patients/relatives (25) and the ability to interdisciplinary collaboration (23). The training in outpatients-clinics in small / very small degree contributed to the development of skills in writing patient journal (22) as well as work management (21). Open questions emerged that adequate supervising was a promoter for learning. Poor preparation and lack of relevance in learning objectives, inhibited learning. Comments highlights that brief patient-meetings in outpatient-clinics may be challenging to the students.

**Conclusion:** Outpatient-clinics are suitable as arena for supervised training and a lot of learning objectives can be achieved in these units.

**Take Home Messages:** To succeed the nurse-students should be well prepared in advance for the outpatient-clinics tasks, and the tutoring from nurses must be adequate and of high quality.

#8GG11 (134368)

**Improving knowledge and proficiency in junior surgical residents: Introduction of e-learning with use of competency based test (CBT) for assessment before and after**

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Qinghui LU

**Background:** Junior residents frequently report difficulty adapting to the fast-paced nature of a Surgical Department. Problems include a learning curve for the management of surgical patients. We seek to explore E-learning as a tool with a CBT to ensure acquisition of information.

**Summary of Work:** The E-learning curriculum was divided into modules encompassing each subspecialty. Consultants of each subspecialty designed didactic teachings and a quiz. These were uploaded online and residents in the department were instructed to complete the lectures and attempt the first quiz, with a passing grade of 80%. Those who failed had to meet their supervisor for remedial for that specific module prior to attempting the second quiz. Program effectiveness was evaluated with pre and post course surveys.

**Summary of Results:** 50% of the residents failed 1 or more module quizzes, but all participants passed the second quiz and e-learning module. There were 73% (n=22) responses from the surveys. Post-intervention, residents felt more comfortable managing surgical emergencies (96% vs 68%  $p=0.046$ ) and managing elective patients in the specialist outpatient clinics (83% vs 50%  $p=0.022$ ). 86% (n=19) felt that the course material helped them understand surgery better. Majority felt that e-learning enhanced their learning ability (91%) and allowed them to learn at an appropriate pace respectively (86%).

**Discussion:** E-learning enables learning at an individual's own pace. The individual modules are shaped to educate residents on frequently encountered clinical scenarios. Competency based test in the form of quizzes ensured assimilation of information. Overall, residents became more comfortable managing surgical patients and felt that e-learning enhanced their learning.

**Conclusion:** A formal e-learning course introduces standardisation and helps residents adapt well to the surgical department. It allows residents to pursue knowledge at a pace appropriate to them and can have a positive impact on the residents.

**Take Home Messages:** E-learning with the use of CBT is an excellent modality for training junior residents.



## 8HH Posters: Clinical Teaching 2

Location:

#8HH01 (133330)

### Attitudes of Outpatients towards Medical Students

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Hathaipat Vaseenon

Yanaphan Rattanakitrunguang

Kavee Eamvorasombat

Chayamai Hathaisaard

Chayut Dumrongsirikool

**Background:** Patients who receive medical services at hospital based medical school have chances to meet and interact with the medical students during their treatment. Regarding the patient's rights, however, patients have the right to refuse the involvement of medical students during physical examination or treatment.

**Summary of Work:** This study was a prospective descriptive study. The questionnaire which was composed of nine questions about basic demographic information and ten closed-ended questions about attitudes of patients or relatives was given to 115 outpatients or relatives at examination room of gynecology clinic, medicine clinic, surgical clinic and parents of patients in pediatric clinic in January 2015.

**Summary of Results:** The majority of participants were satisfied when medical students joined in the examination room. Fifty-six percent of the respondents required a doctor to notify or ask for their permission prior to have physical examination by medical students. Level of education had the maximum impact on attitudes of the respondents. Participants who had Bachelor's degree or higher required doctor to ask for their permission prior to have physical examination by medical students with the odds ratio (OR) of 3.9 (95% CI = 1.7-8.9; p=0.001) when compared with participants with lower education.

**Discussion:** Doctor as instructor must be aware of the balance between the rights of patients and the knowledge gained from the real physical examination of medical students. Giving notification or asking for permission from every patient is always necessary before the instructor brings medical students to join the examination.

**Conclusion:** Outpatients had positive attitude toward medical students. Asking permission from patients should be done before medical students' involvement. The most influential factor on patients' attitudes regarding medical students is level of education.

**Take Home Messages:** This is a good example for medical students who can learn how to respect the rights of patients from a real situation in order to become good doctors in the future.

#8HH02 (126883)

### What are medical students' perceptions of teaching in the obstetric operating theatre?

**Tamara Kubba\***, University College London Medical School, London, UK

Sara Melissa Whitten

**Background:** Time in the obstetric operating theatre is an important part of undergraduate obstetrics and gynaecology training. No studies look at medical students perceptions on teaching in the obstetric operating theatre. In theatre the patients' needs are the focus and this may result in students not getting their educational needs met.

**Summary of Work:** A spot survey of 19 students undergoing their obstetrics and gynaecology placement was undertaken at University College London Medical School. This was carried out via SurveyMonkey™. The questions were a mixture of dichotomous questions, Likert scale questions and free-text boxes. Quantitative data was expressed descriptively. Qualitative data was thematically analysed.

**Summary of Results:** The majority of students felt part of the team, however some felt apprehensive or uncomfortable. All students were taught in theatre. Students who assisted found it "fun" and "inspiring". 58% of students said their experience had made them more likely to pursue a career in obstetrics and gynaecology.

**Discussion:** The main themes regarded the environment. Most students were "made to feel welcome" and "included". A minority felt in an "intimidating" environment. Most felt that assisting in theatre "should be encouraged". Some students felt "inspired" to pursue a career in obstetrics and gynaecology, while others found the prospect "horrifying".

**Conclusion:** This survey provides a snapshot of some medical students' insights, thoughts, opinions and feelings on teaching in the obstetric operating theatre. Overall the obstetric operating is a positive environment where valuable teaching and learning occurs. Some students were inspired to pursue a career in obstetrics and gynaecology following their experience.

**Take Home Messages:** All students should be orientated when in the obstetric operating theatre and introduced to all members of the team in order to enhance the learning environment. All students should be encouraged to assist in the obstetric operating theatre as it enhances learning and can help reinforce career planning intentions.

#8HH03 (134912)

**Does a 2 week anaesthetic attachment in theatres during a medical student's first clinical year change their perception of the role of the anaesthetist in managing the critically unwell patient?**

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**Amardeep Riyat** (London North West Healthcare NHS Trust, London, UK

**Background:** Anaesthetics comprises the largest hospital specialty; however the anaesthetist's role in managing critically unwell patients seems to remain relatively unrecognised by students (Smith 2013). The study aimed to determine whether a 2 week anaesthetic attachment, during their first clinical year, altered their perception of anaesthetists' involvement in critically unwell patients.

**Summary of Work:** The study was conducted on 20 3rd year medical students. They were asked to complete the same questionnaire, at the beginning and at the end of their attachment. They were asked to rank various specialties in order of preference, in terms of most appropriate clinician required, when stabilising patients suffering various clinical emergencies (Anaphylaxis, asthma, massive haemorrhage, inhaled foreign body, peritonitis, sepsis and trauma). A focus group was conducted and qualitative analysis undertaken.

**Summary of Results:** Following the placement, the results showed a statistically significant ( $p < 0.05$ ) increase in the position at which students ranked anaesthesia from the given specialties, in all scenarios. The focus group thematic analysis revealed themes which support the quantitative data. These include recognition of the breadth of anaesthesia, the overlap between Intensive Care Medicine and anaesthesia and the ability of anaesthetists to manage deteriorating patients.

**Discussion:** Education in clinical emergencies is an essential element of undergraduate medical studies (GMC Outcomes for graduates). These results suggest an anaesthetic placement increases the students' understanding of the role anaesthetists play in managing critically unwell patients. Factors contributing to this are an appreciation of the overlap between Intensive Care Medicine and Anaesthesia and also from observing the contributions made by anaesthetists during critical incidents in theatre.

**Conclusion:** Medical students perceptions of the role anaesthesia can play in critical illness remains underestimated. This study suggests that following a two week placement, this understanding is enriched.

**Take Home Messages:** Clinical anaesthetic attachments may enhance medical students' understanding of the role anaesthetists provide in the management of clinical emergencies.

#8HH04 (132787)

**A Study on the Epinephrine auto-injector (EpiPen®) training program development in Japan.**

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Shin Ishihara

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Yasuto Kondo

Toshikazu Matsui

**Background:** In recent years, the changes in the living environment and disease structure among the children with food allergies has increased. Therefore, even in educational institutions, elementary school teachers as the initial support of anaphylactic shock caused by food allergy it has become necessary to hold a training course in order to be able to handle the adrenaline self-injection.

**Summary of Work:** In cooperation with the educational college, we have developed a course design of practical adrenaline self-injection program using the method of Instructional Design. Learning objectives: 1) to determine the administration of appropriate adrenaline self-injection from symptoms, 2) Practice of adrenaline self-injection, 3) Work with team, 4) Practice of using the corresponding manual.

**Summary of Results:** The results of self-assessment in before and after training was the three items of four items significantly improved compared to the previous training. In addition, satisfaction in the questionnaire was high result.

**Discussion:** It considered that there was a training effect. Program has been developed using the method of instructional design, by clarifying the target setting. It is possible to perform a formative evaluation as a training course.

**Conclusion:** In term of primary care, training in a situation of requiring initial response at the emergency time is to be important. In order to transmit this program in domestic and overseas, it is needed to repeat the formative evaluation, so that it can respond to the needs of the organization.

**Take Home Messages:** It is very important for elementary school teachers to have epinephrine auto-injector(EpiPen®) training programs.

#8HH05 (132985)

**Evaluation of teaching of good medical record keeping**

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Judith Purkis*

**Background:** Medical note keeping is one vital aspect of maintaining a good record of the patient's care and comprehensive records help in maintaining that communication between the various health care practitioners, the patient and relatives.

**Summary of Work:** Out of the 88 doctors who attended the teaching sessions, 70 participated in the study. They filled in the questionnaire (Reaction Sheet). In the one hour session the doctors were first given to read a Complaint Letter, a Solicitor's Letter and an average set of anonymised case notes to review, from where the participants were expected to answer the questions raised by the complainants. A more structured set of notes was then given for them to go through the same exercise followed by a discussion.

**Summary of Results:** The participants were asked to evaluate the quality of teaching and their learning on 9 statements on a Likert Scale of Strongly Disagree, Agree and Strongly Agree. 88.6 % strongly agreed that 'the session was relevant to my job'; 92.8% strongly agreed 'the material was presented in an interesting way'; 84.4% strongly agreed that 'the teacher was an effective communicator'; 87.1% strongly agreed that 'I can now apply this to my practice'; 84.3% strongly agreed that 'this will help me do my job more effectively'. Using non parametric co-relations Spearman rho and Kendall tau b a significant co-relation was found between the statements 'the session was relevant to my job' and 'I can now apply this to my practice'.

**Discussion:** This project had 3 main aims 1. To raise awareness of the importance of Medical Note Keeping; 2. Assess the impact of the training session; 3. Evaluate the training in Kirkpatrick's first 2 levels of evaluation of training - Reaction and Learning.

**Conclusion:** Good medical note keeping is a vital part of undergraduate medical education.

**Take Home Messages:** Good medical note keeping can be taught.

#8HH06 (132232)

**Preparing final year medical students to discuss cases with senior colleagues in clinical exams and real life: does practice make perfect?**

*Jessica Pearce\*, Hull York Medical School, York, UK  
Murray Williams*

**Background:** Discussion with seniors is a key skill that medical students must develop, both for exams and life as a Doctor. We have developed, and are in the process of delivering a teaching programme to 43 final year medical students on two sites (York and Hull) to help them develop these skills.

**Summary of Work:** The programme consists of 4 sessions. In each session, students will rotate around 5 'stations' in small groups. Each station is led by a Junior Doctor who has prepared a case, which they will outline before asking the students to give a brief case summary, suggest and justify differential diagnoses and investigations and formulate a management plan. We will deliver a pre and post-course questionnaire to assess confidence levels in each skill before and after the course.

**Summary of Results:** The response rate to our pre-course questionnaire was 77% (n=36). Mean confidence in the areas assessed ranged between 5.1-6.2 out of 10 where '0' is no confidence and '10' is fully confident. Almost all free text comments stated a desire for more 'experience'/'practice' or to 'improve'/'increase confidence'. The verbal feedback from the first sessions has been positive; we will administer the post-course questionnaire after the final session.

**Discussion:** We hope that the session will improve their skills and confidence to participate in these discussions by giving them an opportunity to practice and receive feedback.

**Conclusion:** We will present the findings of our pre- and post- course questionnaires and discuss the value of our programme, as well as limitations and challenges faced.

**Take Home Messages:** We have designed a teaching programme to give students an opportunity to practice discussing cases with seniors, to help prepare them for exams and life as a Doctor. We will present results and discuss whether students felt this helped to improve their confidence and potential areas for further study.

#8HH07 (135165)

The best bedside teaching method for 6th year medical students in Thailand

*Kengkaj Unrit\*, Maharakham hospital, Maharakham, Thailand*

**Background:** In Thai medical school, we have two types of bedside teaching: discussion beside patient beds and outside discussion. The aim of this study is to discuss the best bedside teaching method for medical students.

**Summary of Work:** All 6th year medical students in pediatric department 2015 were selected. Two types of bedside teaching; i.e. discussion beside patient beds (mode in) and outside discussion (mode out) were taught to the students. Following the activity, the students were asked to complete the questionnaires. Mean and pair sample test were used to analyze the data.

**Summary of Results:** The mean of stress in mode in was insignificantly higher than that in mode out (5.4 vs 4.1 in mode in;  $P=0.114$ ). The mean of shame when they were unable to answer in mode in was significantly higher than that in mode out (3.95 vs 2.4 in mode out;  $P=0.036$ ). The mean of the feeling toward the risk of being sued in mode in was significantly higher than that in mode out (4.0 vs 2.35 in mode out;  $P=0.05$ ). The mean of students' satisfaction toward mode out teaching was insignificantly higher than that of the mode in teaching (7.5 vs 6 in mode in;  $P=0.054$ ). The means of the knowledge of the two teaching modes were not different (7.85 vs 7.5 in mode out;  $P=0.163$ ).

**Discussion:** Discussing beside patient beds caused shame for medical students when they were unable to answer the questions and also caused the feeling of risk of being sued. There was little difference between the two types of teaching in terms of the stress, the satisfaction, and the knowledge

**Conclusion:** Discussion outside may reduce the feeling of risk of being sued and the feeling of shame when they were unable to answer the questions.

**Take Home Messages:** Discussion outside seems to be more beneficial than discussion beside patient beds.

#8HH08 (133962)

Checklist for chest radiographic interpretation in patients with chest trauma on accuracy for diagnosis in medical students and surgical resident

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*Thammasorn Piriyaupong*  
*Kanokwan Sriruksa*

**Background:** chest radiography is an important adjunct for initial management in trauma patients. Miss interpretation and diagnosis may lead to adverse event and complication, especially by medical student and/or resident. The checklist for chest radiographic interpretation in trauma (CCRIT) may increase accuracy of interpretation and diagnosis.

**Summary of Work:** this is a quasi-experimental study, a total 43 medical 6th year students and 9 surgical residents were included. All of them were asked to interpret chest radiographic film by themselves, and by using the guideline for CCRIT interpretation.

**Summary of Results:** Accuracy of CCRIT was increased the in both students and residents,  $P<0.0001$ , 23.5% increased and  $P<0.007$ , 40%, respectively.

**Discussion:** The checklist is an instrument for help us to recognized the abnormality finding in chest radiography. It is quit useful especially for medical students and junior doctors. However, the knowledge to explain and clarify of the abnormality finding may important, as well.

**Conclusion:** The CCRIT is useful for radiographic interpretation increases the diagnostic accuracy in chest trauma patients.

**Take Home Messages:** You can use this checklist (CCRIT) in your practice to increase your self-confidence of chest radiographic interpretation.



#8HH09 (133425)

**“Don’t worry, it’s probably OK” - abnormal findings in peer-to-peer examination, a national survey**

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**Background:** The emphasis of peer-peer examinations at medical school is on developing the clinical skills of the medical students, to familiarise them with the various examinations and investigations they will be conducting as the doctors of tomorrow; to gain an appreciation of "what is normal"? But what happens when what they find isn't normal? Examples known to the authors include an ECG practical suggesting a pathological arrhythmia, a thyroid examination that elicits a goitre and a young rugby playing medical student with a palpable spleen.

**Summary of Work:** We were curious about the range of issues that occur at medical schools, and what proportion of schools had a formal policy about how to deal with these issues, as suggested by the literature. Therefore, we are currently carrying out a survey of UK medical schools, with the use of a questionnaire and telephone interviews.

**Summary of Results:** Preliminary results are concerning. We will present the results of this national survey, including range of abnormalities detected and prevalence of formal policies for dealing with them.

**Discussion:** We will discuss options that could be used to improve current practice, with the aim of developing and sharing a model policy. Issues around ethics, professional boundaries and modelling holistic care will be highlighted.

**Conclusion:** Peer to peer examination is an important aspect of medical education, however it is not without potentially serious consequences. This poster presents an opportunity to explore the incidence of abnormal findings in peer examination and how potential associated risks may be mitigated.

**Take Home Messages:** Abnormal findings in peer physical examination are not uncommon. How we handle these should model best practice to our students. Formal policies on managing abnormal findings should be adopted by all medical schools.

#8HH10 (135223)

**The Role of Demonstration Video in Hospital Clinical Skill Courses of Undergraduate Medical Technologist Students**

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**Background:** Demonstration videos have been widely used for giving instruction or demonstration of clinical skills in education of medical technologist. However, the function of video may go far beyond instruction and demonstration. We investigate the possible role as post-course self-reflection tool while using demonstration video after person to person teaching.

**Summary of Work:** Thirty undergraduate year-4 medical technologist students attending course of ABO blood typing skills were assigned into two groups to have either video demonstration preceding teacher demonstration or the reverse. DOPS were used to assess the learning outcome and questionnaire used for evaluation of the role of video in their learning.

**Summary of Results:** The results from DOPS revealed that students had teacher demonstration preceding video demonstration achieve higher scores. Students also responded in questionnaire that watching demonstration video after teacher's demonstration will help in their self-reflection in performing the skill.

**Discussion:** Our studies showed that video plays different roles in teaching and an appropriate arrangement of video and personal demonstration will make the learning outcome different. While using video as a tool for reflection of steps of clinical skills, it may be even more helpful than as a pre-course study material.

**Conclusion:** Demonstration video may be used as a tool for pre-course self-learning of clinical skills. However, it could also be used as a post-course tool for self-reflection of important techniques in clinical skill. Demonstration video could be used in different component of a clinical skill curriculum.

**Take Home Messages:** Demonstration video can be used as a post-course reflection tool for teaching clinical skills.

#8HH11 (135021)

### Learning Curve of Medical Students for Pelvic Examination

*Siraya Kitiyodom\*, Maharat Nakhon Ratchasima Hospital, Nakhonratchasima, Thailand*

**Background:** Pelvic examination (PV) is very important part in gynecological examination. To teach the medical students PV is important but sensitive due to many factors concerned including patient's compliance, gender of medical students and form of learning. So far, there has been no conclusion how many patients are enough for medical students to learn PV with accuracy and confidence. This study is aimed to find the numbers of PV for medical students to gain the accuracy and confidence that will be useful for further education arrangement.

**Summary of Work:** Eighteen 4th year medical students were taught the theory of PV, practiced PV with the model and examined PV the patients under the supervision of the teacher. The teacher repeated PV, gave the students feedback, and recorded results of student's PV. At the end of the session, self-assessment was performed by the students to find how accurately and confidently they performed PV. All data would be analyzed.

**Summary of Results:** The number of right speculum application and finding the cervix were 4 times (confirmed by teacher). The students thought they performed accuracy averagely for 3.56 times and confidence to perform averagely 4.22 times. The number of right bimanual examinations was 10 times. The students thought they performed accuracy averagely for 6.44 times and confidence to perform averagely 9.33 times.

**Discussion:** Number of patients in need of students for the right speculum application and finding of the cervix is 4 and number of bimanual examinations for learning is 10. Within 6-week study period in the department, only 6-8 patients were available which might not be enough for the students. The extra-curriculum outside hospital was created for each student leading to the improvement of their accuracy and confidence of the pelvic examination.

**Conclusion:** Number of patients in need of students for the right speculum application and finding of the cervix is 4 and number of bimanual examinations for learning is 10.

**Take Home Messages:** The extra-curriculum outside hospital was created for each student leading to the improvement of their accuracy and confidence of the pelvic examination.

#8HH12 (132324)

### Early outcomes from Follow My Footsteps - a new longitudinal patient contact course nested in early life

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*Robert J Boyle*

*Arabella Simpkin*

*Andrew Wright*

*Martyn P Kingsbury*

*Gareth Tudor-Williams*

**Background:** Longitudinal learning, with relational continuity, may lead to more patient-centered medical students and doctors. Currently, only limited opportunities for longitudinal learning exist in medical education.

**Summary of Work:** We established a new 3-year longitudinal patient contact course, Follow my Footsteps (FmF), for undergraduate medical students. Participation was voluntary. Students visited a pregnant woman and then her child during this period, supported by tutorials and written materials. Prior to and after completion of the first student cohort, we surveyed participating students. At the course end we surveyed participating mothers and students, and analysed the data qualitatively. We assessed patient-centeredness in FmF participants and their peers, using the Patient-Practitioner Orientation Scale (PPOS).

**Summary of Results:** Mothers wanted to help students, but found student visits helped them reflect on their own experiences. Thematic analysis of student motivations for joining FmF identified 'strategic' and 'learning' themes. Students were anxious about the intrusive nature of home visits, but surprised by mothers' openness, and reflected on early life influences on long-term health. Total PPOS scores did not differ between FmF participants and non-participants ( $P=0.40$ ), but FmF students scored higher on the sharing subscale of PPOS (mean 4.4 sd 0.5) than non-participants (mean 4.2 sd 0.5;  $P=0.031$ ).

**Discussion:** These preliminary findings suggest that FmF is well accepted, that a symbiotic relationship is created in which both patients and students gain unanticipated benefits, and that the course may have measurable benefits for students' patient-centeredness.

**Conclusion:** This new longitudinal patient contact course may improve student patient-centeredness.

**Take Home Messages:** A 3-year longitudinal patient contact course nested in early life is feasible, and has benefits for both students and patients.

#8HH13 (134246)

**Admitting Why They Want It: Student-Reported Admissions Attributes for a Longitudinal Integrated Clerkship (LIC)**

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*Clare Hutchinson*  
*Raed Hawa*  
*Stacey Bernstein*  
*Mark D. Hanson*

**Background:** A longitudinal integrated clerkship (LIC) was launched at the University of Toronto. This LIC requires significant resources for a small fraction of the total clerkship cohort making applicant selection essential. Yet LIC admissions attributes are not documented in the literature. We present preliminary findings regarding our LIC admissions attributes study.

**Summary of Work:** This component of our LIC admission attributes study focused upon student-reported admissions attributes. Applicants completed a letter of intent (LOI) focusing on their rationale for choosing LIC and LIC alignment with students' learning approach, medical education to date and career planning. LOI's were analyzed qualitatively to identify student-reported admissions attributes.

**Summary of Results:** Applicant pools over three years constituted 63 students with 58 selected for LIC. LOI textual analysis revealed student attribute themes regarding professional identity formation: building medical knowledge (thinking like a doctor); collaborating in a team and managing systems (acting like a doctor); and connecting with patients (feeling like a doctor).

**Discussion:** Qualitative analysis revealed attributes relevant to professional identity formation. Students expressed these attributes prior to LIC, suggesting anticipation that a LIC education would foster their physician development. New LIC admissions processes should focus upon applicants' expectations regarding educational experiences that promote their professional identity formation and align with LIC education.

**Conclusion:** Student-reported admissions attributes centering around professional identity formation were identified. Triangulation of these findings with other admissions study components, LIC graduates' exit interviews and LIC faculty preceptors' perceptions will broaden our perspectives regarding selection. Designing a LIC admissions process comprising student and faculty contributions is essential given LIC resource requirements.

**Take Home Messages:** New LIC admission processes will ensure the significant resources invested are devoted to students who will succeed in this program. Our preliminary investigation suggests admissions processes attend to students' professional identity formation, their expectations regarding the necessary educational experiences to foster such development, and their alignment with LIC educational experiences.

#8HH14 (134103)

**Is a hybrid model of classroom-based teaching and simulation successful in teaching 3rd year medical students how to perform a cardiovascular examination?**

*Terasa Broom\*, Pinderfields hospital, Wakefield, UK*  
*Fiona Coia*

**Background:** The ability to use a stethoscope to listen to heart sounds and to then interpret these sounds is an essential skill for a clinician. The availability of patients with the required clinical signs can make teaching difficult to organise and reproduce.

**Summary of Work:** We designed a hybrid model of teaching for our third year students. This consisted of initial classroom based theoretical teaching and was followed by the use of students within the group to act as simulated patients. Finally we used a high fidelity manikin to allow repetitive examination, including the identification of cardiac arrhythmias and heart sounds associated with cardiac murmurs.

**Summary of Results:** Students found this much more useful than traditional teaching methods alone. They reported that the session made them more confident in cardiovascular examination skills. It was especially useful to be able to examine the manikin several times until they were sure that they could identify the murmur correctly. They felt that this could be embarrassing if a real patient was involved, in addition to being an inconvenience to the patient.

**Discussion:** This was a highly successful teaching intervention. It allowed students to examine the manikin after learning the necessary theory and after familiarising themselves with a normal examination. It allowed them to interact with their peers and with the teacher and to repeat the examination as many times necessary.

**Conclusion:** This shows how a mix of both traditional and technology based teaching can be used side by side to improve how cardiovascular examination is taught to medical students.

**Take Home Messages:** Simulation can be used to improve on traditional methods of teaching cardiovascular examination skills.

#8HH15 (135964)

**Soft cadaveric training for 5th year medical students in life saving procedure.**

**Kanokkan Tepmalai\*, Chiangmai university, Chiangmai, Thailand**

*Jiraporn Khorana*

**Background:** Life saving procedures are an important technical skill for every doctor. The increasing number of medical student may further limit students hands-on skills development. Human cadavers have played an integral role for medical training, making trainees more capable of handling the technical demands necessary and confidence. The study was to evaluate the impact of cadaveric training course on student confidence and knowledge.

**Summary of Work:** The soft cadaveric skill training course was prepared for 5th year medical students who are in surgical rotation. The four surgical procedures (Intercostal drainage, venous cutdown, cricothyroidotomy and excision lipoma) were prepared. All students were assigned to study the handout and video before taking this course. The instructors discussed and standardized their method before participating. The course consisted of a short lecture followed by hands-on skills training and practice in soft cadaver under supervision. Each cadaver was led by two instructor per 7-8 students. All students practice every procedure. Self-assessment of confidence levels was performed. A survey comprising of nine ranked questions (utilising a five-point Likert Scale) as well as two short answer questions was administered to the medical students. Differences between groups were evaluated by Pair t-test and Fisher's exact test.

**Summary of Results:** 240 Students who participated in this course, 113 students answered the questionnaires. The self assessment score indicated that their knowledge were low (mean score 3.24, 3.34, 2.90) pre-course for Intercostal drainage, venous cutdown, cricothyroidotomy and excision lipoma respectively, compared with the knowledge (mean score 4.44, 4.54, 4.53, 4.48) post course, statistically significant  $p < 0.001$ . Mean student self-assessment of confidence levels increased significantly ( $p < 0.001$ ) from 28.33% pre-course to 77.88% post course for intercostal drainage, from 21.94% pre-course to 73.88% post course for cricothyroidotomy, from 43.88% pre-course to 87.42% post course for excision subcutaneous mass and from 20.27% pre-course to 75.28% post course for venous cutdown. After workshop 32.72% of student wish to become a surgeon, 16.36% of student are uninterested in surgical career.

**Discussion:** Findings from our study indicate that the soft cadaveric training course were enhanced the surgical skill and confidence to be beneficial in preparing them when they meet the emergency situations.

**Conclusion:** The soft cadaveric skill training course resulted in significant improvements in confidence and knowledge. However, further studies are needed to determine if improved performance in the workshop

and increased confidence levels translate into actual improved performance in clinical situation.

**Take Home Messages:** the soft cadaveric is feasible and the great method to improve skill and confidence of student.



## 8II Posters: Learning Resources

Location:

#8II01 (133240)

### Web-based Mechanistic Case Diagram Exercises Facilitate Student-Centered Learning in Medical Education

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**Background:** Mechanistic Case Diagram (MCD) exercises aim to facilitate understanding of how a patient's observed clinical findings and test results are derived from underlying etiology and risk factors, and pathogenic and pathophysiologic mechanisms; while promoting active learning. The MCD application was developed in house using PHP, JavaScript, and JQuery and jsPlumb libraries.

**Summary of Work:** As students create "flow diagrams" from instructor generated lists of items, their diagram's arrow connections are captured in a MySQL database. The web-based design of the application allows students to login with a unique password, and create, save, finalize, and present their diagram from any computer or mobile device. Instructor lists facilitate intuitive and efficient diagramming, and objective comparison with a "best-solution/key". Feedback after finalizing shows "correct" connections in blue, "incorrect" in red.

**Summary of Results:** For 5 years, 26 MCD exercises have been implemented in our first and second-year medical curriculum in small group sessions, and in Team-based Learning/Flipped classrooms. Before class, students prepare to present the cases and discuss their diagrams. Mean student performance is ~65% correct arrow connections in this low-stakes environment. Satisfaction ratings from both students and faculty are 3.4/4.0. Representative student comments: "...made describing pathophysiology clearer and more efficient", "...it was fun". Representative facilitator comments: "...great tool to give a visual framework for thinking through cases", "...has uncovered some glaring misunderstandings". Correlation with exams and facilitator's subjective evaluations was 0.29 and 0.30 respectively (both  $p < 0.05$ ). In spring 2015, 169 students created 19 diagrams each. The mean correlation of the proportion correct for each diagram with the overall score was 0.47 (range 0.31–0.62). Reliability  $\alpha = 0.82$ .

**Discussion:** The "flow diagram" nature of MCDs distinguishes them from Concept Maps.

**Conclusion:** MCDs are well accepted and efficient to generate, and have good reliability.

**Take Home Messages:** The MCD application can be loaded on other institutions servers for independent operation. We solicit proposals to pilot MCDs.

#8II02 (134438)

### Are Medical Textbooks Really Targeting the Domains and Subdomains of Learning? A Student Perspective

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Ahmed Eldeib (Alfaisal, Riyadh, Saudi Arabia)

Ayman Awad (Alfaisal, Riyadh, Saudi Arabia)

Wael AlSmadi (Alfaisal, Riyadh, Saudi Arabia)

Alhatham Khalid (Alfaisal, Riyadh, Saudi Arabia)

Akef Obeidat (Alfaisal, Riyadh, Saudi Arabia)

**Background:** As medical textbooks remain an important tool used in medical education they are expected to play an important role in targeting outcomes of all the learning domains involved in medical teaching, namely the cognitive and affective domains. There is a deficiency in publications evaluating the use of textbooks in medical education in terms of achieving the desired learning outcomes  
**Summary of Work:** This study was designed to be a cross-sectional, survey-based study where the subjects ( $N=251$ ) would anonymously rate effectiveness of textbooks using a 5-point Likert scale. Chi-squared tests, post-hoc tests, Spearman's correlation and Kruskal-Wallis test were all utilized in data analysis to detect correlations and significant differences between the variables.

**Summary of Results:** Textbooks are seen to be effective in addressing the cognitive and affective domains; with comprehension and recalling being the most effectively addressed sub-domains. Moreover, using textbooks more frequently was significantly correlated with more effective addressing of the comprehension, recalling, organizing and valuing subdomains. Also, using textbooks as a primary source was significantly correlated with higher ratings in the valuing and recall sub domains. Furthermore, using textbooks more frequently and as a primary source was correlated with achieving a higher GPA, with  $P$  values of,  $P < 0.001$  and  $P = 0.01$  respectively.

**Discussion:** Although our study comes in favor of medical textbooks in the sense that we showed that "the student factor" has a huge role to play in modifying textbook effectiveness and that using textbooks as a primary source was correlated with a higher GPA, we also showed that textbooks might target some subdomains of learning more efficiently than others.

**Conclusion:** Textbooks are effective in addressing cognitive and affective domains with varying effectiveness among their sub domains and this effectiveness is modified by "the student factor".

**Take Home Messages:** Medical textbooks remain effective from our students' perspective, but medical educators should know that how textbooks are used by students can modify their effectiveness in certain subdomains.

#81103 (136248)

### Development of a Histology Game to Enhance Student Learning

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*Pompei Bolfa* (RUSVM, St Kitts)  
*Oscar Illanes* (RUSVM, St Kitts)  
*Eric Bauman*, IRCS, USA  
*Greg Vaughan* (LGN, USA)  
*David Pederson* (IRCS, USA)

**Background:** Microanatomy and Embryology is part of the core curriculum in the preclinical DVM program Ross University School of Veterinary Medicine (RUSVM). The course consists of 3 hour lectures and 2 hours of lab per week.

**Summary of Work:** A histology game aligned to the course objectives was designed using a card game format (matching followed by multiple choice questions) in an iPad. The game was subdivided into 3 sections: Beginners, Intermediate and Advanced. To advance to the next level the player must achieve 80% of correct responses. Players accumulate points according to percentage of correct responses and frequency of play.

**Summary of Results:** Phase I: Students volunteers enrolled in the pre-clinical program that had completed the course performed beta-testing of the game and feedback provided to instructors and developers. Phase II: Students volunteers enrolled in the Microanatomy and Embryology course had access to the game and their grades in the final exam were compared to those of students that did not use the game. Phase III: Overall scores in the Histology game will be correlated with grades in 2 progress exams in students enrolled in the Microanatomy and Embryology course. Hypothesis: Veterinary medicine students at RUSVM using custom mobile multimedia applications that were designed to support the existing RUSVM curriculum will show significant improvement in academic performance compared to students that select not to use the Histology game.

**Discussion:** Using veterinary students to test the applications was very valuable to improve the game with changes that are appealing to students from a learning and entertainment point of view. Interestingly, student volunteers highlighted the importance of adding complexity to the game to enhance motivation.

**Conclusion:** This study emphasizes the importance of balancing learning outcomes, relevance and engagement when designing educational games. Conclusions: The histology game is useful to reinforce concepts and students perceive it as an entertaining formative assessment.

**Take Home Messages:** A custom mobile multimedia application (Histology game) using iPad had a positive effect on student learning outcomes.

#81104 (136311)

### Development of a Card Gaming Method for managing Problem Oriented Medical Records

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*Kai Ishida* (Tokyo Healthcare University, Tokyo, Japan)  
*Kazuya Imaizumi* (Tokyo Healthcare University, Tokyo, Japan)  
*Gen Ouchi* (University of the Ryukyus, Okinawa, Japan)  
*Takashi Okubo* (Tokyo Healthcare University, Tokyo, Japan)

**Background:** Health Information Manager (HIM) is a professional tool for filing, coding ICD-10 and analyzing data from medical records. However, previous HIM education focused not on bedside skills but instead on office work. The aim of this study was to improve students' understanding on process of writing problem-oriented medical records using a card game method.

**Summary of Work:** Using a virtual consultation room via an electric medical records and patient simulator, HIM students experienced a simulated consultation and writing of medical records. Before the consultation, HIM students discussed what to ask and assess the patient physically, and then how to order laboratory examinations and write consultation memos about the discussion. Faculty staff analyzed the memo and found that HIM students felt that imaging instructions are difficult. In response to this issue, our faculty created a card game regarding health information (including items for the interview, physical assessment, and laboratory examination).

**Summary of Results:** The game instructions consisted of an elected strategic card game (e.g., hero battle game) with game cards consisting of three types, namely, 1) diagnostic card; 2) results card; and 3) therapeutic card. First, HIM students selected up to six cards per turn. If the HIM student selected a diagnostic card, the faculty provided a result card that applies to each diagnostic card during the next turn. After the diagnosis process, HIM students selected a therapeutic card. On the last turn, HIM students selected a diagnosis and ICD-10 code for the disease. In addition, HIM students seemed to have fun during the class.

**Discussion:** Using a card game method, students were able to transcribe "what to do" into "what to write on medical records." The students then actually recognized the importance of the subjective and objective information that they collected and understood that it can change the result of the consultation.

**Conclusion:** Virtual consultation using a card game is more effective for educating HIM students than merely conducting a lecture about the importance of health information.

**Take Home Messages:** The card game is excellent at cost-performance and can also be applied to other professions.

#81105 (133111)

**ER QUIZ to homogenize and complete education program in emergency course for the fifth year medical student at MEC, Princess Narathivas University, Songkhla, Thailand**

*Pongsatorn Asanasak\*, MEC Songkhla hospital, Muang, Thailand*

**Background:** One of the major problems encounter in teaching and learning medicine is inadequate cases and chance for medical students to practice. This results in inhomogeneous and unorganized learning opportunity. To minimized “ the learning by chance “ the ER quiz was initiated for the purpose to let the medical students gradually learn emergency disease under non-emergency environment.

**Summary of Work:** After reviewing and matching the learning objectives, based on Thai medical council guidelines, the ER QUIZ program was started with case-oriented problems that were included in the objectives of the course. Students resolved them by self- directed learning process. After that the answer, ranking scoring and a new case were provided everyday.

**Summary of Results:** After 3 years of applying daily ER QUIZ program, student’s satisfaction, enthusiasm and abilities towards the course were assessed by student’s satisfaction, completeness of work sheets, higher average academic scores and result of assessment from direct observational by medical staff also improved.

**Discussion:** ER QUIZ which was introduced as one of new learning method to fulfil the learning experience and help slow learner students to be able to thoroughly working thru various emergency situation beforehand, have also shown superiority and favorable for all students and do give readiness for medical students before any real situation

**Conclusion:** The management in emergency room are always stressful, so practicing it beforehand under an un-stressful environment help all medical students improve their learning ability.

**Take Home Messages:** Learning Emergency disease under non-emergency environment improve learning ability

#81106 (134548)

**A movie-based curriculum for teaching psychiatry to second-year student of healthcare management**

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Chih-Ken Chen (Chang Gung University, School of Medicine, Taoyuan, Taiwan)*

**Background:** Mental illnesses are among the leading contributors to the global burden of disease worldwide. Healthcare managers are very likely to work with psychiatric patients and their treatment. It is therefore important to equip students with appropriate knowledge and a positive attitude toward psychiatry. The use of cinema in postgraduate psychiatry training has been gaining increasing acceptability, but its potential use in undergraduate healthcare education has received little attention.

**Summary of Work:** In the 2013 spring semester, instead of traditional didactic lectures, selected movies were used in class sessions. Lectures were short, pertinent and related to the themes arose from movies including different aspects of mental healthcare. The sessions ended with open discussions led by the instructors. Written feedbacks from students were collected at the end of semester.

**Summary of Results:** Students evaluated this curriculum positively. They were very receptive to the use of film as an educational tool which could be easily engaged and enjoyable. They perceived the content and discussion on the films relevant to their learning needs.

**Discussion:** Instead of transmitting plain knowledge on psychiatric diagnosis and treatment, the thoughtfully chosen movies provided the social and cultural contexts of mental illnesses. The fidelity of the learning experience might have been affected by the theatrical effects. Compared to learning from interactions with trained standardised patients or brief clinical encounters, however, movies may provide a more holistic portrayal of the life of the affected.

**Conclusion:** Cinema is a powerful educational tool for undergraduate psychiatry in which the social, cultural and historical contexts of the mentally ill are presented. Moreover, it is an attractive way of increasing student’s motivation to learn more about psychiatry.

**Take Home Messages:** For undergraduate students studying healthcare with limited opportunity to clinical exposure, teaching psychiatry with movies is an acceptable, effective and feasible alternative.

#81107 (134523)

**Development and assessment of a game based e-learning application for the learning of neurological localization – pilot study**

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*Wang Hankun*

*Tammy Tsang*

**Background:** Neurophobia, fear of neural sciences and clinical neurology, is common amongst junior learners of neurology. This has been attributed to lack of knowledge and low interest. With limited time and availability of faculty manpower, there arises a need for pedagogical aids to enhance neurology teaching. Prior studies have shown medical students to be highly receptive to multimedia e-learning, and that smart phone and mobile applications enhance students' learning experiences.

**Summary of Work:** We developed an online e-learning tool "Neurobot", which consists of clinical cases involving neurological localisation. The pilot study involved a total of 30 undergraduate medical students who tested the tool. Quantitative feedback consisted of 8 outcomes tested on a 7 point Likert scale, and qualitative feedback were obtained.

**Summary of Results:** Quantitative feedback was positive for all 8 outcomes surveyed, with mean scores out of 7 as follows: Interactivity 6.06, satisfaction 5.65, enjoyment 5.82, motivation to learn 6.00, attractiveness of design 5.71, multimedia use 5.59, ease of use 5.47, usefulness in improving neurolocalisation 5.71. 88% of the students were satisfied overall, agreed that the tool was useful in improving their neurolocalisation skills, felt multimedia components were effective in teaching neurolocalisation and felt more motivated to learn neurolocalisation. Qualitative feedback was likewise positive, with students enjoying the "interactive cases" with "clinical viewpoints" as well as the "good explanations". Students also reported "looking forward to more cases".

**Discussion:** Despite the initial investment of time and financial outlay, over time, the e-learning tool will reduce faculty time required for teaching, with additional benefits of self-directed learning, just-in-time learning and reinforcement through spaced repetition.

**Conclusion:** Given the positive feedback from users and the benefits of e-learning for medical education, we believe the costs of innovation to be justified.

**Take Home Messages:** 1. Users provided positive feedback for the e-learning tool 2. The tool is a cost effective innovative means of teaching neurology.

#81108 (132156)

**An innovative practice of interprofessional education device (iPED) application for multidisciplinary student teams and diabetic patients**

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**Background:** Social media has been shown to be pervasive in public and gradually introduced as a relevant medical education technology. However, there are few reports about such practice involving real patients and students interaction. Therefore the aim of our study was to evaluate the development and impact of the iPED.

**Summary of Work:** Six remote students of three schools (medicine, pharmacy, nursing) and two diabetic patients joined this programme. We developed and improved the iPED application for tablets, which enables users to contact each other online concerning the treatment and their daily life of diabetic patients. They communicated mutually via iPED for a year and face-to-face meetings were set on start, mid, and the last of the term.

**Summary of Results:** We developed the iPED application from scratch to keep high confidentiality and specialize application for medical practice such as 'medicine-taking stamp'. We implemented 4 major and 14 minor updates to the iPED application; setting push notification service, alteration of scroll direction, connecting to photo album among theirs. Such improvements reflected students' and patients' order. These user-oriented improvements had significant educational effects such as teamwork ability or responsibility that emerged from qualitative analysis of the interview.

**Discussion:** iPED application is basically similar to the existing text-messaging SNS applications. However, its high affinity and simple operation could help students and patients contact online continuously for a year. iPED will contribute to facilitate IPE under such conditions as the students are remote or hard to communicate between each other.

**Conclusion:** We developed the iPED, an innovative SNS application specialized for IPE. It demonstrated educational effects.

**Take Home Messages:** iPED has potential to augment social media use in medical education. In the near future, like other applications for patients' health and fitness, such communication application may be available in medical education especially in IPE.



#81109 (135818)

**Development of a Virtual Pathology Rounds iBook to Supplement Learning in a Veterinary Medicine program**

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*Christopher Lam (RUSVM, St Kitts)*  
*Samantha St Jean (RUSVM, St Kitts)*  
*Joshua Williams (RUSVM, St Kitts)*  
*Antoine Laws (RUSVM, St Kitts)*  
*Carmen Fuentealba (RUSVM, St Kitts)*

**Background:** In most Schools and Colleges of Veterinary Medicine findings from cases submitted for post-mortem examination are presented to students and faculty members during weekly necropsy rounds. Currently Ross University School of Veterinary Medicine (RUSVM) does not have the physical facilities to conduct necropsy rounds and as a result our students were missing on an important learning opportunity. Cases submitted to RUSVM Pathology Services for autopsy are often interesting and high quality photographs of the main macroscopic findings are routinely taken. After histopathology assessment, pictures of the most significant microscopic findings from cases considered to have high learning potential (classical disease/ condition), are also taken and saved in a Power Point presentation shared with a small group of students rotating through the Essential Veterinary Skills course, or, occasionally, with the Students' Pathology Club.

**Summary of Work:** To maximize access to learning opportunities generated in the RUSVM pathology services we collected and uploaded available case information in the form of an iBook. By using this technology such information was made readily accessible to a larger student audience. In addition, its teaching value was improved by expanding case information to include literature reviews conducted by DVM students. The development of this iBook is a dynamic process which is continuously been updated as new cases are added.

**Summary of Results:** Current cases include: Babesiosis, lymphosarcoma, hypothyroidism, contagious ecthyma, transmissible venereal tumor, esophageal osteosarcoma and hypertrophic osteopathy secondary to *Spirocerca lupi* infection in a dog etc.

**Discussion:** Student surveys indicate that the iBook was well-received. The project was very rewarding and motivating for students participating in the collection, uploading and scholarly discussion of pathology data.

**Conclusion:** This is an effective learning tool that targets a large audience.

**Take Home Messages:** The creation of virtual pathology rounds is an effective method to reach broad student audience.

#81110 (135971)

**A virtual laboratory experience for teaching medical microbiology**

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*Ali Rajabpour, Birjand University of Medical Sciences, Birjand, Iran*  
*Najmeh Mobasheri, Kavian Higher Education Institution, Mashhad, Iran*

**Background:** The potential role of E-learning methods is a great challenge and a matter of debate in medical education and more specifically in the field of delivering learning material of medical laboratory courses. Here, a collection of e-learning methods was employed to create a blended learning system for supporting teaching medical microbiology laboratory courses. This research aimed to evaluate if laboratory science technology students could learn required non-manual skills and could acquire essential competencies, such as visual and mental skills in medical bacteriology laboratory course using a virtual laboratory environment including e-contents and e-interactions.

**Summary of Work:** A blended learning experience was conducted combining traditional and virtual medical microbiology laboratory practices to teach medical microbiological laboratory skills to laboratory science technology students at B.Sc. level. A virtual medical microbiology laboratory was designed inside the university learning management system combining a variety of learning e-contents including interactive text, interactive pictures, videos and simulations. In practice many different learning scenarios were applied for completion of this virtual lab. The modules was design in virtual environment in a way to help students improve their non-manual skills including data reading, calculation, interpretation of lab test results, using analytical protocols, and finally reporting the test results. The educational achievement of the students who used virtual lab in combination with practicing in the real bacteriology lab was compared with a control group who were trained only in a real bacteriology lab. The data were collected by interview and questionnaire. The qualitative data were converted to quantitative data and finally were analyzed by T-test using SPSS software.

**Summary of Results:** The findings showed that the learners significantly obtained better grades in the modules which their contents had been integrated with the medical microbiology virtual lab in comparison with the modules whose complete initiation took place in the real laboratory. Also the students showed readiness to and positive attitudes towards learning in a virtual lab environment especially in a combination by practicing in a real laboratory. Their knowledge acquired was satisfactory and they exposed a possible benefit from its use in the long run.

**Discussion:** There is always limitations for completion of training of the students in the real field. To overcome such challenges, practicing in a simulated

virtual laboratory is a suitable setting which is proposed in this research. A virtual lab is highly helpful when designed in concordance with the instructional requirements and when there is a lack of feedback in a traditional laboratory setting.

**Conclusion:** Deployment a virtual medical practical and diagnostic bacteriology lab was successful to teach non conceptual and mainly non manual skills to B.Sc. students of laboratory science technology discipline. It successfully can be used for practicing these types of skills. The learners could achieve the necessary competences but otherwise was unreachable.

**Take Home Messages:** Virtual labs are now essential for learning basic medical sciences.

#8111 (135560)

**Re-evaluation of the application of virtual microscopy in the teaching of an oral and maxillofacial pathology laboratory course**

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*Yuk-Kwan Chen,  
Cheng-Chung Lin  
Li-Min Lin*

**Background:** The aim of this study is to share the experience of establishing and re-evaluation a virtual microscope and telepathology system for the oral and maxillofacial pathology laboratory course in a dental school.

**Summary of Work:** A dot-slide system has been used to generate digitized microscopic slides and network station, which are placed on an image server that is available online.

**Summary of Results:** Using free web browser that is available from internet, students are able to select a teaching slide record, view at magnifications comparable with those of a conventional microscope, and navigate to any area on the matching virtual slide image that is stored on the image server database. Before class, the students can review the findings of the virtual teaching slides at any time or any place via broadband internet by using the instructions available on DVD. During class, students report and discuss the histological findings of the virtual teaching slides with tutors who evaluate, test, and make constructive comments on the presentations in a Web-based computer classroom. After class, students can revise the histological findings of the microscopic virtual slides available on the server.

**Discussion:** A number of merits have been noticed after implementing the concept of virtual microscopy in the teaching of our oral and maxillofacial pathology laboratory course 10 years ago. We found that student examination scores for questions on the case for which a virtual slide was used were indistinguishable from those for the comparable case for which a traditional glass slide was used.

**Conclusion:** Virtual microscopy has many advantages over real microscopy in oral and maxillofacial pathology education. Furthermore, telepathology could also be applied in other pathological services, such as intraoperative frozen sections, routine surgical pathology, and subspecialty consultation. In our experience, the virtual microscopy is not only suitable for those students with active learning attitude but also increases opportunities to induce students to discuss with each other.

**Take Home Messages:** We must make good use of the web to induce students' interest in learning in the advent of Internet era.

#8112 (136036)

**Hand Hygiene Teaching by SCORPIO Training**

**Method: Interactive Workshop is the best way to help medical students to learn**

*Sakulrat Srirojana\*, Kalasin Hospital, Kalasin, Thailand*

**Background:** SCORPIO ( Structured, Clinical, Objective-Referenced, Problem-orientated, Integrated, Organised) training method of learning is based on small groups, participant focused and use interactive techniques to assist with integration of new knowledge and practice of new skills. We have provided hand hygiene (HH) workshop for medical students to improve their knowledge and skill before ward attendance.

**Summary of Work:** To study outcome of HH teaching by SCORPIO method in 6th year medical students (participants) who were studying at Kalasin Hospital in 2014 academic year. We have performed SCORPIO teaching which consisting of three essential components 1. Study guide : We have provided copies of lectures and station resources to all participants and introduction with 20 minutes lecture. 2. Teaching stations: The participants were divided into 4 groups, these small groups ( 6-7 persons per each group) rotated around 4 teaching stations. The tutors in each station were medical teachers and nurses. Each station was structured to teach HH skill using a sequence of " tell, show, do, feedback" over 30 minutes. 3. Formative assessment: By short written test and OSCE (Objective Structured Clinical Examination) After the workshop, We have allocated time for discussion and opportunity to ask questions

**Summary of Results:** Average point of formative assessment by short written test and OSCE in 25 participants were 83.21% and 87.64% respectively. Participant evaluation by rating scale (1-5) was the following: presentation technique 4.66, content 4.64, relevance to their work 4.90, ease of understanding 4.78, opportunity for practice/interaction 4.82, tutor support and feedback 4.76, useful method for teaching others 4.70 and overall rating 4.74

**Discussion:** The participant had good attitude to HH teaching by SCORPIO method. Interactive workshop, participation, feedback from tutors and formative assessment were the effective techniques to help the medical students to learn. They have improved in HH

knowledge and skill that may be sustained and useful for their work. The best thing of this workshop was relevance to their work. The only one disadvantage of this workshop was inadequate time for everyone to practice and feedback.

**Conclusion:** HH teaching by SCORPIO method is effective way for integration of new knowledge and skill practice in medical students.

**Take Home Messages:** Interactive workshop is the best way for learning.

#81113 (135726)

**Effectiveness of short internet-based introduction to difficult concepts (pre-reading) in undergraduate medical education**

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Maryam Tawfik Tawfik (Alfaisal University, Riyadh, KSA)

Nada Alqadri (Alfaisal University, Riyadh, KSA)

Dalia Albagli (Alfaisal University, Riyadh, KSA)

Santosh Kumar (Alfaisal University, Riyadh, KSA)

**Background:** As a medical student, it is very normal to feel lost, overwhelmed, and confused during the lecture, specially a new concept lecture. In this study we are trying to prevent these difficulties by helping the students prepare for the lecture by providing them with short introductions before actual teaching sessions.

**Summary of Work:** Our plan is to provide medical students with a short (5-10 minute) internet-based introduction to randomly selected upcoming lectures. These introductions will vary in the format, e.g. videos, mind maps or written summaries. These introductions will be either selected from online resources or prepared in close coordination with the involved teaching faculty so as to match the learning objectives of the lecture and avoid confusion due to irrelevant information. These introductions (and in some cases their online links) will be sent to students before the lectures. After repeating this process over couple of modules, feedback from students and faculty will be sought via surveys.

**Summary of Results:** We expect to see a positive change in students' engagement and understanding of concepts during those lectures.

**Discussion:** We expect improved student engagement and understanding of concepts as studies have shown that coming prepared to the lecture could increase the retention of information, save time, and improve the quality of learning.

**Conclusion:** We hope that giving a small introduction, refreshing previous knowledge or introducing new topics in a simplified way, will increase students' academic performance.

**Take Home Messages:** 'Victory loves preparation' and these short online introductions can be immensely beneficial to a medical student who has heavy work load and tight schedule to follow.

## 8JJ Posters: Clinical & Work-Based Assessment

Location:

#8JJ01 (134168)

**Pilot of a Multi-source Feedback Tool for the Practice Ready Assessment of Internationally-trained Physicians Seeking Licensure in Canada**

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Marguerite Roy

André De Champlain

Erin Anderson

Helen Cuddihy

**Background:** A multi-source feedback (MSF) tool was piloted as part of a three-month practice ready assessment (PRA) of internationally-trained physicians seeking licensure to practice medicine in Canada.

**Summary of Work:** Fifty candidates participated in the pilot. MSF was used to assess competencies expected for a physician as a Communicator, Collaborator, Professional and Medical Expert via four questionnaires completed by candidate self, MD colleagues, non-MD co-workers and patients. The information was used to complement Competency-based Achievement System (CBAS), a FieldNote-based assessment tool. Feedback was also gathered from PRA assessors and candidates to evaluate the MSF tool and pilot process.

**Summary of Results:** Responses were received for 62%, 66% and 96% of candidates from colleagues, co-workers and patients, respectively. Cronbach's alpha ranged from .86 to .98 for each questionnaire and sub-scale. Correlations between self-ratings and those by other groups were low. However, ratings by colleagues and co-workers correlated moderately ( $r = 33$  to  $0.38$ ). Ratings by patients significantly correlated with ratings by colleagues and co-workers on "Communicator" ( $r = 0.38$  and  $0.42$ ,  $p < .05$ ) and moderately with ratings by co-workers on "Professional" ( $r = 0.31$ ). Ratings by colleagues correlated with CBAS assessment results on "Communicator" ( $r = .25$ ) and "Professional" ( $r = .42$ ). Ratings by co-workers correlated with CBAS results on Communicator ( $r = .24$ ) and significantly on "Professional" ( $r = .53$ ,  $p < .05$ ). Over 80% of assessors considered MSF useful for assessing candidates. Over 90% of candidates found MSF useful for professional development.

**Discussion:** Though challenging to obtain adequate number of responses given the short assessment period, most findings were consistent with literature. In addition, MSF and CBAS showed convergent validity evidence. Overall, feedback from assessors and candidates were positive.

**Conclusion:** MSF provided feedback from multiple perspectives to inform assessment and facilitate candidate self-development.

**Take Home Messages:** MSF could be useful in the PRA context when used together with other tools.

#8JJ02 (132855)

**The Proof of the Pudding may be in the Eating but the Key is in the Tasting – Summative and Formative assessment for Advanced Practice Nurses in Singapore**

**Jamie Lim\***, Tan Tock Seng Hospital, Singapore, Singapore

**Background:** Since 2005, Masters of Nursing students graduating from the National University of Singapore undergo a one-year internship which leads to Advanced Practice Nurse (APN) certification if he or she successfully passes an end-of-training viva-voce examination. At present, there is no structure to assess the APN interns (APNI) during the training period. Furthermore, a viva-voce examination may not adequately assess all domains required of an APN in professional practice. In recognising that the current APN accreditation process may be suboptimal, the Ministry of Health (MOH) convened a workgroup to review the current system of APN intern professional competency assessment. This abstract (1) describes the implementation of a framework using Workplace-based assessment (WPBA) during the one-year internship and (2) the inaugural of a 12-stations summative examination in replacement of the viva-voce.

**Summary of Work:** The APN Competency Workgroup comprised of APNs from various hospitals, two senior physicians with expertise in medical education and representatives from the MOH, Singapore Nursing Board and the nursing school was formed in November 2011. The proposed model of assessment for the APNIs consists of both formative and summative assessments. The workgroup identified APN competencies, developmental milestones and selected the appropriate assessment tools. Meetings incorporated learning the concepts and execution of WPBA from the "doctor-expert". An APN Examination Board was set up to work on the summative examination.

**Summary of Results:** Since the inception of the structured internship program in 2014, 1 out of 3 APNIs in Tan Tock Seng Hospital has received her accreditation as an APN. The remaining 2 have withdrawn from the program as they were not performing according to the milestones. The decisions were made by the Committee for APN Competency after reviewing the compilation of assessment forms, feedback, remedial exercises and meetings with the APNIs and their clinical supervisors.

**Discussion:** The current APN internship program has proven to be robust. The key elements are (1) to set up a carefully selected core team of APN leads, preceptors and administrative assistant who track the progression of the APNI meticulously (2) to response and act on non-performance (3) to maintain good documentations and accounts of all meetings.

**Conclusion:** Assessment of APN interns to ensure the development of right knowledge, skills and attitudes may be performed comprehensively and effectively with a combined formative and summative approach.



WPBA offers a framework for formative assessment during the one-year internship.

**Take Home Messages:** Assessment and feedback are two of the most powerful tools to shape the APNI's learning.

#8JJ03 (132483)

**Implementation and impact evaluation of a faculty development program using mini-CEX in the assessment of undergraduate medical students**

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Mario de Seixas Rocha

Caroline da Silva Seidler

Lila Ramos Castelo Branco

**Background:** Faculty development improves the teacher-learning process. It encourages thinking about the practice itself and also strengthens the relationship between the teacher and the students and with the university. It now seems appropriate to evaluate the impact of faculty development programs. This study try to measure the impact of the implementation of a faculty development program with teachers of clinical skills in the fifth semester of their medicine course

**Summary of Work:** two workshops in the first year focused on mini-CEX (simulated situations, discussion and feedback), plus one year of observation; teachers answered pre-test and post-test. During the semesters, they sent reports regarding the use of mini-CEX and participated in a Focal group at the end of each year. There was no training in the second year. In parallel, students answered questionnaires evaluating faculty competences before and after the workshops; they participated in a Focal Group at the end of each year.

**Summary of Results:** 159/200 students answered questionnaires about the competences of the Ideal and Real teacher. They noticed changes in the following competences: flexibility, affectivity, communication and assessment. The content analysis showed that the teacher was perceived as an information provider and as a facilitator. They recognized the value of feedback in their development. Faculties (10/14) recognized the faculty development program as positive in improving their practice; they showed improvement(difference in the scores in the pre and post-tests). The qualitative data showed that they reflected on their faculty practice and the value of mini-CEX as formative assessment

**Discussion:** The results reinforce the idea of the students as being fundamental in analyzing the faculty practice as well as the curriculum and in promoting changes. The data demonstrated a positive impact when the group brought a new perspective about the faculty role and its practice. The group also analyzed the use of mini-CEX as a formative assessment on undergraduate student links with other studies.

**Conclusion:** The program had a positive impact on the faculty practice, although permanent stimulation is necessary to ensure sustainability of changes.

**Take Home Messages:** The use of mini-CEX and effective feedback should occur in the early years of the medical course. It promotes a better workplace assessment and has an important formative role.

#8JJ04 (135265)

**Student and professor perception of the use of mini-CEX in the internship in obstetrics and gynecology**

**Eliana Amaral\***, *UNICAMP, Campinas, Brazil*

Marcia Machado

Joana FB Bastos

**Background:** The mini-CEX is an assessment strategy that enables reflection on practice induced by immediate feedback. Interns of Ob&Gyn usually have mini-essays, oral exams and global rating as the components fr their final score during their rotation, composed by different clinics. Structured feedback after observation of their performance with real patients is hardly ever available. This prospective study aimed to assess the perception of students and teachers concerning the application of the mini-CEX evaluation instrument and the learning opportunity taking place.

**Summary of Work:** From April 2013 to April 2014, 44 medical interns from the rotation in Obstetrics and Gynecology were assessed by the mini-CEX, in a randomized study. Ten students and three teachers responded to semi-structured interviews, which were totally recorded and transcribed. After skimming the transcripts from the interviews, the units of significance relating to the aims of the study were identified. Then, the categories for thematic analysis were determined. All participants signed a free informed consent term.

**Summary of Results:** The categories of analysis that appeared were: previous experience with assessment, experience with mini-CEX, incorporation of the mini-CEX as routine evaluation and suggestions. Students and professor were satisfied with the method and recognized changes in their practices after participating in the study. According to student perception, feedback contributes to make them feel more valued and recognized by the teacher who observes their performance. Despite the initial tension due to direct observation of their abilities, with continuation of activities these students felt a closer connection with their teachers and regarded the manner of providing feedback as respectful and careful. Teachers believed that this type of assessment tool allows a closer observation of developing abilities of the students and demands continuous improvement in their own knowledge and how to provide feedback.

**Discussion:** As in previous literature, students and preceptors approved the experience of using mini-Cex in clinical rotations. It was rewarding to see the recognition of its role as a formative tool, as a

facilitator of the student-teacher relationship, and recognition of the respectful feedback provided.

**Conclusion:** Students and teachers valued the formative assessment opportunity provided by mini-CEX, and recognized its potential to establish a closer relationship between students and preceptors for feedback.

**Take Home Messages:** Observation of performance is a necessary formative tool in clinical rotations. Mini-Cex use is highly recommended and might be considered a potent teachable moment.

#8JJ05 (135133)

**Perceptions of the Mini-CEX agreed learning goal in the context of a self-regulated learning cycle**

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Andrea Thompson (University of Auckland, Auckland, NZ)

Marcus Henning (University of Auckland, Auckland, NZ)

**Background:** The Mini-CEX is a workplace-based assessment (WBA) recently introduced into Emergency Medicine (EM) training in Australasia. As part of the assessment an agreed learning goal is set.

**Summary of Work:** This research aimed to discover EM trainees' and their supervisors' perceptions of the agreed learning goal as part of the Mini-CEX in the context of a self-regulated learning cycle in order to identify factors that could contribute to optimising learning opportunities for EM trainees. A mixed-methods approach was used. Data was collected from both trainees and supervisors. Quantitative data was collected using online questionnaires. Qualitative data was collected through optional free-text segments in the questionnaires and through focus groups. Data was themed and coded in the context of a self-regulated learning cycle and other emergent themes were identified.

**Summary of Results:** Overall, the agreed learning goal-setting process was valued by trainees and supervisors. Allowing trainees to negotiate their learning goals increased their perception of goal-setting value. The need for adequate training in the Mini-CEX process for both supervisors and trainees was highlighted. The process of direct observation provides an opportunity for feedback in communication and professionalism domains.

**Discussion:** Four themes were identified: 1) Challenges encountered in the agreed learning goal-setting process; 2) Autonomy in goal-setting; 3) Challenges in assessment as part of the Mini-CEX process; 4) The utility of the agreed learning goal-setting process. The underlying elements of each of these themes was discussed.

**Conclusion:** Several factors were identified that could enhance learning opportunities for EM trainees through the agreed learning goal-setting process of the Mini-CEX.

**Take Home Messages:** To enhance the educational value of the agreed learning goal for EM trainees, consideration should be given to: adequate resourcing; appropriate training for both supervisors and trainees; and 'closing the loop' to ensure that learning goals are achieved.

#8JJ06 (134260)

**The integration of cloud-based mini-CEX system and electronic records in outpatient teaching clinic**

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Walter Chen (China Medical University & Hospital, Taichung, Taiwan)

**Background:** Workplace-based assessments (WBAs), including mini-clinical evaluation exercises (mini-CEXs), have emerged as an important element in medical education, aiming to assess on the top 'does' level of Miller's pyramid. However, a valid, direct observation of medical student competency in clinical settings still remains challenging. Frequent student observation may result in highly variable evaluations which are skewed by factors other than the student's actual performance. Current development in cloud and mobile technology may be helpful to decrease such discrepancy.

**Summary of Work:** We developed a cloud-based mini-CEX system, in which a web-based revision system of the medical record was included. The trainees would receive on-line traditional mini-CEX assessment as well as the revision of their medical records at the same time.

**Summary of Results:** A total of 56 clinical teachers in 23 outpatient clinics provided 3209 mini-CEX ratings for 912 trainees from October 2013 to December 2015. The mini-CEX scores increased as the training level increased. Significant enhancement of mini-CEX scores were observed between clerkship (including 5th and 6th year medical students) and internship (7th year medical students) and between internship and residency (including postgraduate resident and junior resident). In contrast, the mini-CEX scores were not significantly increased at the similar training stage. Fifth and 6th year medical students had similar mini-CEX performance. Post graduate residents also had similar mini-CEX results with junior residents. The integration of the on-line revision of medical records with mini-CEX was most inspiring to the medical students.

**Discussion:** The cloud-based mini-CEX could effectively promote mutual feedbacks between clinical teachers and trainees, especially in a busy clinical

scenario. Significant advancement of overall mini-CEX performance was observed in different training stages. The integration of on-line revising medical records may enhance the trainees' motivation. It may also help decrease the inter-rater discrepancy.

**Conclusion:** The integration of cloud-based mini-CEX with electronic medical record may effectively promote the clinical assessment as well as inspire medical students' motivation.

**Take Home Messages:** A delicate integration of on-line mini-CEX system and electronic medical records could provide another useful and inspiring tool in authentic clinical settings.

**#8JJ07 (135495)**

**Mini-CEX in Ob&Gyn clerkship to identify learning gaps**

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*Valdes Roberto Bollela (University of São Paulo, Ribeirão Preto, Brazil)*

**Background:** A curriculum based on outcomes should have defined planned application and evaluation. The objective of this study is to use workplace based assessment as guidance in program evaluation and curriculum improvement of an Obstetrics and Gynecology (Ob&Gyn) clerkship.

**Summary of Work:** A cross-sectional study involving tutors and medical students in an Ob&Gyn clerkship was conducted. Mini Clinical Evaluation Exercise (Mini-CEX) was used as assessment tool, along with MCQ at the end of the rotation. Results from student perception of learning questionnaires and the Mini-CEX were analyzed and compared to identify the extent to which learning objectives were achieved. The study was approved by the Research Ethics Committee.

**Summary of Results:** Three faculty members evaluated 84 students in 108 encounters using mini-CEX. Students received the lowest ratings, on average, in the gynecological physical examination and clinical judgment skills, compared to interviewing or counseling. Students and teachers agreed that there were issues related to performance of physical examination and communication skills.

**Discussion:** The results of direct observation suggested the need for further education during medical internship in Ob&Gyn. There was a need to implement earlier practice of the most challenging skills in the Skills Lab, allowing safe practice for students and permitting faculty to provide useful feedback.

**Conclusion:** The use of the mini-Cex in the Ob&Gyn clerkship was accepted by both students and

assessors. The use of the mini-Cex evaluation enabled better understanding of the extent to which Ob&Gyn learning objectives were being achieved.

**Take Home Messages:** It was vital to conduct faculty development to implement the use of Mini-CEX. Additional workshops will be held to train more tutors, to increase use of the method. There was demand from the students to increase the instruction of practical skills lab during the rotation.

**#8JJ08 (133625)**

**Recruiting real patients for high stakes exams: The logistic challenge**

**Andrew Kelly\*, Plymouth University Peninsula Schools of Medicine and Dentistry, Plymouth, UK**

*Tony Davies*

**Background:** Surely standardised patients are the way forward? NOT ALWAYS SO! Medical undergraduate institutions adopt variable strategies toward the inclusion of either real or simulated patients in clinically based examinations. Real patients give high authenticity, are inexpensive and increase patient involvement in medical education. There are however considerable practical challenges including of recruitment.

**Summary of Work:** We have explored the logistic issues of delivering this strategy within our institution. Recruitment data is collated including cancellation rates. The usage of reserve patients is also assessed. Key aspects of successfully maintaining this programme are explored.

**Summary of Results:** We have maintained a high recruitment of real patients for Integrated Structured Clinical Examinations. This strategy has been positively perceived by faculty, students and external examiners.

**Discussion:** Key strategy components include: • Dedicated administrative staff. • Patient database. • Clinical faculty interview all patients for suitability. • Active nurture of patients including appreciation cards and annual contact. • Patient recruitment routinely restricted to ½ day sessions. • Patient recruitment to the database to continue throughout academic year. • Use of patient support groups. • Patient standardisation methods. • Reserve patient use.

**Conclusion:** Real patients have a key role within high-stakes undergraduate clinical skills examinations. Logistics are considerable but surmountable.

**Take Home Messages:** Use our top-tips to bolster your real patient involvement in high-stakes exams!

#8JJ09 (126835)

**Ranking Assessment of Procedural Skills in Anesthesia Students**

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Araya Keojamras (Lampang Hospital, Lampang, Thailand)

Naowarat Phruenglamphu (Lampang Hospital, Lampang, Thailand)

**Background:** The basic procedural anesthesia is important and is something that must be applied to the treatment of patients. For this reason, assessing hands-on practice should accurately reflect students' effective capabilities, not merely state the number of procedures or fail /success of procedures

**Summary of Work:** The retrospective collection of data on fifth-year students who passed the course in anesthesiology during the 2014-2015 academic year, in order to compare such data with students from the 2016-2017 academic year, through the implementation of ranking assessment in hands-on practice with real patients in two specific procedures: ET intubation and spinal block.

**Summary of Results:** 183 fifth-year students in the academic years 2014-2017, 78 male and 105 female students. The average scores in hands-on practice were as follows:

For year 2016: ET intubation  $3.9 \pm 0.480$  (range 3-5) spinal block  $4.0 \pm 0.325$  (range 3-5)

For year 2017: ET intubation  $3.8 \pm 0.443$  (range 3.4-4.6) spinal block  $3.6 \pm 0.410$  (range 2.3-4.3)

**Discussion:** The average scores for both procedures show progressive improvement proportional to the increase in hands-on practice. But a number of students who need additional training procedures, because the rate of invasive procedures decreased. Comparing OSCE scores and the satisfaction, there were no quantitative difference with groups using earlier forms of assessment.

**Conclusion:** Although the introduction of ranking assessment in measuring performance during hands-on practice showed no difference with direct observation, in both the OSCE measure and the level of satisfaction with the educational process, the ranking measure is nevertheless useful and monitor progressive students' skills.

**Take Home Messages:** Many trainees will "need further development", the strengths and weakness can be assessed to be improved.

#8JJ10 (132931)

**Application to Health Professions' Education of 3D Sensor – Medical Interview Evaluation System by Conversation Analysis Software ELAN and Kinect V2**

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**Background:** There are some difficulties at quantitative assessment of medical interview in health professions' education. In medical interview assessment, verbal and non-verbal communication and counseling activities were assessed. A Kinect sensor is a 3D sensor that processes color, depth, and skeleton data. The Microsoft face tracking software for Kinect (Face Tracking SDK) enables to create applications that can track human faces.

**Summary of Work:** In medical interview of dental trainee's OSCE, Kinect V2 sensor and video camera were used for verbal and non-verbal communication data acquisition in 5-minutes test time. The angle of the face of the interviewer during a medical interview was measured by Kinect V2, and the time that towards the face to the patient have been aggregated. Total time for dental trainee facing to simulated patient (SP) was measured by Kinect sensor and total time for dental trainee talking to SP was measured by ELAN, video data conversation analysis software.

**Summary of Results:** Total time for dental trainee facing to simulated patient in high score group tend to be longer than that in low score group. Total time for dental trainee talking to SP in high score evaluation group was longer than that in low score evaluation group. Total time for SP talking is constant in high score group and low score group.

**Discussion:** Dental trainees in high score evaluation group often face to SP and often talk to SP. Further they frequently tend to use body and hand gesture to communicate to SPs. On the other hand, dental trainees in low score group tend to use few communications.

**Conclusion:** There is a possibility of more detailed evaluation in consideration of the qualitative study of conversation analysis using data sharing with ELAN. We would like to promote the possibility and future applications of a further health professions' education field.

**Take Home Messages:** Possibility of quantitative evaluation in communication at medical interview with Kinect sensor was shown.



#8JJ11 (135847)

**Long case examination in fifth year and sixth year of medical student in obstetrics and gynecology**

**Nungrutai Saeai<sup>\*</sup>, Prince of Songkla university, Songkhla, Thailand**

Chitkasaem Suwanrath

Satit Klangsin

Saovakon Boonkumnerd

Thada Kumkong

Sirirat Thamrongwat

**Background:** Long case examination was a good method for comprehensive assessment. It can assess in many aspects such as history taking, physical examination, problem identification, holistic approach to the patient and plan of management. Medical students in our department had to test long case examination in fifth year and sixth year. We aim to assess the progression of the medical students in all aspects of long case examination.

**Summary of Work:** Long case examination were assessed in 6 parts; history taking, physical examination, data organization and presentation, problem solving, communication and professional attitude. It was assessed in 361 fifth year medical students at the end of the session and one year later, it was assessed again in the same person (final year medical students) in 2011-2014.

**Summary of Results:** The sixth year medical student improved overall score in 45.2%. In part of history taking, physical examination, data organization and presentation, problem solving, communication and professional attitude were improved in 36.3%, 34.9%, 40.7%, 36.0%, 39.1%, and 34.9%, respectively.

**Discussion:** The half of medical student could improve overall skills in long case examination. The progression of data organization and presentation was highest while physical examination and professional attitude were least.

**Conclusion:** Additional clinical practice can improve necessary skill for management in patients and our institute should emphasize in part of physical examination and professional attitude.

**Take Home Messages:** Education practice and effective education should focus on information process and clinical reasoning.

#8JJ12 (133182)

**Evaluation of Graduates, a Key for Patient Safety**

**Boonyarat Warachit<sup>\*</sup>, Collaborative Project to Increase Rural Doctors, Ministry of Public Health, Nonthaburi, Thailand**

Varavudh Sumawong

Achara Nitiapinyasakul

Rajin Arora

**Background:** Ministry of Public Health, Thailand has collaborated with fourteen universities for 21 years (7 are old and 7 are new) in order to increase rural doctors. Medical students study three years in the university and three clinical years in Medical Education Center (MEC) of provincial hospitals. The range of medical students in each MEC varies from 15 – 60.

**Summary of Work:** Cross-sectional study was conducted using nine stations OSCE for 446 medical graduates (intern) who already got medical license and work for 1 year in rural provincial hospitals. MEC were divided in two categories as old and new and according to size S, M, L.

**Summary of Results:** 126 interns from new MEC had less competency than old MEC in long arm slab and trauma station ( $p < 0.001$  and  $0.024$ ). When compared three size of MEC according to number of medical students, size S had less competency with thoracocentesis, newborn resuscitation and long arm slab ( $p < 0.001$ ). Size M had less competency with long arm slab and trauma ( $p < 0.001$ ,  $p = 0.012$ ). Size L had less competency for FAST and communication skill ( $P = 0.002$  and  $0.034$ ).

**Discussion:** The result of OSCE showed that each MEC should improve their supervision and feedback to interns even though they already had medical license because they must work for another two years in community hospitals. Graduates from new universities and small, medium size MEC should increase practice and supervision, however size L MEC which collaborate with old universities should stress in two competencies as well.

**Conclusion:** In Thailand, evaluation of interns is done only by workplace-based assessment which may not be enough as shown when using OSCE.

**Take Home Messages:** Graduates with competent medical skills is a key factor for patient safety.

## 8KK Posters: Standard Setting

Location:

#8KK01 (134770)

**Application of Cohen methods for standard setting reduces variance of exam failure to the cost of a lower pass mark**

**Tobias S. Slørdahl\***, NTNU & St. Olavs Hospital, Trondheim, Norway

Anders Barli Colberg (NTNU, Trondheim, Norway)

Daniel Vatn (NTNU, Trondheim, Norway)

Maria Radtke (NTNU/St. Olavs Hospital, Trondheim, Norway)

Rune Standal (NTNU, Trondheim, Norway)

**Background:** In medical education various standard setting methods are used. The Norwegian University of Science and Technology (NTNU) has summative, integrated examinations consisting of MCQs and essay-style items. Currently we are using a fixed 65 % pass mark (PM).

**Summary of Work:** Records show a variable failure rate on the same exam across different cohorts. Exam difficulty may account for this variation. We wanted to investigate whether another, cost-efficient and more reasonable standard setting method was applicable. We utilized Cohen and modified Cohen method on all integrated exams (n=34) administered during 2010-2015. Because the “true” constant K could not be determined for the modified Cohen method, we tested different K-values.

**Summary of Results:** Failure rates with a fixed 65 % PM varied between 0 % and 13,7 % and there was a significant fall in failure rates from the first to the last year of study ( $p=0,004$ ). The variance of failure of each integrated exam varied between 1.88-24.25 with a fixed 65 % PM. Applying standard Cohen; modified Cohen with  $K=0.65$ ;  $K=0.70$  and  $K=0.75$  the variance was 0.25-16.14; 0.12-6.09; 0.19-7.50, 0.79-33.41, and PM between 58.1-64.7; 53.3-58.6; 57.4-63.1; 61.5-67.6, respectively.

**Discussion:** Variance in failure rates were reduced by standard Cohen and modified Cohen with a  $K<0,75$ , but at the cost of a lower PM. Without a good criterion-based method to determine the correct PM as a control, these methods are difficult to apply in our population. The prefixed 65 % PM has an acceptable variance, but modified Cohen method could be considered when very high failure rates occur.

**Conclusion:** Standard and modified Cohen are cost-efficient and easy applicable methods, correcting for exam difficulty.

**Take Home Messages:** Variance in failure rates are reduced at the cost of a lower PM.

#8KK02 (132854)

**Comparison of two standard-setting methods: the modified Angoff method and a method using acceptability index assigned by individual test item writers (Writer method)**

**Monton Wongwandee\***, Srinakharinwirot University, Nakhon Nayok, Thailand

Piyanant Chonmaitree (Srinakharinwirot University, Nakhon Nayok, Thailand)

Deeprom Sirikate (Srinakharinwirot University, Nakhon Nayok, Thailand)

Apichai Pangson (Srinakharinwirot University, Nakhon Nayok, Thailand)

Prasit Upapan (Srinakharinwirot University, Nakhon Nayok, Thailand)

Panwara Paritakul (Srinakharinwirot University, Nakhon Nayok, Thailand)

**Background:** In 2015, the passing score of the 200-item comprehensive MCQs examination at our medical school was calculated from the summation of acceptability index (AI) given by individual test item writers (Writer method). This process is less time consuming and does not require group meeting. We compare the Writer method with the well-known modified Angoff method.

**Summary of Work:** The AI is the probability that a borderline student answer the item correctly. For the Writer method, the authors (i.e. specialists) assign the AI to each of the items they created. For the modified Angoff, five judges from different specialties evaluate each item and give the agreed AI. We compare the pass rate between the two methods. A Pearson correlation was computed to assess the relationship between the AI given by individual item writers and the agreed AI from the judges.

**Summary of Results:** The passing score set by the Writer method was 88/200 and resulted in a passing rate of 97% (125/128) while the passing score from the modified Angoff was 95/200 and led to a passing rate of 85% (108/128). There was no significant correlation between the AI assigned from the item creators and the AI agreed by the judges,  $r(198) = 0.07$ ,  $p = 0.27$

**Discussion:** The Writer method results in a significant lower passing score. This could be a result of the different perception of item difficulty between the content expert (a specialist who create the item) and the instructors from other specialties (the judges panel).

**Conclusion:** Despite its convenience, the Writer method does not have concurrent validity with the modified Angoff method which is a robust procedure for standard setting.

**Take Home Messages:** Simplifying the modified Angoff method by using the item writer as a single judge results in a significantly lower passing score. Therefore, this method should be used with caution.

#8KK03 (133917)

**Comparison of Angoff versus Cohen standard setting methods in a Neuroanatomical Localisation Extended-Matching Questions paper**

**Kevin Tan\***, National Neuroscience Institute, Singapore, Singapore

Nigel CK Tan (National Neuroscience Institute, Singapore, Singapore)

Derek TL Soon (National University Health System, Singapore, Singapore)

Arun Venkatesan (Johns Hopkins University, Baltimore, USA)

Saurabh R Sinha (Duke University Medical Center, Durham, USA)

Gominda Ponnampereuma (University of Colombo, Colombo, Sri Lanka)

**Background:** Criterion-referenced standard setting procedures such as the Angoff method are time consuming and costly. The Cohen and modified Cohen method combine a pre-fixed cut-off score with a relative point of reference, and attempt to minimise disadvantages of conventional criterion- and norm-referenced methods, whilst optimising advantages. We developed an Extended-Matching Questions (EMQ) paper for assessment of neuroanatomical localisation. We applied the Angoff and Cohen methods to determine the passing scores of the paper for internal medicine (IM) and neurology (NL) residents.

**Summary of Work:** We conducted a modified Angoff including a discussion phase with 8 judges (general internists from Singapore) and 6 judges (neurologists from Singapore and USA) for IM and NL standard setting respectively. The EMQ paper was administered to IM residents in Singapore (n=115) and NL residents in Singapore (n=18) and USA (n=29). Cohen (Cohen-Schotanus et al, 2010) and modified Cohen (Taylor, 2011) methods were also used to calculate the passing score for both cohorts.

**Summary of Results:** The passing scores were 51.3% vs 59.4% vs 62.1% for IM residents and 70.1% vs 58.3% vs 62.1% for NL residents, using Angoff, Cohen and modified Cohen methods respectively. Scores in both cohorts were skewed towards higher scores.

**Discussion:** We found wide variation in the calculated passing scores in both cohorts using Angoff and both Cohen standard-setting methods. The standard by modified Angoff method showed an appropriate gradient in the passing scores between IM and NL residents. The standards by Cohen methods for both cohorts were similar and may be due to small sample size, skewed score distribution or a ceiling effect of the paper.

**Conclusion:** Modified Angoff method may be a more defensible way to set a standard passing score in our postgraduate Neurology paper.

**Take Home Messages:** Modified Angoff method may be more defensible than Cohen methods, especially when sample sizes are small or when scores are skewed.

#8KK04 (132553)

**The discrepancy of inter-rater reliability in scoring and ability to feedback in rater training of OSCE**

**Tsung-Yu Tsai\***, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan

Su Lee

Bo-Min Wang

Li-Chi Kuo

Chia Hsin Chen

Yu-Chih Lin

**Background:** Rater training in OSCE is usually conducted with group activity allowing raters to practice rating by watching videos of clinical simulation. Sharing of observations, perspectives and judgments among trainees in rater training would improve the inter-rater reliability but may also decrease the variety of observation and content of feedback.

**Summary of Work:** We conducted an OSCE rater training of 12 raters in the department of physical therapy in KMH. The training included a pre-course and a post-course video rating and feedback practice, also two group discussion session in-between. Participants were evaluated on the variety of the content from their feedback practices.

**Summary of Results:** The dimensions and items of feedbacks decreased after the group discussion. The less-experience raters followed the dimensions of feedback from the experienced rater and tended to ignore items previously given by their own. The variety of scoring also decreased.

**Discussion:** Our finding revealed that interactions and sharing of perspectives in rater training may have different impacts on scoring and feedback. The leading opinion from experienced rater may help in building consensus on important items to check and standards for scoring. However, such consensus may also narrow the focus of observation.

**Conclusion:** The sharing of observation, perspectives and judgments in group discussion after rating practice in rater training would lead to a consensus of scoring. However, the content of feedback which is important to student's learning may be diminished. Such phenomenon would have impact on the learning of students during OSCE.

**Take Home Messages:** While building consensus in rater training of OSCE is important for improving inter-rater reliability, it is also important to maintain different perspectives of observation in order to enrich the feedback.

#8KK05 (135330)

**Comparison of In-site and Off-site Scoring in National High-stake OSCE - A Three-year Cohort Study**

*Te-Chuan Chen\*, Division of Nephrology, Kaohsiung Chang Gung Memorial Hospital, Chang Gung University College of Medicine, Kaohsiung, Taiwan*

*Shao-Ju Chien*

*Chih-Hsiung Lee*

*Meng-Chih Lin*

**Background:** The teachers and raters want to observe the students' performance closely and clearly but do not want to interrupt their performance. We investigate the inter-rater reliability between the in-site scoring (IS) and off-site scoring (OS) in objective structured clinical examinations (OSCE) in and out of the room.

**Summary of Work:** The seventh-year medical students who participated the National high-stake OSCE at our hospital were enrolled in the study during the period from Jan. 2013 to Dec. 2015. Six tasks were randomly selected among the 12-station OSCE every day. Twelve raters were divided into two paired groups of off-site scoring (OS) and in-site scoring (IS). The results were showed with mean  $\pm$  standard deviation (SD). Significance was defined as  $p < 0.05$ .

**Summary of Results:** A totally 154 students (male 63.6%), 84 raters were enrolled and 924 pairs of ratings were analyzed in the study period. The mean scores of checklist and global rating in two groups were similar. The overall Cronbach  $\alpha$  was 0.920. The overall agreement of the kappa value was 0.623. The overall intra-group Pearson's correlation of checklist and global rating scores in each group was significant.

**Discussion:** There were still some disagreements between raters. The raters' reliability remains a major work related to the success of scoring. Some factors need to be validated such as the reliability of facility and raters' experience.

**Conclusion:** Our results demonstrated a substantial agreement between in-site and off-site scoring. It provides an alternative way for the raters to breakthrough the barriers of distance and space.

**Take Home Messages:** Off-site scoring is a way for the scoring of high-stake OSCE to avoid the interruption of the teachers or raters. It provides a promising future application of learning, teaching and assessment by reliable well-prepared high technology.

#8KK06 (130928)

**Pros and Cons of an electronic OSCE compared to a paper-based OSCE - experience from Hannover Medical School, Germany**

*Philip Bintaro\*, Hannover Medical School, Hannover, Germany*

*Sabine Schneidewind (Hannover Medical School, Hannover, Germany)*

**Background:** At Hannover Medical School, 270 2nd year medical students have to pass an OSCE after a physical examination and assessment of patient history class. Due to progressive cost and time constraints, we conducted an electronic OSCE in 2014 to evaluate potential benefits.

**Summary of Work:** The paper-based OSCE has been a permanent feature of the above mentioned class for several years. Content and blueprints were readily available and merely had to be transferred to an electronic form. By means of this, comparability to recent years' results was assured. Afterwards, we analysed individual examiners' and students' feedback.

**Summary of Results:** The ease of data collection and analysis leads to relevant time saving. Features like automatic student recognition, reminders for unchecked items and the availability of additional information on expected answers or grading policy by click contribute to examiner comfort. Students did not feel disturbed by the examiner handling a tablet PC.

**Discussion:** Network breakdowns, as we have experienced one, lead to student dissatisfaction, the necessity of additional exam time and may compromise legal certainty of this high stakes exam. Additionally an electronic OSCE is very costly, considering the programming and technical support. Furthermore it needs to be prepared far in advance and rarely allows changes in schedule or topic after programming.

**Conclusion:** An electronic OSCE is feasible and convenient for both examiners and students.

**Take Home Messages:** An electronic OSCE offers multiple advantages over a paper-based OSCE. Potential backdrops, for example a network breakdown with consecutive data loss and the relevant costs need to be considered.



#8KK07 (135890)

### Standard Setting in Small Sample OSCEs

*Dwight Harley\*, University of Alberta, Edmonton, Canada*

Margaret Dennett

**Background:** The OSCE format is one of the most widely used approaches to measuring clinical competence. Critical to the validity of OSCE results are “scientifically developed” pass scores. These speak not only to the validity of the results but also to their legal defensibility. One of the major threats to the validity of OSCE results is the method by which the passing scores are determined. Borderline and median regression techniques are commonly used however both methods have their problems. The results from linear regression can be volatile when basic assumptions are violated. Median regression has its difficulties when the slope ratio deviates substantially from one. In some instances pass scores are indeterminate through regression methods. These problems are especially evident in small data sets. Could Angoff’s method be a viable alternative for small OSCE data sets?

**Summary of Work:** Our study involved a 7 station OSCE administered to 13 graduate students. Standards were set using the borderline and median regression techniques, and Angoff’s method.

**Summary of Results:** • For one station a regression based pass score was undeterminable. • For three stations all methods yielded pass scores that were within one point of one another. • For three stations the regression based pass scores were between 2 and 5 points lower than the respective Angoffs.

**Discussion:** As a consequence of the small sample, results from the regression methods are suspect. Angoff is not affected by the sample size. The biggest challenge to using the Angoff method is the conceptualization of the minimally competent borderline candidate but careful calibration can help mitigate the subjectivity involved.

**Conclusion:** Future study is needed to develop new and reliable methods of setting pass scores for small sized OSCEs.

**Take Home Messages:** For OSCEs with small groups of candidates the Angoff standard setting method may be the most defensible approach.

#8KK08 (134464)

### Standard setting in graduating OSCEs for medical students: borderline vs Hofstee methods in a middle income country

*Marcelo García Dieguez\*, Centre for Research on Helath Professions Education, Universidad Nacional del Sur, Bahía Blanca, Argentina*

*Marta del Valle (Centre for Research on Helath Professions Education, Universidad Nacional del Sur, Bahía Blanca, Argentina)*

*Gabriela Serralunga (Centre for Research on Helath Professions Education, Universidad Nacional del Sur, Bahía Blanca, Argentina)*

*Alejandro Crango (Centre for Research on Helath Professions Education, Universidad Nacional del Sur, Bahía Blanca, Argentina)*

**Background:** Determining standards for assessing clinical performance is a controversial issue. Cost and orientation influence the method selection. Borderline method (Examined-centered approach) and Hofstee (Compromise approach) are feasible in a lack of resource context.

**Summary of Work:** Aim to compare the reliability of the pass/fail cut score of two standard methods: borderline and Hofstee. Subjects and methods: a 12 station OSCE were administered to a total of 56 graduating students. 48 judges set standards during stations administration of test using borderline method. 17 trained judges were electronically consulted to assess four question of Hofstee method for each of 12 stations. Cutoff scores, percentage of failing students were compared. Reliability of cutoff score were calculated by generalizability theory (Edu G).

**Summary of Results:** The mean score for the total test was 66.1 (SD 4.7 range 56.4 - 77.5). Cronbach’s alpha reliabilities were higher for domain-total scores compared to global scores (0.54). The cut-scores by borderline method was 54 points with a reliability for cut score of 0.89. None of the student fault with the cut score calculated by this method. Calculated by Hofstee method cutoff score was 57.6 points with a 1.8% (1/56) of failing student; Reliability of cut off score was 0.82.

**Discussion:** Both methods show similar reliability for cut off score, but consequences for students were different, even though the number of failing student is not significant. Both methods are easily implemented at low cost. The selection should take into account the educational principles behind the methods: more examinee-centered or more criterion.

**Conclusion:** Both methods have adequate reliability of cut off score. Borderline method showed less failing students than Hofstee.

**Take Home Messages:** Hofstee and borderline are reliable methods to standard setting in lack of resources context. Selection of methods for high-stake OSCEs should be based on the assessment theoretical foundations of one or another method.

## Session 9: Simultaneous Sessions

Tuesday 30 August 2016: 1600-1730 hrs

### #9A Symposium: Fostering Innovation and Change in Medical Education: The Durable Impact of Awards and Grants

Location: Auditorium



**Mark Quirk\*** (American University of the Caribbean, USA - Chair)

**Catherine Lucey\*** (University of California San Francisco School of Medicine, USA)

**Mark Earnst\*** (University of Colorado School of Medicine, USA)

**Wendy Hu\*** (Western Sydney School of Medicine, Australia)

**Terry Poulton\*** (St George's University of London, UK)

**Gary Rogers\*** (Griffith University, Australia)

**Ming-Jung Ho\*** (National Taiwan College of Medicine, Taiwan)

The symposium will explore the common features and characteristics of programs and projects that successfully lead to lasting meaningful change in medical education. The panel includes recipients of grants or awards from each of five organizations that provide financial and other tangible support for improving medical education. Within a framework of organizational change, presenters will focus on the goals and outcomes of their efforts and present recommendations for accelerating change that could be implemented with and without external funding. Thus far, we have identified four potential organizational grant programs from which to draw panelists: The American Medical Association Accelerating Change in Medical Education Initiative; The Josiah Macy Foundation Interprofessional Education Program; The European Union Grant Program (tentative) and the AMEE Medical Education Research Award Program. The programs are diverse in scope and size.

### #9B Symposium: Doctoral training & advancements in education, research and health education leadership

Location: 211 - P2

**Pim Teunissen\*** (Maastricht University, Netherlands)

**Cees van der Vleuten\*** (Maastricht University, Netherlands)

**Ara Tekian\*** (University of Illinois at Chicago, USA)

**Steven Durning\*** (Uniformed Health Services University, Bethesda, USA)

**Tim Dornan\*** (Queen's University, Belfast, N Ireland)

**Susan van Schalkwyk\*** (Stellenbosch University, Cape Town, South Africa)

The number of doctoral level programs for health professions education (HPE) is increasing. Educating

future researchers and educators in health professions is of utmost importance for the advancement of our field. Yet, there is great variation among PhD programs worldwide. As (health profession) educators, we should discuss the different merits of these systems in terms of how they support advancements in education, research and health education leadership. This symposium builds on the 2014 AMEE symposium where differences between PhD programs were discussed. This time we will discuss how our models of doctoral level training help to fulfil our societal responsibilities. This symposium will be of interest to all involved in HPE, especially (aspiring) PhD students, supervisors, and other faculty involved in doctoral programs.

### #9C Symposium: Build Your Own: An environmentally accountable curriculum

Location: MR 112 - P1

**Sarah Walpole\*** (Sustainable Healthcare Education Network and Hull York Medical School, UK)

**Hanna-Andrea Rother\*** (University of Cape Town, South Africa)

**Ben Canny\*** (University of Tasmania, Australia)

**Aditya Vyas\*** (Norwich Medical School, UK)

**Eleanor Dow\*** (Healthy Planet UK and Edinburgh Medical School, UK)

**Robert Woollard\*** (University of British Columbia, Canada)

Social accountability highlights that medical schools should be responsive to the needs of the communities they serve, and should contribute to improving health in their region. This symposium will explore the emerging concept of environmental accountability and how it can support social accountability.

- How should medical curricula help future doctors and other health professionals to learn about and respond to the health threats and opportunities arising from local and global environmental change?
- What skills do tomorrow's health professionals need to promote healthy environments and sustainable communities? Come to this symposium for the opportunity to join participants from around the world and build a sustainable curriculum! This hands-on, visual project will be facilitated by a team of medical students, supported by a panel of experts, and guided by you! Using your ideas and input we will build a model curriculum to publish to inform curriculum development.

**9D AMEE Fringe 2**

Location: MR 117 – P1

**#9D1 (126024)**

**Is 'AVICENNAL' Medicine the recipe for holistic 21st Century patient-centered care ?**

**Khaja H Mujtaba Quadri\*, Shifa International Hospital and Shifa Tameeremillat University, Islamabad, Pakistan**

*Humaira Masihuddin*

**Summary:** Did you ever wonder and reflect what "Avicennal" Medicine could do for 21st century healthcare? Could philosophy provide the core spiral theme affecting attitudes or should this be integrated with cognitive and developmental psychology, helping to shape the outlook and attitudes of 21st century health professionals? How would physics and mathematics add up to help understand musculoskeletal mechanics and cardiopulmonary and renovascular flow dynamics? Could religion, theology and logic help develop empathy? Finally are music and ascetism tempered with love, the ingredients for ultimate physician and community harmony and resonance? The wait may be over! Avicenna has been spotted in Barcelona, Spain "Medicine was absent until Hippocrates created it, dead until Galen revived it, dispersed until Rhazes collected it and deficient until Avicenna (Ibn Sina) completed it." Ref: De Poure, European Physician. Anthropologist and lawyer HM challenges Avicenna to come up with a Qanun/Canon 21st century Edition. Could this perhaps be the (neo-Harden) purists' dream for the ultimate life-long holistic integration?

**#9D2 (133524)**

**Give us a wave, darlin'**

**David Topps\*, University of Calgary, Calgary, Canada**

*Maureen Topps, University of Calgary, Canada*

*Shannon Murphy, University of Calgary, Canada*

*Jean Rawling, University of Calgary, Canada*

**Summary:** Waves and waveforms are all around us in medicine. From our earliest days in pre-med, struggling with basic physics, to the most advanced interpretations of ECGs, EEGs, EMGs, EAGs (excruciatingly annoying graphs in strategic planning sessions) and shock therapy, we weave our way through waves, wending wearily towards wisdom. Using a combination of humour, audience participation & multimedia, we will explore some of challenges we face in interpreting the nuances of these waveforms. We will demonstrate some common misperceptions and how the effects of waves constructively interfere with good clinical judgement. And there will be sound waves: yes, singing – either as a means to engage audience participation, or as a threat (our singing) if the audience does not participate fortissimo.

**#9D3 (134295)**

**Sex and Blood and Rock 'n' Roll – notes from the singing haematologist**

**Seán MacPherson\*, University of Otago, Christchurch, New Zealand**

**Summary:** You have to be careful what you include in your CV. Jokingly mention an “educational song” you once wrote for a Grand Round and 3 years later you find yourself with a regular gig, a sore throat and enough material for a very bizarre textbook. After my job interview 200 medical students were promised a singing lecturer. I had no choice. Unfortunately I only had 2 songs. The next couple of years saw numbers such as “500 Platelets” and “Red Cells Explode” introduced to the haematology course. The idea was quirky enough to attract media attention and I enjoyed 5 minutes of fame on national television (<http://tvnz.co.nz/seven-sharp/singing-university-professor-video-5455608>). Sexual Health even commissioned songs. I was delighted to branch out. Why songs? Songs break up a lecture and allow students to regain concentration. Varying the teaching style caters to different learning preferences and songs are memorable. Many peoples' heads are stuffed with advertising jingles, effortlessly retained but not necessarily welcome, all because of a catchy tune. An eminent neurosurgeon informed me that this was "brilliant" because "the neuronal pathways involved in music are phylogenetically far more rudimentary than those we have developed for language". I now try to pass this off as my own idea. Course evaluations show that 90% of the students rate my use of music as “very effective”. However, not everyone is a fan so I abide by the following rules: Half the lectures must be song-free No songs for their own sake – they must somehow facilitate learning Only 1 song per lecture The transition from exciting new idea to undergraduate staple has been educational in itself. With the songs no longer a novelty, students have little patience for anything less than a polished live performance. A rod for my own back? Perhaps. It's still kind of fun.

**#9D4 (132119)**

**Regarding Hannah Arendt Movie: Learning Reflective Practice**

**Pablo G. Blasco\*, SOBRAMFA- Medical Education and Humanism, Sao Paulo, Brazil**

*Graziela Moreto*

*Marcelo R. Levites*

*Marco A. Janaudis*

**Summary:** Reflection is the keystone for incorporate ethical attitudes into daily practice. Although technical knowledge and skills can be acquired through training, it is impossible to refine attitudes, acquire virtues, and incorporate values without reflection. Learning through aesthetics –in which cinema is included– stimulates a reflective attitude in the learner since it

portrays a tremendous spectrum of attitudes required for building ethics and professionalism. Fostering reflection is the main goal in the cinematic teaching set. We have used cinema in medical education for a long time, not just to show the right way of doctoring, but primarily to push learners to reflect. The recent movie, *Hannah Arendt* (cfr. IMDB: <http://www.imdb.com/title/tt1674773/>), offers and excellent opportunity for dealing with reflective practice. Hannah's lecture about her report ("Eichmann in Jerusalem") is powerful, and the 6-minute clip speaks for itself. "I wrote no defense of Eichmann, but I did try to reconcile the shocking mediocrity of the man with his staggering deeds. (...) In refusing to be a person Eichmann utterly surrendered that single most defining human quality, that of being able to think. And consequently he was no longer capable of making moral judgments. (...) The greatest evil in the world is the evil committed by nobodies. Evil committed by men without motive, without convictions, without wicked hearts or demonic wills, by human beings who refuse to be persons. And it is this phenomenon that I have called the "banality of evil." In this Fringe Session we'll see Hannah Arendt speech and the audience will have the opportunity to reflect why doctors lose ethic perspective. It's not because they are malicious or because they don't care about patients. They just keep working, get into the scientific process, neglect details, ignore patient's world and feelings. They are not wicked people: they just stop thinking. [http://www.pablogonzalezblasco.com.br/wp-content/uploads/2016/01/pgbenglish\\_Dec15.pdf](http://www.pablogonzalezblasco.com.br/wp-content/uploads/2016/01/pgbenglish_Dec15.pdf)

**#9D5 (133772)**

**Unfolding Case Improv: Employment of the Art of Improvisation to Engage Medical Learners**

**Miguel Paniagua\*, National Board of Medical Examiners, Philadelphia, USA**

**Summary:** There is a growing body of research on innovating the traditional medical school lecture: From problem-based learning, blended or computer-based modules, simulations to flipped classrooms. But what if we focused on moving the teacher farther from their scripts and focus more on teacher as creative performer? By employing concepts of improvisation in medical teaching, we may foster teacher-peer and peer-peer collaboration, promote a conducive learning climate and encourage the admission of limitations. In this session, the presenter will demonstrate a portion of a simple paper-based unfolding case transformed to an interactive and demonstrative presentation. The case focuses on distinct communications-based skills in end-of-life care (breaking bad news, telephone notification of death) and medical skills and knowledge concepts such as generating a differential diagnosis and composing admission orders.

**#9D6 (134223)**

**Sew much to learn**

**Sarah Hogan\*, Imperial College London, London, UK**  
**Letitia Dormandy**

**Summary:** Two medical students have been waiting all morning for somebody to listen to one of their clerkings. They're bored to the teeth. They were ignored on the ward round. They've updated their facebook, flirted with the nurses, made notes in their handbook and been for a coffee. They're contemplating going home when one of them notices a tapestry has been hung up in the staff room. It covers one of the walls and looks a bit like... an advent calendar? Letty: What the heck is that? Sarah: Not a clue, shall we go and have a look? Letty: Goodness me, some mug has spent forever on the sewing machine. Who even does that these days? What's going on with these pockets? Sarah: Er, Letty, it's full of equipment! Letty and Sarah proceed to hunt through the gigantic advent calendar. Letty is a bit taller so she goes for the top pockets, while Sarah favours rooting around amongst the lower treasures. Sarah: Oh my goodness, this looks like it goes in some sort of hole but I'm not sure which. Is this one of those tubes you stick up your nose? Letty: Not sure, I haven't seen one of those before. Hang on, there's an explanation right here... No it's a guedel you plonker. Look, there's another one, it's green, I wonder why that is. Sarah: Oh. What on earth is this?? Is it a catheter for pygmies?! Oh no, look it says it's a feeding NG tube. Letty: This is great! I'm learning so much! Let's take it to Barcelona and show the rest of the world this great invention!



## 9E Research Papers: Clinical reasoning and clinical judgement

Location:

#9E1 (127752)

**Cognitive errors that influence clinical diagnostic decision-making among medical students completing virtual patient cases**

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Rakesh Patel (Department of Medical Education, University of Leicester, Leicester, UK)

**Introduction:** Healthcare professionals can make cognitive errors (CE) during clinical diagnostic decision-making (CDDM) with direct consequences for patient care and outcomes (Graber, Franklin et al. 2005). Cognitive factors and biases are intrinsic to CDDM however there is little understanding about the influence of these on CDDM among novices. This study explored the types of CE made by medical students working through a virtual patient (VP) case, so appropriate feedback could be given to individuals about the impact of cognitive factors on their CDDM.

**Methods:** A VP was created using a web-based simulation platform (<http://cable.ocbmedia.com/player>). Medical students in year three of the five-year Leicester MBChB course were invited to complete a VP alongside a facilitator. A facilitator created a cognitive-map at the beginning and end of each clinical enquiry stage completed by participants during the VP case. A coding framework comprising of identifiable CEs was used to categorise observations into four groups: faulty knowledge, faulty data gathering, faulty information-processing and faulty verification (Graber, Franklin et al. 2005). The CEs were also coded alongside a cognitive-map of their CDDM pathway through the VP case.

**Results:** Twenty medical students took part in the study. The mean number of CEs was 92 across participants during the VP clinical enquiry: 17% were attributable to faulty knowledge; 10% were attributable to faulty data gathering; 44% were attributable to faulty information-processing and 22% were attributable to faulty verification. The range of errors made by participants across the cohort was 19 – 272 CE. The most frequently made CE was faulty information-processing due to ‘overestimating/underestimating the usefulness/salience of a given finding’.

**Discussion:** The findings from this study confirm faulty information-processing is the largest contributor of CEs among medical students completing VP cases. Feedback to medical students completing cases should identify all the areas where faulty information-processing is present so individuals develop the better self-regulatory behaviours such as self-monitoring and verify working diagnoses throughout the clinical enquiry. The findings also confirm overestimating or

underestimating the usefulness or salience of finding was a problem for students suggesting cases that better help individuals manage uncertainty are necessary to protect against CEs attributable to this bias.

**Conclusion:** A number of CEs due to faulty information processing, such as overestimating or underestimating the usefulness or salience of finding, influenced the CDDM of medical students at the transition from the pre-clinical to clinical part of the Leicester MBChB course. The use of cognitive-maps may raise awareness among medical students about the influence of CEs on CDDM outcomes and provide a useful method for giving feedback about the quality of CDDM demonstrated by novices.

**References:** GRABER, M.L., FRANKLIN, N. and GORDON, R., 2005. Diagnostic error in internal medicine. *Archives of Internal Medicine*, 165(13), pp. 1493-1499.

#9E2 (128030)

**Putting the puzzle together: the role of 'problem definition' in complex clinical judgment**

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Lorelei Lingard

Michael Ott

Richard Novick

Thomas Forbes

**Introduction:** We teach clinical judgment in pieces; i.e., we talk about each aspect separately (patient, plan, resources, technique, etc.). We also let trainees figure out how to put the pieces together. In complex situations, however, this might be problematic. Using data from a drawing-based study on surgeons' experiences with complex situations, we explore the notion of 'problem definition' in real world clinical judgment using the theoretical lens of systems engineering.

**Methods:** We asked five surgeons to draw about their experiences with 3 complex cases each, for a total of 15 drawings. The analytical process involved the aesthetic analysis [1] of each drawing and the re-storying of the surgeons' accounts of their drawings using the theme of "emergence" [2] as the sensitizing concept for analysis.

**Results:** A movie, a quest, a futile cycle, building a ship in a bottle, juggling balls in the air, dealing with cyclonic weather were some of the visual representations that surgeons used to answer the question of what emerges during complex operations. The surgeons' stories around what emerges portrayed the acts of choice that they made while attempting to define the problems they were part of, including ensuring standard of care independent of the patient's circumstances, coordinating multiple and disperse resources, balancing rational choices with emotional impact, and maintaining control in spite of personality clashes.

**Discussion:** We challenged two assumptions from current models of clinical judgment: that experts hold

a fixed/static definition of the problem and that consequently the focus of the experts' work is on solving the problem. We suggest that it is only at the situation level, not at the individual level, that we are able to appreciate the nuances of defining the problem when experts make judgments during real world complex situations.

**Conclusion:** Understanding what influences the ways experienced clinicians define complex problems in the real clinical setting is necessary to help trainees develop their own strategies for "putting the puzzle together".

**References:** Cristancho S, Bidinosti S, Lingard L, Novick R, Ott M, Forbes T. Seeing in Different Ways Introducing "Rich Pictures" in the Study of Expert Judgment. *Qual Health Res.* 2015 May;25(5):713-25  
Stacey RD, Griffin D, Shaw P. Complexity and management: fad or radical challenge to systems thinking?: Psychology Press; 2000

#9E3 (128072)

**Clinical Reasoning in Real-World Settings: Exploring the 'What' and 'When'**

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*Juma Salina (Queen's University, Kingston, Ontario, Canada)*

**Introduction:** Teaching clinical reasoning is widely acknowledged as one of the most important roles of clinical supervisors. However, what physicians reason about – the reasoning tasks – has received little attention. While research suggests that physicians perform multiple reasoning tasks beyond diagnosis, these remain largely theoretical. The purpose of this study was to explore reasoning tasks in a real-world clinical setting.

**Methods:** We used a constant comparative approach to analyze transcripts from 38 audio-recorded admission case review discussions between junior trainees and their senior residents or attending physicians. Using a previously identified, comprehensive list of 24 possible reasoning tasks, analysis focused on what tasks were performed, when they occurred, and the relationships among tasks.

**Results:** All 24 tasks were observed in at least one review with a mean of 17.9 (Min=15 Max=22) distinct tasks per case review. Two new tasks – assess illness severity and patient decision-making capacity – were identified. We were also able to refine the descriptions for 13 of the original 24 reasoning tasks. Three overarching tasks were identified – assess priorities, determine and refine the most likely diagnosis and establish and refine management plans – that occurred, in an iterative fashion, throughout all stages of the case review starting from presentation of the patient identification and continuing through to the discussion around the assessment and plan. A fourth possible overarching task – reflection – was also identified but only observed in four instances

across three cases. This fourth overarching task appeared to reflect a form of self-monitoring where a knowledge gap was identified and a plan for addressing it was explicitly stated. The other 22 tasks appeared to be context dependent serving to support, expand, and refine one or more overarching tasks. For example, the reasoning task "establish goals of care" became relevant for supporting the overarching task of "determine and refine the most likely diagnosis" in cases where clinical practice guidelines would suggest a particular approach to diagnosis or management (e.g. biopsy for a possible malignancy) that may or may not be wanted by a patient due to other co-morbid and contextual issues.

**Discussion:** The further validation and elaboration of reasoning tasks in a real-world setting revealed a rich and complex framework for clinical reasoning that provides insight into the 'what' and 'when' of physician reasoning during case review.

**Conclusion:** These findings can, and should, be used to support professional development, clinical training and patient care. Insights gained from this study also provide an opportunity for reconsidering how we study clinical communication and reasoning. Future research should explore questions such as: 1) how do novices, intermediates, and experts differ in the reasoning tasks they use during an encounter and 2) does the use of particular reasoning tasks or, do the number of reasoning tasks used, reflect developmental milestones that can be used for formative and summative assessment purposes?

**References:** Goldszmidt M, Minda JP, Bordage G. Developing a Unified List of Physicians' Reasoning Tasks During Clinical Encounters. *Academic Medicine.* 2013;88(3):390-397.

#9E4 (128248)

**"Did they get it?" Student assessment of clinical reasoning by observation form and post encounter form in a clinical practice setting**

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*Geert AM Bouwmans (Radboudumc, Nijmegen, Netherlands)*

*Bernadette M Cools (Radboudumc, Nijmegen, Netherlands)*

*Petra JM van Gurp (Radboudumc, Nijmegen, Netherlands)*

*Cornelis T Postma (Radboudumc, Nijmegen, Netherlands)*

**Introduction:** Clinical reasoning skills are the cornerstone of medical practice. Assessment of clinical reasoning is often done either by assessment of the written report or assessment during observation of a patient encounter. We compared the validity, reliability and feasibility of a new observation format and an existing post encounter format, in assessment

of clinical reasoning of medical students during the clerkship of internal medicine.

**Methods:** The student completes the student post-encounter form (PEF). The post-encounter assessment form (PEAF) was a modified form according to Durning. The observation assessment form (OAF) was composed using data from previous qualitative research. Validity: Analysis of internal consistency by Cronbach's alpha. A generalizability study was done to explore factors of variance. Association between both instruments was determined by Pearson's correlation. For both instruments interrater reliability was analyzed using intraclass correlation coefficient and a generalizability study including a decision study. Feasibility was measured by rater and student completion time and analysis of the user-friendliness of the forms.

**Results:** Six raters assessed 15 encounters. The internal consistency (Cronbach's alpha) for the 11-item OAF was 0.87 (0.71-0.84) and the 5-item PEAF was 0.81 (0.71-0.87). The intraclass-correlation coefficient for single measurement was poor for both the OAF; 0.32 ( $p < 0.001$ ) as well as the PEAF; 0.36 ( $p < 0.001$ ). The G and D-study showed that 6 raters are required to achieve a G-coefficient of  $> 0.7$  for the OAF and 7 raters for the PEAF. The largest sources of variance are caused by the interaction between raters and persons. There was a correlation between the OAF and PEAF of 0.53 ( $p = 0.04$ ).

**Discussion:** For both instruments content validity was measured in previous studies. High internal consistency was achieved. Both forms are considered valid instruments for assessment of clinical reasoning in clinical practice. The relatively low interrater reliability for both methods is comparable to that of work-based assessment methods in clinical practice. Preferably different encounters assessed by different raters should be used to improve reliability. This implies the need for a larger study comprising different cases and raters in clinical practice. Ratings on the PEAF could be influenced by the use of the OAF during the assessment of a video-taped encounter.

**Conclusion:** The OAF and PEAF are both feasible, valid and reliable instruments for assessment of student clinical reasoning in clinical practice, on condition that there is a sufficient number of raters or encounters.

**References:** CM Haring, BM Cools, PJ van Gurp, JWM van der Meer, CP Postma. Expert assessment of diagnostic clinical reasoning of medical students in clinical practice by a grounded theory approach. Short communication AMEE congress 2013.

Durning, S. J., Artino, A., Boulet, J., La Rochelle, J., Van der Vleuten, C., Arze, B., & Schuwirth, L (2012). The feasibility, reliability, and validity of a post-encounter form for evaluating clinical reasoning. *Med Teach*, 34(1), 30-37. doi: 10.3109/0142159X.2011.590557

## 9F PhD Reports 2 (PhD Thesis Award Session)

Location: MR111 – P1

#9F1 (126226)

### Peer Assisted Learning in Undergraduate Clinical Medical Education: a mixed methods study

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Elizabeth Molloy (HealthPEER, Monash University, Clayton, Australia)

Ben Canny (Monash University, Clayton, Australia) Terry Haines (Monash University, Clayton, Australia)

**Introduction:** Peer-assisted learning (PAL) involves students learning with and from each other. PAL activities may be informal, or undertaken formally in a curriculum, with or without educator facilitation. Reports on PAL in medical education suggest its value can extend beyond technical knowledge gain, to development of broader professional skills (1). Medical students at Monash University are required to engage in PAL in their pre-clinical years however PAL activities in clinical placements are not formalised. This research aimed to identify students' and educators' use and perceptions of PAL during clinical placements to develop recommendations for PAL in clinical settings.

**Methods:** A tri-phasic study was designed using Biggs' Constructive Alignment as a framework to characterise students' PAL experiences, examining the intended, enacted, and perceived curriculum. Year 3 was the focus of the study, as this first clinical year contains many unstructured learning opportunities which may afford PAL. Research methods comprised a curriculum map (Phase 1), student survey and an observational study of the students on their clinical placements (Phase 2), and interviews with experienced educators (Phase 3).

**Results:** Whilst the curriculum map identified few explicit learning objectives relating to PAL, students reported participation in PAL activities during clinical placements on average 20 times per week. Observations supported this reported frequency of peer interactions: two-thirds of students' time was spent in the company of peers. Survey and interview data revealed that students valued teaching and feedback from peers, but doubted the accuracy of peer-generated information. The roles of 'feedback giver' and 'observer' were less valued by students. Significantly more female students reported that PAL contributed to a safe learning environment than males. PAL activities were reported to contribute to students' evaluative judgement: the comprehension of and ability to judge performance against notions of quality. Educator involvement was perceived to be a key ingredient for successful PAL. These data were used to develop a PAL Activity Matrix, which identified activities students could partake in within a clinical environment to optimise their learning. In Phase 3, expert educators reported the study findings

resonated with their own broader experience of PAL in clinical education. The activity matrix was confirmed as representing ideal strategies. Potential barriers and facilitators to the uptake of PAL were illuminated. These 'real world' considerations for culture, epistemic authority, and patient-centred care were included in the subsequent implementation framework for PAL in clinical education.

**Discussion:** This multi-phase study informs the current discourse on PAL in clinical medical education. It identifies barriers and facilitators to PAL, and presents strategies to improve the value of PAL.

**Conclusion:** Future work could test the effect of PAL strategies on students' clinical capacity, including technical competency, professional and communication skills, and preparedness and ability to teach. The use of PAL could also be examined in a broader range of clinical environments, including the postgraduate level.

**References:** Tai, J., Haines, T., Molloy, E., & Canny, B. Same-level PAL peer-assisted learning in medical clinical placements: A narrative systematic review. Medical Education, (in press).

#9F2 (128029)

### A microanalytic assessment of self-regulatory processes of medical students during a biomedical science learning task

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Mohammad Jalili (Tehran University of Medical Sciences, Tehran, Iran)

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Ladan Fata (Iran University of Medical Sciences, Tehran, Iran)

John Sandars (Tehran University of Medical Sciences, Tehran, Iran)

**Introduction:** There is evidence that academic success of medical students is related to their use of self-regulated learning (SRL) processes (1). The aim of this thesis was to utilise a SRL microanalytic assessment method in medical education 1) to identify the SRL processes of medical students for selected SRL measures during a biomedical science learning task, 2) to investigate the associations of SRL measures with students' biomedical science performance, 3) to examine the associations of SRL measures with the sex of medical students and 4) to test the correlations between the various SRL measures of three phases of self-regulation.

**Methods:** 76 Year 1 medical students were recruited based on their prior performance in biomedical science exams and stratified into previous high and low performers. A SRL microanalytic interview was administered during a biomedical science learning task; Questions regarding forethought phase (self-efficacy, goal setting and strategic planning



measures), performance phase (metacognitive monitoring measure) and self-reflection phase (causal attributions and adaptive inferences measures) were asked before, during and after completing the task, respectively. Verbal responses were recorded verbatim and afterwards coded by two independent assessors. kappa coefficient of 0.89-0.98 was attained by two coders. Information was processed by descriptive and inferential statistics.

**Results:** Descriptive statistics showed that most participants (88.2–43.4%) reported task-specific processes for SRL measures. Multiple logistic regression analyses revealed that Students who exhibited higher self-efficacy (odds ratio [OR] 1.48, 95% confidence interval [CI] 1.03–2.12) and reported task-specific processes for metacognitive monitoring (OR 9.04, 95% CI 1.37–59.64) and causal attributions (OR 9.8, 95% CI 1.96–39.34) measures were more likely to be high previous performers. Only the causal attributions measure (OR 23, 95% CI 4.57–115.76) was associated with the learning task performance. Univariate analyses demonstrated that low previous female performers had significantly lower self-efficacy beliefs than low previous male performers ( $p = 0.035$ ). There were no sex differences on any of the other microanalytic measures ( $p > 0.05$ ). Phi coefficient revealed significant correlations between several SRL measures within and across the three phases.

**Discussion:** We identified important associations between SRL microanalytic measures and previous biomedical science performance and subsequent performance on a biomedical science learning task. We also recognized high levels of inter-rater reliability and significant relationships between the SRL measures of three phases of self-regulation. Comparing our findings with wider context of using SRL microanalytic approaches in science learning demonstrated that a SRL microanalytic protocol can detect differences in self-regulatory processes throughout the three phases of cyclical model of SRL among participants at different levels of prior science achievement (2).

**Conclusion:** These findings have implications to offer the educators a framework for providing feedback on SRL processes which is essential for effective feedback and improving performance. There are also potential applications for directing the content of formal remediation interventions in the early years of medical school.

**References:** 1. Lucieer SM, Jonker L, Visscher C, Rikers RM, Themmen AP. Self-regulated learning and academic performance in medical education. *Med teach* 2015; 1-9.  
2. DiBenedetto MK, Zimmerman BJ. Differences in Self-Regulatory Processes among Students Studying Science: A Microanalytic Investigation. *Int J Educ Psych Assess* 2010;5 (1):2–24.

#9F3 (125960)

**Developing an optimal model for sequential OSCE using CTT and IRT based psychometric properties**

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Mohammad Jalili (Tehran University of Medical Sciences, Tehran, Iran)

**Introduction:** In objective structured clinical examination (OSCE), an increase in the number of stations is associated with an increase in reliability, but is more resource-consuming. Hence, sequential testing has been proposed in which all students first participate in a short test. Students who fail this test will participate in the supplementary OSCE. The results of the screening test should be able to predict the students' performance in the main test with a reasonable accuracy. The purpose of this dissertation was to introduce an optimal screening test based on the following factors: number of screening test stations, method of selecting screening test stations, and the cut-scores of the screening test

**Methods:** We used two datasets from a 10-station OSCE. Psychometric properties of stations were determined according to classical test theory (CTT) and item response theory (IRT). Then, several hypothetical screening tests were designed with different numbers of stations (three modes), different psychometric properties (5 modes in CTT and 2 modes in IRT), and different cut-scores (two levels: normal and stringent). Each hypothetical screening was compared to the main test. A desirable composite outcome was defined for each screening test, comprising of: passing percentage of more than 50%, positive predictive value (PPV) equal to one, and negative predictive value (NPV) greater than 0.25

**Results:** The OSCEs failure rates were 5.7% ( $n=6$ ) and 10.9% ( $n=29$ ) in 2011 and 2013, respectively. According to CTT-based screening tests, 20 out of 60 hypothetical OSCEs yielded the desirable outcome. Fourteen out of these 20 tests had stringent pass levels. The number of stations were as follows: 9 tests had five stations, 5 tests had four stations and 6 tests had three stations. According to IRT-based screening tests, 2 out of 6 OSCEs had the desirable outcome. Both these tests were composed of stations with high discrimination value and had stringent cut-score. One test had 5 stations, and the other had 4 stations.

**Discussion:** We proposed and evaluated an optimal model for the sequential design of an OSCE. While several studies have investigated different aspects of sequential OSCE, we believe this dissertation adds to the existing literature in several ways: For designing the screening OSCEs, we simultaneously considered three factors: number of stations, criteria for selection, and the cut-off score. None of the previous studies have taken all three parameters into account in their model. We also defined a composite outcome for evaluating the accuracy of the screening tests, while previous studies have considered various separate outcomes without providing one single measure on which a decision can be based.

**Conclusion:** According to the results of this dissertation, sequential testing can be an efficient and feasible method for conducting OSCEs. In order to

design screening OSCEs with minimal error, good accuracy, and economic efficiency the following factors must be considered: selection of stations based on discrimination coefficient or item total correlation (ITC) in CTT or discrimination parameters in IRT, and applying stringent cut-scores. If students pass such a screening test, one can be completely confident that they are truly competent candidate and no further testing is needed for them.

#9F4 (126357)

#### Using Cognitive Load Theory to Understand and Improve Handovers

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*David M. Irby (UCSF, San Francisco, USA)*

**Introduction:** Transfers of patients from one physician to another (handovers) are ubiquitous and occur with increasing frequency. Handovers are a common source of communication failures, which lead to medical errors and harm to patients. Considerable attention has focused on interventions to improve patient safety during handovers. While interventions that bundle current best practices have resulted in reduced errors and improved educational outcomes, handovers remain a common source of error. Addressing the cognitive complexity of a patient handover can help develop new strategies that support learning and further improvements in patient safety. Informed by Cognitive Load Theory (CLT), we examine the cognitive challenges that trainees face when learning how to perform a handover. This work advances understanding of how cognitive load can be measured and managed during a handover.

**Methods:** This thesis used multiple methodologies. An AMEE guide (1) and subsequent analysis of handovers through the lens of CLT yielded a conceptual model of sign-out between the sending and receiving clinician. This conceptual model then informed two studies that described the development of a cognitive load inventory for handovers and collected evidence for validity. An experiment with early and advanced medical students explored the relative influence of learner knowledge and patient complexity on information loss and distortion during simulated handovers. A final study reported on a CLT-informed intervention to balance the mental workload associated with outpatient panels during the academic year-end handover of psychiatric continuity clinic patients.

**Results:** This work explored the implications of CLT for handovers education. Hypothesized drivers of intrinsic, extraneous, and germane load during a handover were identified. We demonstrated how current best practices primarily focus on reducing extraneous load. Managing intrinsic load and optimizing germane load are relatively under-

addressed. Validity evidence obtained for the two versions of a cognitive load inventory for handovers yielded mixed results, with consistent support for the intrinsic load items, conflicting results on germane load, and poor performance by the extraneous load items. The experiment with early and advanced medical students suggested that learner knowledge influenced information loss and distortion more so than patient complexity. Our CLT-informed intervention showed that, compared to the traditional method, the workload-balancing method generated lower inter-caseload variation for each mental workload factor. The method reduced overall inter-caseload variation by 50%–61% in each of the four intervention years. (2)

**Discussion:** Examining handovers through the lens of CLT identified sources of cognitive load currently not addressed by best practices. The validity evidence collected for the cognitive load inventories highlighted construct challenges within CLT such as whether germane load is best understood as a separate type of load or a subset of intrinsic load. Learner knowledge may be more important than patient complexity in explaining information loss and distortion during a handover. If replicated, this has important implications for next generation handover instructional technique and protocols, including how clinicians are certified as competent. CLT-informed interventions have been demonstrated to be viable and sustainable in contexts such as the academic year-end handover.

**Conclusion:** Using CLT as the primary framework and lens, this thesis identifies the drivers of cognitive load during a handover, reports results of initial efforts to measure load types during a handover, and explores the interaction of learner knowledge and patient complexity in explaining information loss and distortion during a handover. The thesis also demonstrates a practical application of CLT to academic year-end handovers. The application of CLT to handovers suggests novel targets for the next generation of handover curricula and protocols.

**References:** Young JQ, Van Merriënboer J, Durning S, Ten Cate O. Cognitive Load Theory: implications for medical education: AMEE Guide No. 86. Med. Teach. 2014;36(5):371-384.

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#9F5 (127797)

**A cutting culture: why do women remain underrepresented in surgery?**

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*Yvette Solomon*

*Renée Stalmeijer Tim Dornan*

**Introduction:** Women form the majority of medical students in many countries worldwide. Over the last 25 years, this demographic change has also affected the proportion of female doctors in almost all medical specialties, with the notable exception of surgery. In the UK, only 7% of fully-trained surgeons are female. The emphasis of existing research has been on descriptive demography, an individualist approach to career decisions, and a biological definition of gender. This thesis aimed to move beyond these studies to a sociocultural understanding of how medical students and doctors build their careers, with particular reference to women in surgery.

**Methods:** The main theoretical framework of this thesis is Figured Worlds(1), an amalgam of sociocultural theories comprising elements from Vygotsky, Bakhtin and Bourdieu. Figured Worlds is a theory of 'identity in practice', meaning it concerns itself with how identity is constantly negotiated within sociocultural contexts. This qualitative thesis took a sociocultural approach to explore reasons underlying women's underrepresentation in surgery, comprising four separate research studies: 1. A secondary analysis of interviews exploring clinical medical students' experiences of surgery using Communities of Practice theory(2). 2. A constructivist grounded theory study exploring the hidden curriculum of surgical careers 3. An exploration of medical students' stereotypes, ideas and preconceptions of surgeons and surgery 4. A Figured Worlds discourse analysis of women surgeons' identities

**Results:** The figured world of surgery was strongly gendered; its culture privileged masculine dispositions and characteristics. Female medical students had differing access to the hidden curriculum of surgical careers and differing and negative experiences of the practice of surgery; the consequently struggled to imagine a future place for themselves in the career. For those women who were surgeons, being a surgeon and being a woman existed in discursive competition, making it difficult to combine the two; there was little discursive space to be a woman in surgery. Some women, through innovative 'identity work', successfully created new discursive spaces to be women-surgeons.

**Discussion:** Surgical culture was strongly masculine, which meant feminine dispositions and characteristics were disprivileged. Although a minority of women were creating new ways to be female in the masculine surgical domain, the prevailing discourses remained strong. Surgeons were required to fit the existing ideals in order to be legitimate in the surgical world, and did so by embodying the masculine ideals such as confidence, decisiveness and proactivity. The empirical

findings of this thesis suggest that unless the discourses of surgery diversify to encompass other ways of being a surgeon, women will continue to be an underrepresented group.

**Conclusion:** The strongly gendered and reproductive nature of surgical culture means challenge to the status quo is difficult, and change slow. Women have differing and negative experiences of surgery, are unwilling or unable to access participation in the domain, and struggle to identify as surgeons. Surgery as a field must actively broaden its discourses of success, actively engage women and widen participation or risk recruitment crisis.

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Wenger E (1998). *Communities of Practice*. Cambridge: Cambridge University Press.

## 9G Short Communication: The Patient

Location: MR 113 – P1

#9G1 (134090)

### How Patients' Voices are Shaping the Future of Healthcare

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*Susan DeSousa*

*Thiago Moreira*

*Anita Sarmah*

*Jordan Tarshis*

**Background:** Patient voices in undergraduate medical education are too rarely heard. Standardized patients (SP) may not represent the experience of an actual patient. It was decided at a corporate level to directly involve previous patients in healthcare education. At the Sunnybrook Canadian Simulation Centre, medical students interview SPs during a simulated preoperative anaesthesia assessment. Previous patients have been introduced into this day with the goals of providing feedback about the students' performance using the lens of their personal experiences.

**Summary of Work:** Several patient volunteers were carefully selected and received instruction regarding process and delivery of feedback prior to engaging with 250 University of Toronto medical students. The simulated preoperative assessment continued to use an SP as the "patient", while the patient volunteer role-played a family member of the SP. Following the pre-operative interview, the patient volunteer discussed his/her real-life pre-operative experience addressing concerns, system gaps, and positive aspects. Students were then given the opportunity for questions and feedback.

**Summary of Results:** Volunteers' feedback: 1) students need to simplify their language, avoiding medical jargon 2) active listening skills require improvement, 3) students confidence and professionalism were high. Student feedback: opportunity to experience patients' perspectives and anxiety before surgery. 77% of students indicated they will change their practice, specifically with respect to body language, active listening, increased sensitivity, empathy and mindful communication.

**Discussion:** Three impactful themes emerged from the volunteers' feedback. Medical students' feedback was excellent and felt it contributed to their professional development

**Conclusion:** Introducing this interactive opportunity with real patients has highlighted unperceived gaps for 3rd year medical students and provided novel opportunities for public engagement in health profession education.

**Take Home Messages:** Patient voices can have a profound impact in educating future physicians. Real patients engaging students in a safe learning

environment encourages reflection on practice and provides feedback from true healthcare consumers.

#9G2 (133961)

### Involving patients in the early-career medical curriculum. An experiment in 3 medical schools in France

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*Evelyne Lasserre (Université Claude Bernard, Faculté Lyon Sud, Lyon, France)*

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*Céline Douzet (Université Claude Bernard, ICAP, Lyon, France)*

*Alain Moreau (Université Claude Bernard, Médecine Générale, Lyon, France)*

**Background:** Over the past 15 years, in a context of evolving medical education and practices, the patient's voice has become increasingly important. What is the place and role of patients in medical training? To what extent and in what settings can real patients improve learning skills in students?

**Summary of Work:** In 3 French medical faculties, we have been testing various interventions involving real patients: patients' interventions in optional humanities courses with in-depth exchanges with 20 students, guest lectures given by patients in large amphitheatres followed by questions and answers with around 100-150 students, student exploratory interviews with patients, etc. We have involved patients with a diversity of profiles: representatives of patient groups; "expert patients" engaged in therapeutic education; activists working on the co-production of knowledge; individual volunteer patients from the clientele of a general practitioner.

**Summary of Results:** The analysis was centered on students' learning experiences via observation, focus groups, questionnaires, written productions and interviews. Thematic qualitative analysis shows (1) enhanced motivation in learning (2) effective acquisition of factual knowledge concerning symptoms, the medical system, and doctor-patient relationships; (3) incitement to personal and professional reflexivity.

**Discussion:** The results of this action-research cannot yet be generalized, but the main lessons concern (1) the importance of a clear framework in place prior to and post discussion with and between students about the meaning of a patient-as-teacher; (2) qualifying patients as potential sources of learning seems to have the potential to transform students' representations and attitudes toward future patients, who can be considered potential partners for better care.

**Conclusion:** Student and patient feedback encourages us to pursue this experience and strengthen patient involvement in teaching and evaluating students, as well as elaborating curriculum. Institutional support and that of colleagues are essential for going further.



**Take Home Messages:** Patient involvement in early career curriculum enhances students' motivation to learn, stimulates knowledge acquisition, and reinforces their reflexivity.

#9G3 (131775)

**Patients as educators in health professions education: sustainability and outcomes**

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Cathy Kline (University of British Columbia, Vancouver, Canada)

Beth Lown (Harvard Medical School, Boston, USA)

Jools Symons (Leeds University, Leeds, UK)

Jill Thistlethwaite (University Technology, Sydney, Australia)

**Background:** Over the past 25 years reports of inclusion of the patient's 'voice' in the education of health professionals have increased. However, factors that promote sustainability are unknown. We asked: To what extent have patients-as-educator initiatives been sustained? What factors influenced sustainability? What information exists about learner outcomes?

**Summary of Work:** 111 registrants at an international conference, 'Where's the Patient's Voice in Health Professional Education?' from educational institutions with established patient-as-educator programs were surveyed on-line to discover what changes had occurred since their programs began, and what factors promoted or prevented sustainability. 50 respondents from 9 countries completed the survey.

**Summary of Results:** 40 programs (most surviving 6-20 years) grew and spread to other programs. Major factors for continuation were interest of patient educators, funding availability and student feedback. Major barriers were lack of funding, additional workload and lack of institutional support. Evidence of impact was non-existent or limited to learner satisfaction.

**Discussion:** It is gratifying that so many patients-as-educators programs are being sustained and increasing in scope allowing study of factors promoting this growth. However, there is still a lack of long-term impact studies which are required to show effects on desired learning outcomes such as shared decision-making, relationship-centred care and empathy.

**Conclusion:** Patient-as-educator programs are increasing in size (numbers of students and patients involved) and in the diversity of roles played by patients, especially at the institutional level. Interest of patient educators, funding, student feedback and institutional support are important for sustainability of these programs.

**Take Home Messages:** Patient-as-educator programs are becoming embedded into educational institutions but more research is required to study the long-term

impact of involving patients. Sustainability is important to the efficiency, quality and impact of educational innovation, ensuring that front-loaded investments are not wasted.

#9G4 (132115)

**Early active Patient involvement in medical education: A synthesis of year 1 medical programme activities**

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Morris Gordon, School of Medicine, University of Central Lancashire, Preston, UK

**Background:** The UK General Medical Council support user involvement in all areas of the training of future doctors, but evidence on how this should be achieved is limited.

**Summary of Work:** The University of Central Lancashire medical school has involved the university's service users group, Comensus, in the design and development of the course. The group of diverse individuals were trained and supported by dedicated staff to deliver and participate in curriculum delivery, teaching and management of the MBBS programme.

**Summary of Results:** The Comensus group are now involved strategically throughout the quality management infrastructure as well as the ongoing selection, teaching and assessment of students throughout Year One. We will present the characteristics of each area of involvement in the first year of the delivery of the MBBS programme. Early feedback from students has been positive and highlighted how this involvement has impacted their learning.

**Discussion:** The model of fully integrated early service user involvement in medical education has been demonstrated to be feasible, with strong support from the patients themselves and students. Students have evaluated that such involvement has in particular authenticity to teaching sessions and teaching content. Faculty have highlighted a number of areas where this involvement has had impact, specifically admissions.

**Conclusion:** Service user integration in all phases of medical education in all activities is feasible and of benefit. In the future, we will evaluate the impact of user involvement throughout the course on the formation of professional identity and how students learn

**Take Home Messages:** Service users can be successfully integrated in all aspects of the early phase of medical education and transition to medical school.

#9G5 (134043)

**An Evaluation of an Education Intervention that Employs the use of Patients in the Teaching of Values and Behaviours to Junior Doctors in the UK**

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*Sabi Redwood (University Hospital Bristol NHS Foundation Trust, Bristol, UK)*

*Rebecca Aspinall (University Hospital Bristol NHS Foundation Trust, Bristol, UK)*

**Background:** Good values and behaviours of healthcare providers are essential for the provision of a quality healthcare service that promotes good outcome for patients. It is recognised that values and behaviours are difficult and complex attributes to teach. The dynamics of effective educational interventions that address this affective domain of learning need to be better understood.

**Summary of Work:** A cohort of patients was selected to tell a group UK Foundation year 2 junior doctors the positive and negative aspects of their experiences with healthcare services. Discussions among doctors and with patients were encouraged throughout the sessions. Semi-structured interviews with junior doctors were conducted to qualitatively assess the value of this intervention.

**Summary of Results:** Junior doctors strongly valued the involvement of real patients to inspire positive behavioural changes. The sessions were considered to be thought-provoking and they stimulated reflection and an increased active awareness. Interviews also revealed that the disproportionate emphasis on the negative aspects of the stories was interpreted by some candidates as an attack on them (junior doctors). This resulted in some candidates feeling frustrated and demoralised. A defensive attitude was cultivated, and candidates were somewhat marginally sympathetic towards the care providers in the stories.

**Discussion:** The difficulties associated with teaching values and behaviours are further compounded by an element of compassion fatigue and low professional-morale of junior doctors. Further research is required on how to effectively achieve affective objectives in the light of these constraints.

**Conclusion:** At a time when the overall morale of UK junior doctors is low and working in a healthcare environment that inflicts high demands and expectations with limited resources, the disproportionate emphasis on the negative aspects of patient experiences to instil good values and behaviours, can be detrimental and futile. Positive examples are equally important and can reduce the risk of demoralisation and defensive attitudes.

**Take Home Messages:** The educational value of these sessions was determined by the ability to maintain the delicate balance between the positive and negative aspects of patient experiences.

#9G6 (126431)

**Teaching musculoskeletal medicine and surgery in dedicated teaching clinics: The role of patients as tutors**

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*Charles Wynn Jones (Shrewsbury and Telford Hospital NHS Trust, Shrewsbury, UK and Keele University, Newcastle under Lyme, UK)*

**Background:** The valuable role of patients and professionals in teaching and training has long been acknowledged; much research has been undertaken to compare differing teaching methods. As well as highlighting improved student satisfaction with patient-led teaching over theoretical learning, studies have found the former to be associated with better examination results.

**Summary of Work:** Previous studies examining the success of differing teaching methods were critically analysed, before drawing upon their findings to identify a set of "needs" to be met within our orthopaedic clinics. Our clinics were then audited, through the use of questionnaires, to evaluate both student and patient satisfaction (Likert scale).

**Summary of Results:** 96% of students rated this teaching method as "good" or "excellent". All students agreed that, following their involvement, they were more confident in their history taking, examination, and management. All patients "strongly agreed" or "agreed" that this was a positive experience, and that they were happy with the clinical consultation.

**Discussion:** It was Sir William Osler who first said that the "best teaching is that taught by the patient himself". Through examining the literature available, and with the results of our student survey, the authors were able to suggest how to run a dedicated teaching clinic as an effective teaching method.

**Conclusion:** The results of our audit found patient-led clinics to be a relevant teaching method, beneficial to students and patients. We must teach by example, and our clinic is a setting in which this can be undertaken. We believe it has a valuable role in the curriculum, alongside traditional teaching methods.

**Take Home Messages:** The authors concur with Spencer's belief that "it is the only setting in which the skills of history taking, physical examination, clinical reasoning, decision making, empathy, and professionalism can be taught and learnt as an integrated whole". The authors commend this teaching method.

## 9H Short Communication: Team-Based Learning

Location: MR 114 – P1

#9H1 (134362)

Does Team-Based Learning Improve Clinical Reasoning in Neurology?

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CWQ Ng

K Tan

**Background:** Clinical Reasoning (CR) is the ability to weigh clinical information and make decisions under conditions of uncertainty. Team-Based Learning (TBL), an active learning method, has been shown to improve knowledge in neurology; however, improvement in CR has not been demonstrated. We have developed and validated a Script Concordance Test (SCT), assessing CR in two key neurology topics — neurological localization (NL) and neurological emergencies (NE). We aimed to determine if TBL improves CR in medical undergraduates in these two topics using our SCT as an outcome measure.

**Summary of Work:** We conducted a modified crossover study involving 179 medical students. We compared TBL to interactive lectures. Each student group was randomly assigned to TBL in either NE or NL, and interactive lectures in the other topic. Groups were randomised in a 1:1 ratio. TBL and interactive lectures occurred in the same 2½-hour session. The SCT was done immediately after the session. We analysed the differences in SCT scores between groups using the unpaired T-test.

**Summary of Results:** Mean SCT scores in NL for students receiving TBL were higher compared to interactive lectures (64.8% vs 61.7%, mean difference 3.1%, 95% CI 0.7–5.5%,  $p=0.013$ ). Effect size was 0.37. Mean SCT scores in NE, however, were not significantly different between groups (66.6% vs 67.0%, mean difference 0.4%, 95% CI -2.3%–3.1%,  $p=0.75$ ).

**Discussion:** TBL was modestly superior to interactive lectures in improving CR in neurological localization. For neurological emergencies however, TBL and interactive lectures were equally effective. This differential effect may be due to contextual factors such as nature of topic or lecturer expertise.

**Conclusion:** TBL may be superior to interactive lectures for improving neurological CR in some contexts

**Take Home Messages:** TBL may be superior to interactive lectures for improving neurological CR in some contexts; effect size is modest.

#9H2 (135328)

An innovative strategy for implementing Team-Based Learning in large cohorts

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Preman Rajalingam (LKC Medicine, Singapore)

**Background:** An advantage of TBL over other learning approaches is the ability to engage students in large classes while allowing them sufficient opportunities to interact. The question remains though, at what point does the class size impinging upon interactions between student teams and between students and faculty? At the Lee Kong Chian School of Medicine (LKC Medicine), TBL replaces traditional didactic teaching in the preclinical years. A significant challenge is to scale up LKC Medicine's TBL approach to accommodate larger student numbers, as the cohort grows from the current 90 to over 200.

**Summary of Work:** We have developed a theoretically grounded strategy for innovating on and scaling up TBL. This strategy balances our desire to maintain interactivity in the classroom with pragmatic resource and manpower concerns.

**Summary of Results:** We have identified that for large cohorts (over 100 per year) the quality of the inter-team discussions were more difficult to maintain than the intra-team discussions. Unhindered interaction with subject matter experts was also more crucial at certain points during TBL than others. As a consequence, our strategy involves keeping the whole class together for the readiness assurance phase and splitting the class for the application exercise phase. These two phases are bridged by the burning questions phase, which is enabled by the application of innovative technology. This phase starts off as a student-led discussion in the large group and concludes in the split class, where teams have more opportunity to interact with a subject matter expert.

**Discussion:** Although successful implementation of TBL has been described for cohort sizes of over 200, maintaining classroom interactivity is challenging.

**Conclusion:** Our innovative strategy for scaling up TBL remains true to the principles of TBL, whilst ensuring interactivity is maintained.

**Take Home Messages:** 1. For large cohorts, classroom interactivity can be maintained by the appropriate educational strategy and technological innovation 2. This method is transferrable across healthcare contexts and institutions.

#9H3 (136352)

**A purpose-built system to facilitate Team-Based Learning: Lessons learned**

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*Tracey Hillier*

*Cody Surgin*

*Mikus Lorencs*

**Background:** Implementation of Team-Based Learning in a MD Program curriculum requires coordination and modification to content, facilities and teaching method. An electronic system can alleviate the administration burden and remove adoption barriers for instructors interested in implementing TBL.

**Summary of Work:** Our medical school is in the process of adopting Team Based Learning Across the curriculum. We will present the development and impact of an electronic team-based learning system that integrates with our student learning platform and demonstrate how we utilized the system to guide the creation of TBL modules and how it can better transition instructors into TBL teaching in a medical school. We will also demonstrate the features developed to streamline the implementation of TBL and the mechanisms for immediate feedback.

**Summary of Results:** A pilot of TBL was initially conducted in one seven-week course. With the development of the new TBL facilitation system, three more courses totaling 16-weeks are being adopted with TBL. The new system allows on-demand creation of TBL modules, live tracking of student and group progress between IRAT, GRAT, cases, case questions, and peer evaluation, and provides student response analytics to facilitate discussion. In our presentation, we will describe in detail how the electronic system has increased TBL uptake in our curriculum.

**Discussion:** From initial evaluation of the system, we received positive feedback among students and faculty on the adaption of the system. Availability of the TBL facilitation system allows seamless integration of TBL as a group activity, more faculty involvement in the creation, modification and explanation of the content, and better uptake of TBL as an alternative teaching method in our curriculum.

**Conclusion:** We have used the TBL facilitation method to not only streamline the administration process, but to create buy-in and uptake of TBL as a teaching method in our medical school.

**Take Home Messages:** An electronic system can alleviate the administration burden associated with the implementation of TBL and remove adoption barriers for instructors interested in implementing TBL.

#9H4 (135424)

**Piloting interprofessional ambulatory surgical skills training between medical and nursing students utilising TBL method**

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*Niku Oksala, Medical School, University of Tampere, Tampere, Finland*

*Kristiina Vähämaa, Nursing Education, Tampere University of Applied Sciences, Tampere, Finland*

**Background:** University of Tampere Medical School and Nursing Education of Tampere University of Applied Sciences are developing learning for interprofessional skills training in a jointly operated new Skills Center with Tampere University Hospital. Team-based learning (TBL) was piloted in an ambulatory surgical skills training.

**Summary of Work:** Surgical removal of a mole and subsequent suturation of the wound was planned as a TBL session for medical and nursing students. Seven medical and seven nursing students volunteered to take part. The learning goals included surgical and nursing skills, and interprofessional attitudes. The TBL skills training consisted of advanced assignments, individual and group tests, teacher validation and the practical task. The teachers monitored the events. The students gave feed-back anonymously.

**Summary of Results:** Both the medical and nursing students took actively part in the group work and the practical task. The students communicated well and completed the task with minor guidance from the teachers. The student highlighted communication, collaboration and learning the strengths of the other profession.

**Discussion:** TBL pilot was successfully performed. The interprofessional learning goals were achieved based on the perceived student behavior and the results of the evaluation. The volunteer participation may result in more positive interprofessional attitudes than in a mandatory learning setting. The TBL session shall be expanded for the whole study year of 120 medical and appr. 20 nursing students during spring 2016. The comparison of results between the pilot and the mandatory event shall be presented.

**Conclusion:** TBL seemed to lead to effective interprofessional learning when applied in ambulatory surgical training. Research on innovative methods of learning are needed to promote interprofessional learning cost-effectively.

**Take Home Messages:** TBL is an applicable method for interprofessional learning. Careful planning and evaluation is required for successful implementation of TBL.



#9H5 (133584)

**Good Medical Practice - The Application of Technology-Assisted Delivery of Team Based Learning Across a Distributed Learning Environment**

**Mark Wilson\***, University of Wollongong, Wollongong, Australia

Louise Wright (University of Wollongong, Wollongong, Australia)

Michelle Moscova (University of Wollongong, Wollongong, Australia)

David Porter (University of Wollongong, Wollongong, Australia)

**Background:** Team-based learning (TBL) is widely used in medical curricula. However, there has been little research on TBL applied in technology-assisted delivery across geographically distributed sites. The aim was to evaluate engagement of seventy-seven senior medical students in professional development workshops synchronously delivered via video conferencing to eleven rural and regional sites throughout New South Wales, Australia.

**Summary of Work:** Action research was used to design a pedagogical model to teach professional development to geographically dispersed senior medical students. An initial pilot workshop provided an opportunity for familiarisation with technology-assisted TBL, an introduction to team based work utilising situational judgement and clinical application questions, and provided valuable feedback for project development. A second workshop was conducted 3 months later, refining the pedagogical approach to maximise student engagement and build upon student knowledge and confidence gained in clinical practice. A Modified Motivated Strategies for Learning questionnaire was used to evaluate the workshops.

**Summary of Results:** Student questionnaire data showed that task value correlated significantly with elaboration ( $r=0.64$ ,  $p<0.0001$ ), critical thinking ( $r=0.60$ ,  $p<0.0001$ ), and peer learning ( $r=0.54$ ,  $p<0.0001$ ). There was also a significant correlation between peer learning and critical thinking ( $r=0.72$ ,  $p<0.0001$ ).

**Discussion:** The results support our hypothesis that students' engagement with applying principles of professionalism in team-based groups can drive deeper learning within this important domain of medical practice. Importantly, technology was not a barrier to student engagement.

**Conclusion:** This study showed that technology-assisted delivery of modified TBL is both a feasible and acceptable pedagogy to facilitate medical student engagement with learning professionalism.

**Take Home Messages:** Technology assisted TBL is a promising pedagogy by which senior medical students may apply the principles of professionalism, despite a geographically dispersed learning environment.

#9H6 (135281)

**The role of burning questions in technology enabled TBL**

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Paul Gagnon (LKC Medicine, Singapore)

Alan Loe (LKC Medicine, Singapore)

**Background:** Team-Based Learning (TBL) is a novel approach to teaching and learning in medical education that is being widely adopted. The Lee Kong Chian School of Medicine (LKC Medicine) has been using TBL as its main instructional approach since its inception in 2013. Our implementation of TBL is enhanced by a customised eLearning ecosystem which allows the capture of important student generated learning artefacts.

**Summary of Work:** One of the more powerful learning artefacts is the capture of burning questions. These burning questions occur just after the readiness assurance process which is standard element of any authentic TBL approach. Each team submits their list of burning questions online, which are then prioritised and assigned to other teams to research and respond to in class. After each session the database of burning questions is sorted by question type and tagged to the appropriate level of Miller's Pyramid.

**Summary of Results:** The database shows the types of questions that facilitate student elaboration in TBL. We show how the types of questions students ask associate with various TBL learning activities and evolve over time.

**Discussion:** These findings indicate what types of questions motivate discussions in class. We also propose how this contributes to the quality improvement process of TBL curriculum for subsequent cohorts of medical students.

**Conclusion:** The initial impetus for implementing the online burning questions was to engage the students in further meaningful discussions, as opposed to them having their questions answered directly by subject matter experts. However, an added benefit has been that we have built up a rich repository of questions that can improve the quality of education.

**Take Home Messages:** Adequately implemented technology support in TBL will allow the capture of rich student generated data that can inform quality improvement of the curriculum.

## 91 Short Communication: Peer Assisted Learning

Location: MR 115 – P1

#911 (136052)

### Effect of Peer Assisted Learning on Group Cohesion: A Model to Optimise University Student Satisfaction

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**Background:** The National Student Survey (NSS) measures the student satisfaction of university courses in the United Kingdom. It is a feedback tool for quality improvement but also decides national university rankings. Group cohesion is a measure of the attraction between members of a group and their willingness to work towards a shared goal or task. We investigated the relationship between group cohesion and student satisfaction; further, how peer assisted learning (PAL) might modulate this relationship.

**Summary of Work:** A PAL session was developed by final year medical students, supported by senior academics. The session aimed to share personal experience, and tips to help CV building – a topic not commonly shared due to the competitive nature of job applications. The NSS (n=20, 17 positive items and 3 negative items) was distributed to students, along with group cohesion items scored from 1 “strongly disagree” to 5 “strongly agree” before and after the session.

**Summary of Results:** Forty-eight students attended. Thirty-eight students completed questionnaires both before and after the session. All group cohesion measures increased post-course (3.8 vs 4.1,  $p < 0.001$ ; 3.9 vs 4.1,  $p = 0.031$ ; 4.0 vs 4.2,  $p = 0.031$ ). Mean response to NSS positive items increased post course (3.6 vs 3.9;  $p < 0.001$ ) whilst responses to negative items did not change. The delta group cohesion items correlated positively with the total delta NSS positive items ( $r = 0.4$ ,  $p = 0.016$ ;  $r = 0.4$ ,  $p = 0.016$ ;  $r = 0.5$ ,  $p = 0.003$ ). Regression analysis revealed group cohesion item “sense of belonging” to be independently related to delta NSS.

**Discussion:** The importance of group cohesion in improving student satisfaction has never before been explored. Our results show group cohesion is correlated with, and may be a determinant of, overall university satisfaction.

**Conclusion:** Philanthropic PAL may intuitively modulate a collective sense of cohesion, and hence improve university satisfaction.

**Take Home Messages:** Strategies used to increase group cohesion should be considered in the mutual interest of student satisfaction and national university rankings.

#912 (135177)

### Investigation of the achievements of peer teachers at medical school

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**Background:** Students claim to experience an improvement of their learning processes by peer teaching. However, a selection bias can be present, as it is suggested in literature that ‘better’ students assign more easily to a peer teachers program. The aim of this investigation is to compare different academic scores potentially resembling different competences between peer teachers and their fellow students.

**Summary of Work:** We conducted a longitudinal retrospective cohort study. We examined several examinations and assignments from the Bachelor years (before) and the Master years (during and after the peer teaching project). Analyses were performed by a Student's t-test.

**Summary of Results:** 339 Students out of 3 consecutive cohorts (starting in 2009-2010) were included. There were 82 (24,2%) peer teachers. The peer teachers performed significantly better for the OSCE in the third Bachelor and the second Master (15,8/20 vs 14,6/20 –  $p = 0,000$  en 15,6 vs 14,6 –  $p = 0,002$ ) and for their final Bachelor score (72,9% vs 70,9% –  $p = 0,036$ ), final Master score (78,4% vs 76,9% –  $p = 0,049$ ) and the portfolio of the internship (15,5/20 vs 14,9/20 –  $p = 0,021$ ). There was no significant difference for the clinical examination (14,3/20 vs 14,3/20 –  $p = 0,890$ ).

**Discussion:** Peer teachers seem to score higher on their overall score for the bachelors years even before they started their peer-teaching project albeit not on all parameters. During and after the peer-teaching program they perform significantly better on the OSCE and internship portfolio but not on the final clinical examination.

**Conclusion:** The results suggest that students choosing for the peer-teaching program already perform better before the peer teaching project but caution needs to be taken into account in generalising this concept as it seems not to hold true for all competences.

**Take Home Messages:** Peer teachers perform better before the peer teaching project. Further research is needed to elaborate into detail which competences are improved by peer teaching.

#913 (131675)

**Near-peer teaching and developing medical competencies. An example: near-peer teaching by residents for 6th year medical students**

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Yves Zerbib (Lyon Est faculty of medicine, Lyon, France)

**Background:** In France, a majority of undergraduate medical students enroll at private structures to get additional teaching. Since 2013, Lyon Est Faculty of Medicine has been providing a near-peer teaching (NPT) program: pairs of residents supervise groups of a dozen 6th year students. Together they analyse progressive clinical cases, quizzes and imaging sessions.

**Summary of Work:** The aim of this work was to evaluate the benefits of this NPT program. A questionnaire was provided to students and tutors in April of each year. The results of the three years were to be compared. The 5th and 6th year final ranking of the NPT students was compared to the other students.

**Summary of Results:** Students identified the following benefits: transdisciplinarity, combating isolation, group work, self-confidence, personal empowerment and support. The tutors found: communication, transdisciplinarity, knowledge transmission, diversity (materials, subject matters, students, and tutors), professionalism, and increased motivation to be involved in medical education. The negative points were: logistical issues, poor attendance, lack of dynamism on the part of stakeholders and students.

**Discussion:** The benefits of this program may relate to some of the CanMEDS competencies such as communication, scholarship and collaboration. This form of education also develops the roles of a teacher as a facilitator and information provider. The unique approach combining tutoring pairs of trainees from different specialties adds transdisciplinarity to the benefits of this program.

**Conclusion:** This NPT program through tutoring 6th year medical students by pairs of residents provides a tool to develop medical competencies both for tutees and tutors. A noteworthy benefit was the complementarity and transdisciplinarity of the teaching by two residents with different specialties.

**Take Home Messages:** Near-peer teaching develops medical competencies and teaching skills. Teaching by pairs is a valuable method to improve collaborative skills by developing transdisciplinarity.

#914 (130484)

**The role of the teacher in facilitating peer-assisted learning in the clinical setting: A multi-phased mixed methods study**

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Elizabeth Molloy (Monash University, Melbourne, Australia)

Terry Haines (Monash University & Monash Health, Melbourne, Australia)

**Background:** Reported benefits of peer-assisted learning (PAL) in clinical education include: improved learning opportunities, self-evaluation and feedback skills, reduced student anxiety and a reduced dependence on the clinical teacher. However, implementing PAL in the clinical environment presents challenges, and clinical teachers cannot simply co-locate students and expect PAL to naturally and/or successfully occur.

**Summary of Work:** A mixed methods research program was conducted over three years exploring the effect of PAL and PAL training on students and clinical teachers. The research program included a systematic literature review, development of a PAL model using a participatory research design and two controlled trials with qualitative components.

**Summary of Results:** The PAL model was equivalent to a traditional model in measures of student performance. Resistance to PAL was reported because it was perceived that it was better to learn from the 'expert' teacher. Clinical teachers reported that for PAL to be successful, rather than stepping aside, specific activities must be identified and intentionally facilitated.

**Discussion:** Introducing PAL does not require the teacher to step away from their teaching responsibilities, but rather asks them to work differently. With expert modelling of teacher-learner feedback processes, and the use of paper-based and verbal prompts, students reported they picked up evaluative habits that they would not have developed in traditional teacher-led supervisory models.

**Conclusion:** PAL can be a potent learning strategy, provided teachers are primed with tools to facilitate peer learning. Teacher modelling was seen as key to giving learners 'educational standards' to use with their peers. The suspicion students hold about the value of PAL may need to be discussed during orientation.

**Take Home Messages:** • Clinical teachers can create opportunity for PAL to occur by identifying specific activities, enabling student autonomy and structuring the environment and activities to maximise cooperation. • Students may be better motivated to engage in PAL with overt teacher-led discussion on the benefits of PAL for them as learners and future health professionals.

#915 (130625)

**Peer teaching and its role in the transition from student to dental professional**

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Viv Binnie (University of Glasgow, UK)  
Alison M Cairns (University of Glasgow, UK)

**Background:** There is a system of “near peer teaching” at the University of Glasgow Dental School (GDS). This is where BDS 5 students teach clinical skills to BDS 1. The benefits of being peer-taught are widely reported, however, literature regarding the benefits for the peer teacher is sparsely reported.

**Summary of Work:** Study aim: Increase understanding of the experience of peer-teaching from the perspective of the peer teacher and how this contributes to preparation for future professional practice. This is a mixed methods study which triangulates numeric trends from questionnaires (completed by all 37 peer-teachers) with follow-up focus groups.

**Summary of Results:** Peer-teachers demonstrated: increased confidence in clinical and communication skills (87% and 97%); found teaching enjoyable (97%); used reflection on experience in order to learn (87%). 34% of teachers were asked questions by BDS1 about the course and about being a dental student. Key themes were identified from qualitative analysis.

**Discussion:** Peer-teaching gave participants a sense of “having come full circle”. This contributed to the transition from student to professional. Acting as relative expert fostered leadership skills and confidence. “Graduate attributes”<sup>3</sup> were perceived to be developed. Mandatory outcomes from the “Preparing for practice, General Dental Council” (PfP) document were attained.

**Conclusion:** Peer teaching at GDS is a popular and learner-centred aspect of the curriculum, ranked highly by students amongst teaching activities in development of key professional attributes. This study reveals the benefits of peer teaching from the perspective of the peer-teacher, in particular in preparing students for professional practice.

**Take Home Messages:** -Peer teaching can develop skills in leadership, communication, adaptability and professionalism. -Teaching helps senior students feel ready for independent practice, meeting multiple aspects of PfP. -Longitudinal participation can ease the transition from student towards professional, and plays an earlier role in transition from school leaver to the dental school community.

#916 (134386)

**Student Perception of Clinical Skills in Pre-Objective Structured Clinical Examination Training Course (Pre-OSCE) From Senior Medical Students**

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Athavudh Deesomchok, Chiang Mai University, Internal Medicine, Chiang Mai, Thailand

**Background:** The Objective Structured Clinical Examination (OSCE) is a standard method for assessing medical students' clinical skills. The Pre-OSCE was a tutorial project that was organized by the 4th year medical students for preclinical students (3rd year) before the OSCE. The main goals of this project were to review basic clinical practices. The primary objective was to enhance clinical skills in 3rd year students for the examination. The secondary objectives was to prepare preclinical students to perform clinical skills in their real clinical practice.

**Summary of Work:** The data was collected using questionnaires for 3rd year students (n=127). This study aimed to evaluate the project by finding: 1) the student perspective of the project by converting their satisfaction into a rubric scale (1-5), and 2) the correlation between students' confidence level of clinical skills and the number of passed stations in the OSCE.

**Summary of Results:** The students' perception showed that, the median score of confidence after the training was 3 with the satisfaction of the 3rd year students toward the seniors rated as 4. The training course effectiveness which boosted the examination and promoted real clinical practice were 4. Motivation to teach others and the experience to teach others in real life were both 4 (IQR=3-4). The median of the stations passed was 13 (IQR=12-14). In addition, the association between the confidence level of the tutorial training and the number of passed stations were statistically significant ( $r=0.4$ ,  $p<0.001$ ).

**Discussion:** Medians of the student perspective of the project were moderate to high. The confidence level after training influenced the effectiveness of students' medical skills.

**Conclusion:** The PreOSCE course encouraged the clinical skills of the examination and real practice. This training course also motivated medical students to teach others.

**Take Home Messages:** Active learning methods such as practicing by doing and teaching others tends to yield effective retention.



## 9J Short Communication: Rural Remote

Location: MR 116 – P1

#9J1 (134394)

How do physicians experience teaching medicine in Northern Ontario, Canada? A qualitative analysis

*Tim Dubé\*, Northern Ontario School of Medicine, Sudbury, Canada*

**Background:** Communities throughout Northern Ontario, Canada, provide ideal contexts in which to explore how physicians experience teaching medicine. The rationale for investigating the physicians' perspectives is of particular relevance since the physician to learner ratio is much lower in rural and northern communities – there are fewer residents and medical students on hand – than in larger urban clinical settings. The aim of this study was to explore how physicians experience teaching medicine in Northern Ontario.

**Summary of Work:** Informed by a social constructivist research paradigm, community and clinical contexts throughout a vast geographic region provided unique opportunities to gain insight into 11 physicians' experiences using a dynamic methodology – the guided walk. The guided walk is an innovative qualitative method used to explore participants' everyday lives in situ.

**Summary of Results:** The quality of the data collection and analysis were enhanced through processes of methodological and interpretive rigour, contextual relevance, audit trail and reflexivity. Through a thematic analysis of the data, the findings provide a rich description of events experienced such as a) motivations, benefits and challenges, b) effective and ineffective teaching approaches, c) supportive resources (distributed faculty development and continuing medical education), and d) suggestions for physician teachers.

**Discussion:** The purpose of this presentation will be to extend scholarship on the processes involved for physician teachers in rural and northern communities.

**Conclusion:** By advancing our understanding about teaching medicine across a large geography, we can learn from the physicians' perspectives and make suggestions for orientation initiatives and supportive resources – which would ultimately improve learner placement experiences.

**Take Home Messages:** Recommendations will be proposed for faculty development opportunities, continuing medical education, and the suitability of guided walks in medical education research.

#9J2 (131799)

Exploring rural doctors' experiences of contacting their patients outside of their workplace – reconstructing professional identities

*Junichiro Miyachi\*, Kyoto University, Center for Medical Education, Kyoto, Japan*

*Miho Iwakuma (Kyoto University, School of Public Health, Department of Medical Communication, Kyoto, Japan)*

*Hiroshi Nishigori (Kyoto University, Center for Medical Education, Kyoto, Japan)*

**Background:** Doctors happen to meet their patients in daily lives outside of their hospitals or clinics. Especially in rural settings, it is more difficult for doctors to avoid contacting their patients outside of workplaces. Our research question was how doctors perceived these experiences in their process of professional identity formation.

**Summary of Work:** We conducted semi-structured individual interviews for doctors who were currently working or had worked before in rural areas in Japan. The interview data were audio-recorded, transcribed verbatim, and analysed using thematic analysis.

**Summary of Results:** We found that the interviewees faced with dilemmas between how they were to be or behave as professional doctors and as community members in their settings. They built a “door” between their patients and themselves and tried to manage it. Sometimes doctors gently opened the door, and sometimes patients broke it.

**Discussion:** We recognized this doctor-patient interaction over the “door” as a phenotype of cross-cultural interactions between them. Each doctor developed his/her own strategies to manage these cross-culturalness, the process of which reconstructed his/her professional identity. We interpreted doctors' management strategies and their consequences as acculturation strategies.

**Conclusion:** Rural doctors' experiences of contacting their patients outside of their workplace had substantial roles in forming their professional identities. Cross-culturalness and acculturation strategies foster our understanding of its process.

**Take Home Messages:** Rural doctors' experiences of contacting their patients outside of their workplace can construct, deconstruct or reconstruct their professional identities, the process of which can be argued with cross-culturalness and acculturation.

#9J3 (135343)

**From colonized to naturalized citizen – faculty's responsibility to clinician-educators on a decentralised platform**

**Julia Blitz\***, Stellenbosch University, Cape Town, South Africa

*Marietjie de Villiers (Stellenbosch University, Cape Town, South Africa)*

*Susan van Schalkwyk (Stellenbosch University, Cape Town, South Africa)*

**Background:** Stellenbosch University expanded its clinical training platform to include decentralised, rural, district hospitals where students undertake a four week clinical rotation. We previously conducted research with clinicians at a rural clinical school about their development as clinical teachers (Blitz et al, 2014). This time we sought to explore whether those findings would be similar for clinicians working in more remote facilities where clinical rotations were for a shorter period of time.

**Summary of Work:** Hour-long in-depth interviews were conducted with eight clinicians responsible for teaching students at these sites. Anonymised transcripts of the interviews were coded and themes were then developed.

**Summary of Results:** Doctors embraced the role of clinical teacher, finding it clinically stimulating to have students with them. They described the importance of creating a safe and friendly environment, almost intuitively grasping the social dimensions of learning. They expressed concerns about limited engagement with central faculty, not least wanting to know if they were “doing a good job”; delivering what the faculty was expecting. They also wanted to participate in the design and workings of the curriculum and management of the student experience. Each clinician asked students to informally evaluate the experience, but were also willing to be the subjects of more formal student evaluations. Interestingly, if they were in need of advice about teaching, they would choose to turn to other decentralised clinicians involved in teaching rather than to central faculty educators for help.

**Discussion:** Participants, rather than expressing the feeling of having been “colonized” found in our previous research, expressed the desire to ‘cross the border’ and become “naturalized citizens” of the faculty.

**Conclusion:** Clinicians geographically distant from the faculty desire to be recognised as belonging to the institution whose students they teach.

**Take Home Messages:** Faculties could reflect on the border crossing issues of geographically distant clinician-educators and consider how they could become naturalized citizens of the faculty.

#9J4 (135225)

**The rural district hospital complex as a training platform for medical students: a qualitative study of family physician supervisors' experiences**

**Marietjie De Villiers\***, Stellenbosch University, Cape Town, South Africa

**Background:** African medical schools are addressing the human resources for health challenges on the continent by upscaling decentralised clinical training. The nature of training supervision at these distant sites is crucial to achieve relevant training outcomes. Stellenbosch University implemented longitudinal integrated clerkships (LICs) where final year medical students spend the academic year in a rural district hospital complex under the clinical supervision of a family physician. This study reports the experiences of family physician supervisors in a rural sub-district in the Western Cape Province of South Africa.

**Summary of Work:** Nine semi-structured interviews were done with six family physicians during the first year of the LIC implementation, with follow-up interviews two years later. The interviews were transcribed and analysed using Atlas-ti software. Categories and themes were identified, and a framework of enablers and constraints developed.

**Summary of Results:** Teaching and learning at the rural training complex and the type of student that fits into this were described. The training at the complex was described as enriching; contributing to patients, service and community; and facilitating confidence. Challenges included uncertainty for both the family physicians and the students; the need for structure and organization; and time available.

**Discussion:** Longitudinal training on a rural district training complex holds many opportunities, as well as challenges. These need to be balanced to benefit students, supervisors and communities. Faculty development of clinical supervisors in district hospitals needs to work with enablers and constraints for teaching and learning on a rural district hospital complex.

**Conclusion:** The need for adaptive training on the rural district hospital complex, dealing with undifferentiated care, creates a tension that needs to be recognised and balanced.

**Take Home Messages:** Rural district hospital complexes offer rich learning opportunities. Good planning and guidance of teaching and learning in this context is important.

#9J5 (135287)

What is the value of rural electives?

*Ian Couper\*, Stellenbosch University Centre for Rural Health, Cape Town, South Africa*

**Background:** Medical students in the University of the Witwatersrand Faculty of Health Sciences have the opportunity to do electives at the end of the first and third years of a four year graduate entry medical programme. They are required to write a short portfolio report on their return. The aim of this research was to understand the value of rural electives from the student perspective, as derived from their assessment reports.

**Summary of Work:** A review was conducted of 402 student elective reports over 7 years from 2005. The electives were categorised by nature and site. Common themes were identified through repeated reading of the reports, and content analysis was undertaken using these themes.

**Summary of Results:** 371 students went to rural public health facilities in South Africa. Major themes identified were the reasons for choosing a rural facility for the elective, including going to a home community; benefits of the elective, especially in terms of clinical skills and personal growth; relationship issues; the multiple roles of the rural doctor, who is often a role model working in difficult conditions; and the challenges of rural electives.

**Discussion:** Although there were a range of motivations for choosing rural electives, which were performed in many different sites, students commonly described significant learning that occurred, not only in expected areas such as clinical practice, but also in terms of their attitudes towards medicine as a career, views on communication and teamwork, understanding of generalism and the challenges of working across language and cultural barriers.

**Conclusion:** The electives were overwhelmingly positive and affirming experiences for students, who developed clinical skills but also learnt about both themselves and their chosen career

**Take Home Messages:** Rural electives should be incorporated as a standard element in the curriculum for medical students.

#9J6 (133532)

Results of an Evaluation of an Extended Rural Cohort (ERC) Program

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*Rebecca Caygill (The University of Melbourne, Shepparton, Australia)*

*Julian Wright (The University of Melbourne, Shepparton, Australia)*

*Catherine Waite (The University of Melbourne, Shepparton, Australia)*

**Background:** The Extended Rural Cohort (ERC) is a longitudinal clerkship program for medical students. ERC students undergo an equivalent curriculum to their urban, hospital-based counterparts, carrying out specialist learning predominantly within a primary care environment. The research was conducted in the 2014 and 2015 academic years. Ongoing reports point to a positivity concerning the delivery of medical education in rural areas. Qualitative; in-depth studies from the perspective of students, regarding learning experiences, are uncommon. Reviewing experiences and perspectives from students is vital to determine the success of the program and assess the learning experience.

**Summary of Work:** Participants took part in four focus groups throughout each academic year. Recorded focus groups were transcribed to text and coded thematically. These codes were used to determine changes, if any, in student perceptions and attitudes throughout the year-long program, as well as to compare students in the ERC program with non-ERC students in the same MD program to determine any differences.

**Summary of Results:** Preliminary analysis suggests ERC students report benefiting from increased patient contact and exposure, an increase in confidence in clinical skills and better preparedness for internships, compared to non-ERC students.

**Discussion:** The research has provided vital insights into the implementation of the ERC program. There are few accounts in the medical education literature which privilege student perspectives with regards to curriculum delivery in rural, primary care contexts, particularly over time.

**Conclusion:** The findings of this research will assist the development of the ERC program and potentially inform other medical schools and their implementation of rural, primary care based medical education.

**Take Home Messages:** Many ERC students report the program facilitates a more hands-on learning experience, providing a greater sense of preparedness for internships.

## 9K Short Communication: Diversity 1

Location: MR 118 – P1

#9K1 (131772)

Expansion of a Qualitative Study on a Patient-Centered Module about Persons with Disabilities

*Sonya Miller\*, University of Michigan Medical School, Ann Arbor, USA*

**Background:** Patient centeredness and patient-provider communication can be influenced by disability status. Teaching competent care for persons with disabilities (PWD) has to include their viewpoints and perspectives. Understanding some of their core values, beliefs, and experiences is essential to providing patient-centered care for persons with disabilities.

**Summary of Work:** Prior work revealed that a patient-centered module focused on PWD helps students understand some of the complexities of living with a disability, and increases their knowledge about issues that are relevant and important to PWD. The authentic representation of patients' experiences in conjunction with the multiple forms of active learning results in a module that evokes reflections about attitudes, empathy, and the role of advocacy for health care professionals.

**Summary of Results:** An earlier study was extended by aggregating responses. Students were asked how the module changed their understanding, awareness or perception of individuals with disabilities. Their written responses were qualitatively assessed using a semi-grounded approach, which identified four themes: (a) the daily life of individuals with disabilities; (b) changing notions of normalcy, as PWD consider themselves normal; (c) the impact of discrimination against PWD; (d) disability is not only an issue of the physical body.

**Discussion:** The definition of normal is challenged and expanded. Students recognize that "normal" is defined by the individual. Consequently, having a disability can be normal. There is recognition that a physical disability extends far beyond a person's appearance. There is acknowledgment that discrimination is against PWD is multi-layered, often subtle and institutionalized.

**Conclusion:** Students gained an understanding of the experiences of PWD. They recognized the impact that impairments, activity limitations and participation restrictions have on individuals and their families. They gained perspective about life as a PWD and developed informed empathy.

**Take Home Messages:** Persons with disabilities are effective educators. Informed empathy for individuals with disabilities can be taught. A patient-centered module is a valuable teaching tool.

#9K2 (132236)

Responding to the Challenge: Innovation in Increasing Diversity of Canadian Medical Education through the Fusion of Indigenous and Western knowledge at McMaster University's School of Medicine

*Danielle Soucy\*, McMaster University, Hamilton, Canada*

**Background:** Resulting from evaluations, gaps in Indigenous (First Nations, Inuit & Métis) health education were identified. A braiding of Indigenous and Western knowledge was implemented in an Aboriginal Health Elective (AHE) to address these gaps.

**Summary of Work:** The AHE enhances student learning by academic requirements, community engagement and "non-traditional" experts as educators. Evaluation is framed within Indigenous contexts and fused with western standards of health sciences pedagogy. To understand if we are enhancing the education of future physicians we conducted AHE evaluations post course and up to three years past completion.

**Summary of Results:** Evaluation data from (I) 2011-15 end of course and (II) 1-3 years post course suggest a strong mandate by students for Indigenous educators and curriculum in health sciences. (I) 82% felt it was very good to excellent in relevancy to education/career and (II) felt the relevancy to their education was 71% and Career 67% respectively. Teaching by Indigenous person (I) was seen as 88% very good to excellent with being taught by an Indigenous scholar 69%- Elder 84% extremely valuable in the (II) evaluations.

**Discussion:** Responding to challenging circumstances, decolonization of medical education, needs to move from agreement to action. How do we effectively engage in decision-making in complex environments like health professions education where, in the Canadian context we need to address content disparity and value Indigenous knowledge?

**Conclusion:** There is a positive response by students for a greater fusion of Indigenous and Western health knowledge and the impact of this innovative learning style has carried forward positively into their education and the workforce.

**Take Home Messages:** Increased Indigenous health curriculum positively impacts both Indigenous and non-Indigenous learners.



#9K3 (132586)

**Veiled Ambitions: Female Muslim medical students and their different experiences in medical education**

*Hannah Leyerzapf\*, VU University Medical Center, Amsterdam, Netherlands*

*Hajar Rifi*

*Tineke Abma*

*Petra Verdonk*

**Background:** Cultural minority students are entering higher education since 1995 and female students make out the majority of medical education. In the Netherlands, the medical student population of VU University Medical Center Amsterdam is among the most diverse in the country, however, little is known here about female Muslim medical students and their experiences with medical education.

**Summary of Work:** A qualitative study aimed at gaining insight in experiences of female Muslim medical students to formulate recommendations on interculturalisation and inclusiveness of medical education. Fourteen semi-structured interviews were conducted. Thematic content analysis was performed.

**Summary of Results:** Experiences cluster around being 'different' in student life, as a medical student and physician. These 'domains of difference' represent social norms on being a 'normal'/'good' medical student and physician. Micro-aggressions are experienced during internships and in education activities. Social segregation of minority and majority students, creates enclave deliberation for female Muslim medical students and stimulates relational empowerment. However, it also seems to hinder inclusion in medical school and professional networks.

**Discussion:** Intersections of gender, culture, religion and social class appear to affect possibilities for female Muslim medical students- in particular those who wear a headscarf. Respondents need to perform precarious balancing work within the three domains of difference between expectations and norms on what it takes to be a 'good' medical student and physician, and their personal values and -perceived- identity as a cultural minority and female Muslim student.

**Conclusion:** Stereotypical and categorical thinking and imaging on religion, gender and culture seem to affect minority students' medical education and possible career progress.

**Take Home Messages:** Implicit exclusionary norms within medical school need to be critically addressed so that female Muslim medical students can be positively distinguishable in the medical professional field.

#9K4 (132644)

**"We just did not get its added value". Medical students' Cultural Encounter with the Other**

*Petra Verdonk\*, VUmc, EMGO Institute, School of Medical Sciences, Amsterdam, Netherlands*

*Maaïke Muntinga*

*Lina Issa*

**Background:** We developed and piloted a module about diversity and critical reflexivity for Dutch medical interns. The module incorporated an encounter with a nursing home-dwelling person with a background unfamiliar to the students, and a written report about the encounter which was shared in a group meeting.

**Summary of Work:** To evaluate the module, we collected and thematically analysed data including survey data, student narratives, observations, and interviews. What did we learn?

**Summary of Results:** In total, 38 students participated in two groups (7M, 21F, 10 missing), average age 23,5 yrs, majority Dutch background). Students' opinions about the module included that it was uninteresting (M=2,5) and irrelevant (M=1,8). Three themes emerged from qualitative data: (1) wrong time, wrong place, wrong way, about content and delivery; (2) the personal vs the professional, about how being personal contradicts professionalism, and; (3) scratching the surface, about Dutch norms about equality and taboos around discussing difference and inequality.

**Discussion:** Our results highlight the relevance (wrong time, ...) to align the delivery of modules to students' perceptions of the appropriate moment in the curriculum to develop knowledge and skills. Conflicting discourses seem present about 'personal' or 'private' behaviour during interactions with patients (the personal vs the professional). Finally, students' opinions reflected Dutch egalitarianism (scratching the surface) that questioning assumptions is unnecessary because sameness is the norm already.

**Conclusion:** Students resisted re-examining their structural positions. A thorough understanding of widely held cultural beliefs about what medicine, and being a medical student, entails, and of the messages students hear across the different curricula (in/formal and hidden), is necessary when implementing diversity modules.

**Take Home Messages:** To develop successful diversity modules, it is essential to gain an understanding of what works, why it does (not) work, when it works, and how...

#9K5 (133172)

**“You’ll never be a surgeon anyway”. Gender effect on medical internship learning opportunities**

**Marwa Schumann\***, Alexandria Faculty of Medicine, Alexandria, Egypt

Ashley Dennis (Center for Medical Education, Dundee, UK)

**Background:** “Feminizing of medicine” is an emerging topic in the field of medical education as women represent a majority in terms of entry to medical schools worldwide and will therefore represent the majority of working doctors. However, female exposure to negative attitudes discouraging them from choosing a specific “male-dominated” career will lead to a paradoxical shortage of residents especially in certain specialties such as surgery and orthopedics.

**Summary of Work:** Based on social constructivism epistemology this qualitative research included focus group and personal interviews with a total of 22 house officers and junior residents from four different training and workplace locations inside and outside Alexandria. They provided personal incident narratives about their formal and informal learning experiences during the practical year. We applied qualitative framework analysis of all narratives using Atlas Ti software program and conducted a narrative analysis of one exemplar.

**Summary of Results:** We identified a total of 51 narratives; 31 by house officers and 20 by residents. Gender occurred in 11 house officers' narratives as a barrier rather than a facilitator of the learning experience. The hidden curriculum plays an important role in gender discrimination.

**Discussion:** Gender issues have been reported in the medical education literature across the globe, for example in the United States, the UK, and Israel. However, female exposure to negative attitudes goes beyond discouragement from choosing a specific “male-dominated” career into a problem affecting the quality of health care provided when it prevents them from achieving basic surgical or CPR skills.

**Conclusion:** Gender discrimination affects medical interns on a deeper level which goes beyond demotivation and limiting the career choices to affect the quality and safety of healthcare provided.

Regardless their gender equal training opportunities should be provided to medical interns.

**Take Home Messages:** Summing up we may say that gender inequalities may cause house officers' frustration and restrict their career choices, but more seriously they may affect the patients' safety especially when it involves clinical and procedural skills needed in acute and emergency cases.

#9K6 (134753)

**Can language proficiency predict academic success or the need for learner support?**

**Stephen Greenwood\***, Cardiff University, Cardiff, UK

**Background:** UK universities set minimum English Language requirements (using standardised proficiency tests such as ‘IELTS’) for applicants whose first language is not English. This is problematic. Higher scores might better reflect the proficiency demands of courses but can reduce the number of eligible applicants. On the other hand, lower scores may necessitate deploying additional resources to support students who struggle with the level of English proficiency required in the discipline.

**Summary of Work:** It was decided to examine whether any association might be found between IELTS scores and subsequent academic performance. IELTS scores for 639 students enrolling since 2010 were obtained and matched anonymously with those students' module assessment scores, where available. IELTS sub-scores were available for 603 students (94%). Average marks were calculated for 372 students (58%) who also had IELTS scores. Inferential statistics included independent samples t-tests and univariate ANOVA.

**Summary of Results:** Overall IELTS scores showed a significant association with average module marks ( $M(\text{IELTS} \leq 7) = 63.6$  vs  $M(\text{IELTS} > 7) = 68.1$ ,  $t(370) = 5.706$ ,  $p < 0.001$ ;  $F(7,364) = 6.529$ ,  $p < 0.001$ ). Similar results were found on all subscales. Exploratory regression analysis indicates that further analysis may enable the predictive value of IELTS scores to be examined.

**Discussion:** Whilst it is not surprising that students with higher IELTS scores also had higher average assessment marks, statistical analysis indicates that it may be possible to exploit the predictive value of such scores to set justifiable ‘cut-score’ criteria for selection or plan effective learner support.

**Conclusion:** Initial analysis indicates that English proficiency tests have some predictive value and this needs to be validated and explored in further detail in relation to sub-scores and specific types of assessment. Progress on this will be reported in this short communication.

**Take Home Messages:** Analysis of English language proficiency are likely to predict success in assessments and could facilitate planning of academic support and realistic entry criteria.

## 9L Short Communication: Education Management

Location: MR 119 – P1

#9L1 (134650)

**Political decisions on medical workforce reforms should be based on best evidence**

*Line Engelbrecht Jensen\*, Copenhagen University Hospital Køge, Region Zealand, Køge/Copenhagen, Denmark*

*David Gordon (WFME, Geneva, Switzerland)*

**Background:** Over the past half century there has been a steady increase in the number of medical schools and hence in the number of medical students and doctors in the world. Planning a medical workforce suiting society's needs is not easy and both shortage and unemployment should be avoided.

**Summary of Work:** This study examines the decision-making process when planning a medical workforce, looking at and comparing workforce reports and decision-making in Denmark and the United Kingdom, to give an overview of factors influencing decisions and to analyse the implementation and development up to 15 years into the future.

**Summary of Results:** The two countries used different methods in estimating the medical workforce of the future, yet their deliberations were similar. The main issues taken into account were the overall expected increase in demand for healthcare in society, the generation shift and gender and age issues. They reached the same overall conclusions: that demand for healthcare is increasing and the number of doctors available will not be sufficient.

**Discussion:** The forecasts of the reports turned out to prove largely correct, yet decision-makers of both countries did not follow recommendations. Together with other educational reforms, the number of medical students was increased much more than recommended without making room for increased capacity in postgraduate education. It is worrying that decision-makers did not use the available evidence but rather acted in response to current political, demographic and economic pressure.

**Conclusion:** Planning a medical workforce should be done using solid available evidence and changes should only be made while also ensuring capacity and quality of both under- and postgraduate education.

**Take Home Messages:** Medical workforce planning should always be based on best evidence.

#9L2 (135454)

**Reflections on the Role of Continuous Quality Improvement in Accreditation for the 21st Century**

*Nesibe Akdemir\*, OLVG Hospital, Amsterdam, Netherlands*

*Linda Peterson (Committee on Accreditation of Canadian Medical Schools, Ottawa, Canada)*

*Craig Campbell (Royal College of Physicians and Surgeons of Canada, Ottawa, Canada)*

*Fedde Scheele (OLVG Hospital, Amsterdam, The Netherlands)*

**Background:** Accreditation systems are based on a number of principles and purposes that vary across different jurisdictions. This study explores the role of continuous quality improvement (CQI) in a system that has been historically based on episodic evaluation.

**Summary of Work:** The Dutch Scientific Council for Government Policy concisely described generally applicable patterns (Core Tasks) for government oversight. The perspective of these seven Core Tasks is used to look at the role of CQI. The seven Core Tasks are: public interest, benefit for society, governance structure, reflective function, impartial in attitude and independently positioned, public accountability, and the balance between expectations and capacity. The Core Tasks were used to evaluate the role of CQI in three accreditation systems across the continuum of medical education.

**Summary of Results:** CQI is most valuable for the 'reflective function' based on early warning systems because in all three medical accreditation systems the accreditors lack the ability to immediately react to either local events or societal developments. The governance structure may benefit from decentralised empowerment of teaching sites working for the same cause. Consequently, there is a potential role for CQI in public interest and benefit for society. CQI has weaknesses in the Core Tasks of impartiality, independence, public accountability and the balance between expectations and capacity.

**Discussion:** Despite the added value of CQI, there is a difficulty in going through all components (plan-do-study-act) of an improvement cycle. After all, CQI is not achieved with an internal review process with data gathering and making a diagnosis without implementing improvements.

**Conclusion:** The exploration of the accreditation systems through the perspective of the seven Core Tasks framework showed that CQI is a valuable addition to external evaluations.

**Take Home Messages:** CQI has a strong reflective function. CQI detects problems and risks earlier and provides short-term feedback.

#9L3 (136046)

**Keogh, Berwick and Beyond: How Integrated is Audit and Quality Improvement into Medical Student Curricula?**

*Culadeeban Ratneswaran\*, SGUL, London, UK*

*Sharad Sinha (SGUL, London, UK)*

*Jameel Mushtaq (SGUL, London, UK)*

*Zwe Htoo (KCL, London, UK)*

*Matthew Colquhoun (SGUL, London, UK)*

**Background:** Tomorrow's Doctors and The Keogh Mortality Review both suggest that doctors should have the capacity to help improve patient care. The Berwick Report said junior doctor's energy must be tapped, not sapped and that that the single most important change that the NHS could make is to become a "system devoted to continual learning and improvement of patient care".

**Summary of Work:** Questionnaires were supplied to students from 3 different London medical schools. This ascertained their knowledge of, and confidence in implementing their own audit, before and after a focused audit teaching session. The session focused on pragmatically implementing audit or quality improvement projects within their own institution, in addition to synthesising novel ideas on areas of sub-standard practice.

**Summary of Results:** 79% of students had no previous formal teaching on audit or quality improvement projects. 96% felt they had not been given adequate opportunities to carry out an audit. 67% said they had 'no confidence' in gaining approval for an audit. On a scale of 1 (none) to 5 (very much), the students' knowledge of the audit process (1.93 to 3.64,  $p < 0.0001$ ) and confidence in implementing a project at their institution (2.02 to 3.38,  $p < 0.001$ ) both increased after the session.

**Discussion:** The department of health said students are the "eyes and ears of the service today and safety leaders of tomorrow". Upon entering their clinical years, students can cast fresh eyes on the current performance of the healthcare system and help in evaluation. Nurturing them into their junior doctor careers in this way is important as also highlighted within the Berwick report.

**Conclusion:** Our data shows that medical student's potential are not fully utilised. They have a poor understanding of the pragmatic implications of the audit process.

**Take Home Messages:** A focused course is both sought after by medical students and beneficial to health institutions, in meeting wider health goals.

#9L4 (132366)

**The Association between Accreditation of Medical Education and Rates of Specialty Board Certification for Graduates of International Medical Schools Practicing in the United States**

*Marta van Zanten\*, FAIMER, Philadelphia, USA*

*John R. Boulet (FAIMER, Philadelphia, PA, USA)*

**Background:** While approximately 25% of physicians practicing in the United States are graduates of international medical school (IMGs), only a portion of these schools are accredited by a local authority. Many IMGs practicing in the United States attain voluntary specialty board certification, verifying the IMGs' expertise in a particular specialty and/or subspecialty of medical practice. We hypothesized that IMGs who graduated from an accredited medical school would be more likely to later achieve specialty board certification as compared to their peers from non-accredited institutions.

**Summary of Work:** All eligible IMGs who graduated from medical school between 2001 and 2005 were included in the study population. Individuals were designated as having attended an accredited institution if a) their schools were accredited at the time or within two years of their graduation and b) the accreditation was mandatory. Specialty board certification, as of 2015, was obtained from the American Board of Medical Specialties. Odds ratios were calculated to look at the association between board certification and accreditation.

**Summary of Results:** Of the 178 countries where the IMGs' medical schools were located, 113 countries had some form of accreditation system, and 81 countries had mandatory accreditation. Excluding individuals who attended medical schools where accreditation was not mandatory, there were 24,939 graduates, of whom 18,239 (73.1%) achieved specialty board certification. Those attending accredited institutions were 1.61 times more likely (95% CI= 1.55-1.78) to achieve specialty board certification.

**Discussion:** While not causal, the association between medical education accreditation and subsequent markers of physician quality, such as specialty board certification, provides some evidence to support value of medical school oversight programs.

**Conclusion:** IMGs who graduated from an accredited medical school were more likely to later achieve specialty board certification as compared to their peers from non-accredited institutions.

**Take Home Messages:** Further research is needed to better understand the mechanisms by which accreditation of medical education leads to quality improvement.



#9L5 (133046)

**Participating in Medical Education Innovations:  
Lessons from Trainees Perspectives**

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*Patty Hobday, University of Minnesota, Minneapolis,  
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**Background:** The goal of The Education in Pediatrics Across the Continuum (EPAC) project is to establish a medical education model where advancement decisions are based on trainees' demonstration of competence using an Entrustable Professional Activity (EPA) framework. To this end, trainees commit to a longitudinal curriculum that connects medical school to pediatric residency to independent practice. We sought to understand how trainees decide to participate in EPAC, and more generally, how medical educators might design innovations to maximize participation.

**Summary of Work:** EPAC consists of longitudinal training experiences in pediatrics during medical school, early commitment and acceptance to pediatric residency at the same institution, and advancement based on the 13 Core EPAs for Entering Residency. We conducted focus groups and interviews with EPAC trainees from each of the 4 participating sites (11/14 total) in 2014-2015. We reviewed a subset of these data related to what attracted participants to EPAC and what were causes for concern, looking for common themes.

**Summary of Results:** Attractions and concerns were not distinct elements. For example, trainees were grateful to stay in their home state for medical training, and at the same time, concerned about significant others needing to "follow along". They were eager to be part of innovations in education and concerned about "giving up" some affordances of traditional education. They were excited about committing to a career in pediatrics and concerned about warnings to not commit "too early". An element identified solely as an attraction was the capacity to build long-term relationships with faculty.

**Discussion:** Trainees' decisions to participate in EPAC were complex, involving examination of elements that existed along a continuum that was anchored by attraction and concern.

**Conclusion:** Medical educators should consider how the same element of an educational innovation might enhance or diminish participation.

**Take Home Messages:** Attractions and concerns about participating in medical education innovations are not distinct elements, but exist along a continuum. Deciding to participate in a medical education innovation may not be a simple process of weighing discrete pro's and con's.

## 9M Short Communication: Problem-Based Learning

Location: MR 120 – P1

#9M1 (135693)

Implementing interactive PBL into the curriculum through the ePBLnet Project

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**Luke Woodham** (St George's, University of London, London, UK)

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**Background:** The ePBLnet project funded by the European Commission collaborated with Ukraine, Georgia and Kazakhstan to transform their didactic curricula into student-centred PBL. The project used the experiences from St George's University of London which had implemented a modified PBL course using interactive Virtual Patients instead of linear paper cases, to enable students to explore clinical management options and to directly manage the patient scenario.

**Summary of Work:** National medical Education Centres were set up in each country as foci for these and future innovations. Partners analysed their curricula to find suitable places to implement PBL. Key members of staff were then trained to create interactive branching PBL cases and to facilitate PBL sessions. New cases were trialled with students and staff and feedback was gathered to further improve cases. Data was collected from students, tutors, curriculum adapters and case adapters through the lifetime of the project to determine the impact of this approach on all stakeholders.

**Summary of Results:** Within three years, the new interactive PBL had been successfully implemented by all partners. There were many challenges associated to the implementation and overcoming old attitudes to a new approach. Overall, the new method of learning was welcomed by students, PBL facilitators and institutional stakeholders.

**Discussion:** The project timeline finished before the first round of students completed their degree, but the impact of this new learning activity was sufficient to ensure the retention of PBL in the curricula of most partners.

**Conclusion:** The use of interactive PBL has helped to encourage student engagement and mimic real life decision making.

**Take Home Messages:** Previously teacher-centred didactic teaching institutions, have welcomed the introduction of a shared, more student-centred, PBL course.

#9M2 (135136)

Problems perceived by medical and nursing students in PBL - Experiences from a medical university in Taiwan

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**Shu-Hsing Lee**

**Background:** Problem-based learning (PBL) in a hybrid curriculum has been adopted in both medical and nursing education at the Chung Shan Medical University (CSMU) since early 2000s. The purpose of this study is to evaluate and compare the perceptions on PBL of medical students, nursing students and their tutors.

**Summary of Work:** In December, 2014 and January, 2015, a survey with self-administered structured questionnaire was conducted for nursing and medical students as well as their tutors, respectively when they completed their courses in a hybrid PBL curriculum. Their perceptions on the merits and problems in PBL were analyzed and compared.

**Summary of Results:** Both medical and nursing students are generally satisfied with PBL (64-70%). The difference in merits and problems as perceived by medical and nursing students is statistically significant in the improved skills in analytical and synthesizing skills and in the frequent change in member of the small group. Also the significant difference in the ranking of the most important factor for a successful PBL existed between medical students and their tutors.

**Discussion:** The curricular loading in traditional nursing education is too heavy to have time do PBL unless a systematic curriculum reform to have only the core curriculum for nursing students. Though medical students rated the tutor rather than students themselves as the most important factor in PB through increasing in exposure to PBL, students will find the feasibility and responsibility of self-directed learning.

**Conclusion:** Learning via PBL is feasible for medical or nursing education in Taiwan. Based on students' perceptions, students can do and improve self-directed learning triggered by appropriate problem cases, adequate learning resources and proper tutor facilitation.

**Take Home Messages:** A comprehensive multi-faced (student-to-student, student-to tutor, tutor-to-student) on-line evaluation system for PBL is needed for evaluation of both the process and outcomes of PBL.

#9M3 (133896)

**The deliverables of problem based learning (PBL): are we doing what we say on the tin?**

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*Nicholas Temperley (University of Edinburgh, UK)*

**Background:** The effective delivery of a problem based learning (PBL) curriculum relies on the development of case scenarios that are fit for purpose as defined by their ability to engage students with learning. The intention of cases is to embed key transferable processes and provide an opportunity for knowledge acquisition. The extent to which cases deliver intended characteristics can be used to determine their learning currency.

**Summary of Work:** Year 1 and 2 medical students completed a questionnaire to measure how cases perform in terms of four categories: challenge, enjoyment, knowledge acquisition and teamwork/ collaboration.

**Summary of Results:** Cases found not to be fit for purpose in one category score poorly in all categories compared to cases that are deemed fit for purpose. A study of the results shows that significant correlation in Year 1, Semester 1, was found between challenge and knowledge ( $p < 0.001$ ) and between enjoyment and teamwork ( $p < 0.001$ ). Over time, correlation shifts towards enjoyment and knowledge ( $p = 0.024$ ) until the start of Year 2 when significant correlation is found between challenge and enjoyment ( $p = 0.035$ ), challenge and knowledge ( $p = 0.050$ ) and enjoyment and knowledge ( $p = 0.001$ ).

**Discussion:** Results show that students new to PBL find the teamwork aspect enjoyable and that challenge enhances their knowledge base. Over time, students find the teamwork aspect less novel and demonstrate a growing enjoyment in the acquisition of knowledge.

**Conclusion:** Our work shows an excellent framework for assessing a PBL case's fitness for purpose and demonstrates how the dynamic changes in student learning can be used to get the most out of future cases.

**Take Home Messages:** This analysis provides a useful indication of fitness for purpose of PBL cases and demonstrates an escalation of intellectual dynamics in student learning over time.

#9M4 (135446)

**Social network analysis of online problem based learning: what can we learn from it?**

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*Mohammed Saqr*

**Background:** Online problem based learning (PBL) gives students a chance to reflect in discussions; and helps overcome some restraints of face to face PBL. Using social network analysis (SNA) can enable quantitative measurement and visualization of communications among students' communities and the study of interactions, linkage behaviour, identifying influential actors, active and inactive communities, network growth and communication dynamics.

**Summary of Work:** The study included 130 students divided into 14 groups according to their face to face PBL groups and tutors. Each week, students attended three sessions for every problem, same groups would be allowed to continue the discussions online. Those discussions were analysed by means of social network analysis using Meerkat-ed application, both content-based and linkage-based structural Analysis were done.

**Summary of Results:** Using social network analysis allowed automated mining of the online PBL communities, visualization of group discussions, identification of active and inactive participants, central students who are influential in a group discussion. It also allowed analysis of inter-group interplay and quantification of group dynamics. Content based analysis of term networks allowed summarization of topic hierarchies.

**Discussion:** SNA automated discovery and mining of communities and interactions gave a bird eye overview of PBL dynamics among students, tutors and groups that helped instructors provide an informative feedback, evaluate progression, support learning and understand weakness and strengths of the practice.

**Conclusion:** Social network analysis can help teachers and administrators easily monitor online discussions visually and quantitatively to identify areas of needed action based on an informed insight.

**Take Home Messages:** SNA is an effective tool for the study of online PBL and possibly other online discussions and opens new dimensions of research and inquiry.

#9M5 (135639)

**Comparison of First Year Student Performance in a PBL curriculum in a New Medical School over Four Years**

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Ludo Badlangana, University of Botswana, Gaborone, Botswana

**Background:** The University of Botswana Faculty of Medicine started enrollment of Bachelor of Medicine, Bachelor of Surgery (MBBS) students in 2009 using a problem based curriculum. Problem-based learning (PBL) is an established method of teaching and learning in medical education. However, its impact on students' assessment on examinations has been reported as varied and inconsistent. Under the university's Teaching and Learning Policy, one of the tenets is student centered teaching. However, problem based training was novel approach at the University of Botswana. Furthermore, very few of the faculty members had experience in PBL. In PBL, Clinical reasoning is a requirement. This process evolves over time and requires integrated basic and clinical knowledge and repeated practice. Therefore, developing instructional methods and assessment tools which help students to become efficient in solving cases is a central issue. We compared the student performance on the MBBS Phase I (pre-clinical) in PBL with their test and examination scores.

**Summary of Work:** We analyzed the MBBS Phase I PBL marks, test and examination results of students in one course modules across four years (2012, 2013, 2014, and 2015) at the Faculty of Medicine, University of Botswana. This made up a cohort of 207 students. Using One Way ANOVA, the analysis compared individual PBL scores, test and examination marks.

**Summary of Results:** The PBL scores had significantly higher mean and median scores than the conventional test and examination scores. Statistically, a significantly ( $P = 0.01$ ) percentage, 96% ( $n = 207$ ), of the PBL scores were higher in comparison to the test and examination marks.

**Discussion:** The PBL scores were significantly better in all the years. Since the curriculum is PBL based, its assessment is a key component of overall student performance.

**Conclusion:** However, objective assessment is a challenge in a subjective context of evaluating PBL performance.

**Take Home Messages:** Assessment tools that will narrow the gap need to be continually refined.

#9M6 (132284)

**Feasibility of Inter-Disciplinary Problem-Based Learning (PBL): An Integrated Course of Pathology and Pharmacology**

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Shiow-Ching Shun

Chao-Chi Ho

Shu-Wen Lin

Woei-hong Fang

Fen-Yu Tseng

**Background:** PBL used to be conducted by individual disciplines in medical schools. We designed an inter-disciplinary pathology and pharmacology (P/P) PBL program incorporating students from Departments of Medicine (DM), Pharmacy (DP), Nursing (DN), and Medical Technology (DMT), to encourage inter-disciplinary communication and learning.

**Summary of Work:** The program was a one-year required DM course consisting of weekly 2-hour sessions discussing specific P/P topics based on different clinical scenarios. Students from DP, DN, and DMT voluntarily took this course in the second semester and participated in 3 to 6 sessions depending on individual curriculum requirement. Questionnaire was done after each session to assess whether the students agreed with the program design and potential benefit on learning. Data were collected from DM students ( $n = 130$ ) and other students ( $n = 32$ ; DP/DN/DMT=18/10/4) between March and June 2015.

**Summary of Results:** The majority of students (DM students  $53.8 \pm 16.2\%$  (mean  $\pm$  SD); other students  $64.5 \pm 9.6\%$ ,  $P = 0.13$ ) agreed that they communicated more with fellow students for inter-disciplinary PBL preparation. Significantly fewer DM students agreed that inter-disciplinary PBL (1) required more time to prepare for each session ( $48.9 \pm 18.5\%$  vs.  $80.8 \pm 10.2\%$ ); (2) encouraged more active interaction during each session ( $54.1 \pm 7.3\%$  vs.  $81.2 \pm 9.2\%$ ); (3) improved the learning results of specific P/P topics ( $58.0 \pm 7.3\%$  vs.  $92.3 \pm 4.7\%$ ); and (4) facilitated understanding of multi-disciplinary practice in the clinic ( $67.8 \pm 12.8\%$  vs.  $89.3 \pm 8.5\%$ ) ( $P < 0.01$ , respectively).

**Discussion:** The majority of students agreed that inter-disciplinary PBL should be further incorporated into the overall PBL program and teachers from different disciplines should jointly develop the program.

**Conclusion:** Inter-disciplinary PBL is feasible. Students from other disciplines had more positive feedback for this DM-based program.

**Take Home Messages:** Inter-disciplinary PBL should be encouraged. Heterogeneity between DM and other students should be considered in program design.



## 9N Short Communication:

### Students: Careers

Location: MR 121 – P1

#9N1 (133406)

#### Career choice as a longitudinal structured course

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Saskia M. Peerdeeman (VUmc School of Medical Sciences, Amsterdam, Netherlands)

Gerda Croiset (VUmc School of Medical Sciences, Amsterdam, Netherlands)

**Background:** Junior physicians in the Netherlands can apply for a wide variety of medical specializations. However their career choice often insufficiently matches their prevailing career intentions. We therefore aim to support students in making a well-considered career choice. A longitudinal structured course dedicated to “career choice and career planning” was created.

**Summary of Work:** The course’s aim was to support students in making well-considered decisions about their career. In the 3-year bachelor’s and 3-year master’s programme this theme was yearly elaborated on. The bachelor’s programme focused on healthcare professions in general; the master’s programme was more individualized and focused on actual personal choices.

**Summary of Results:** Various teaching methods (some with optional participation) were used, not only offering information about various medical professions, but also training in analysing a variety of personal attributes related to jobs in the medical domain, in reflecting upon personal competencies and a job-interview-training. These activities were all extremely well appreciated.

**Discussion:** The voluntary workshops were frequently overbooked. The mandatory workshops were rated as “very interesting”, with an average of 4,42 and “very useful”, with an average of 4,28 on a 5-point-Likert-scale out of 597 respondents.

**Conclusion:** To prepare for career choice is important and relevant for every medical student. A longitudinal structured course, in which training and workshops regarding career choice are organized and information about various medical professions is supplied, proves to be very meaningful.

**Take Home Messages:** A longitudinal structured course dedicated to “career choice and career planning” is greatly appreciated and contributes to students’ awareness regarding career choice.

#9N2 (132906)

#### Performance evaluation of Sci59, an inventory to assist on medical specialty choice

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Janet Grant (Centre for Medical Education in Context, London, UK)

Rodney Gale (Centre for Medical Education in Context, London, UK)

**Background:** The Specialty Choice Inventory (Sci59) comprises a psychometrically valid, computer-based instrument developed in the United Kingdom (UK), which has been utilized by both individuals seeking careers guidance and institutions as part of the selection process. Nevertheless, the performance characteristics of such instrument have not been much investigated, particularly outside the UK.

**Summary of Work:** Sci59 was translated and adapted so as to be utilized by 120 Brazilian medical specialists (85 consultants; 35 final year specialty trainees), who were also asked to mention both other specialties they could have chosen and others they would never choose. Concordances between preferred specialties and the inventory top 20 (“positive”) recommendations, as well as between rejected specialties and the bottom 20 (“negative”) recommendations were analysed.

**Summary of Results:** The respondents’ current specialty was found amongst the inventory positive recommendations for 81/120 (67,5%) participants. Concordance between any of the preferred specialties and the positive inventory recommendations was 72.5% (87/120). Concordance between rejected specialties and the inventory negative recommendations was 87.5% (105/120). The inventory performance for rejected specialties was significantly greater ( $p=0.005$ , Fisher test) than for preferred specialties.

**Discussion:** The properly translated and adapted original Sci59 seems to work very well outside the UK context. The inventory good performance must be confirmed with further investigations.

**Conclusion:** The Specialty Choice Inventory was able to predict respondents’ current specialty in nearly two thirds of cases. Nevertheless, the inventory seems to work better for assisting eventual applicants to exclude specialties they are not suited for.

**Take Home Messages:** A British inventory to assist on medical specialty choice (Sci59) seems to work very well outside the UK context, thus expanding its usefulness for individual applicants and institutions, as well as a research tool.

#9N3 (133244)

**When I grow up: medical student attitudes to choosing a specialty**

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**Background:** Many factors influence career choices in medicine. Despite research into these factors, careers advice for medical students remains fragmented. It is often difficult to access or irrelevant at their stage, concentrating on doctors in training. We aimed to understand what factors are important to undergraduate medical students in making career decisions.

**Summary of Work:** Questionnaires were distributed to students commencing their first year of clinical medicine at UCL Medical School. These were designed by final year medical students as part of a Peer-Assisted Learning SSC. The questionnaire assessed career options based on pre-clinical teaching and identify factors that students felt important in their choice of specialty.

**Summary of Results:** 200 questionnaires were completed. 17(8.5%) responses were excluded due to incorrect completion. 67% students felt their early years had not prepared them to make career decisions. The main factors influencing students' choice of specialty were; 1. Average working day (26.2%) 2. Content of CV (18.6%) 3. Work-life balance (14.8%).

**Discussion:** Medical students, especially pre-clinical students, get very little exposure to the vast range of careers within medicine. It is unsurprising to find that a large majority of undergraduate medical students felt unprepared for what is a life changing decision.

**Conclusion:** This study highlights the need for effective careers advice tailored to undergraduate students and their stage of training. We suggest that this is done through an all access resource, such as an online careers portal. Through this students would be able to gain valuable insights into specialties and allow them to make the most out of their clinical attachments.

**Take Home Messages:** 1. Students feel underprepared for specialty choice at the start of their clinical training 2. The factors that affect career choice are; the average working day, content of a suitable CV, and work-life balance 3. There is need for an all access career resource.

#9N4 (135586)

**What experience do students have in the operating room and what do students want to learn in surgery?**

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**Background:** There is a serious lack of talent in trauma surgery. Studies have shown that while running thorough medical school the interest in this subject decreases significantly. The aim of this study was to prospectively evaluate the participating students' experience in the operating room (OR) within the framework of the given curricular course.

**Summary of Work:** The course takes place in the 5th-year of medical school and has a structured workflow comprising practical and observation modules in alternation with lectures. Within the framework of the observation module the students are visiting the OR on one morning, accompanying various surgical interventions, guided by detailed explanations of the performing surgeons. Results were evaluated using an interdisciplinary developed and validated questionnaire, followed by statistical analysis.

**Summary of Results:** Between 2012 to 2014, 457 of 606 participants took part in the study (return rate of questionnaires 75,41%). The students rated the question "I got an insight into workflow in the OR." with 'true' (standard deviation- sd: 1.14). Also, the question "My questions in OR were answered to my satisfaction." was rated with 'true' (sd: 1.43). However, the question "While observing the surgery, the conduct of the performed operation was explained to me in detail." was rated 'satisfactory' (sd 1.71) by the participating students.

**Discussion:** The study shows that detailed explanation and friendly communication towards the students in the OR might raise interest for a career in trauma surgery. In future, this should be taken into account for further development of student education. Overall, the course has achieved good results.

**Conclusion:** Teaching in the OR might be more relevant for raising an interest in a careers as a trauma surgeon than assumed. It can be easily accomplished by adequate communication and explanation.

**Take Home Messages:** Teaching in the OR might be more relevant than assumed.

#9N5 (133748)

**Person-Oriented versus Technique-Oriented Medical Specialties: Using the Delphi Method to Determine Specialty Classification**

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George Richard (Association of American Medical Colleges, Washington, DC, USA)

**Background:** Researchers investigating medical specialty choice and career counselors working with medical students/physicians on specialty choice decisions rely upon up-to-date models to guide their work. One classification system that has immense applicability for research and advising/counseling is the person-oriented versus technique-oriented taxonomy. This approach to conceptualizing medical specialties was first suggested in late 1960s, reappeared in early 1990s, and has been used in recent studies. Researchers have criticized the model—questioning how certain specialties are categorized.

**Summary of Work:** Given the model was conceptualized in the 1960s, verification is necessary based on how medical specialties are practiced and viewed today. This project used the Delphi approach with Careers in Medicine advisory board members to verify the person-oriented versus technique-oriented model of specialty classification. Careers in Medicine Advisory Board members are considered experts on specialty classification. This group's task was to determine the final grouping of specialties comprising person-oriented versus technique-oriented specialties using this iterative process.

**Summary of Results:** Five advisory board members who were physicians across various specialties representing both person-oriented and technique-oriented specialties assisted with verifying the categorization of specialties by participating in three rounds of the Delphi method. At the end of three rounds of the Delphi method, using the median as the measure of central tendency, a 100% consensus was reached regarding the grouping of specialties comprising person-oriented versus technique-oriented specialties.

**Discussion:** The project outcome is an up-to-date and current taxonomy of medical specialties that can be utilized in today's research studies on medical specialty choice and also in medical specialty career advising.

**Conclusion:** The grouping of specialties in these areas matched exactly with the model from the 1960s.

**Take Home Messages:** The verified taxonomy has applicability both empirically and for counselors providing guidance and advising on medical specialty decision-making with students and physicians.

#9N6 (134321)

**Medical student perceptions of research and research-orientated careers: an international questionnaire study**

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Claire Connell, University of Cambridge, Cambridge, UK

Philip Foden, University of Manchester, Manchester, UK

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**Background:** In recent decades many countries have experienced a decline in the numbers of clinical-academics. Engaging and inspiring the next generation of clinical-academics at an early stage is recognised as key to ensure the future of medical research. However, little is known about medical student perceptions of research and academic-careers.

**Summary of Work:** A 39 item online questionnaire focusing on student experiences and perceptions of research was developed, piloted, and promoted to medical students in countries around the world.

**Summary of Results:** 1625 responses were collected from 38 countries. Analysis was restricted to data collected from countries with >100 responses (n=890). 42.7% of respondents felt their medical school provided adequate research training and 33.6% felt they had sufficient information on research-orientated careers. Key perceived barriers to research participation included lack of time and difficulty finding mentors/projects. A significant gender disparity existed in the research ambitions of students, with females desiring less research involvement (Mann-Whitney  $p=0.002$ ). Significant differences existed between countries, with students in some countries reporting greater research involvement, fewer barriers and better research training.

**Discussion:** A number of identified barriers e.g. difficulty finding mentors/projects are potentially ameliorable. Delays to completion of clinical training and longer working hours were perceived as barriers to pursuing academic-careers for a significantly greater proportion of females. This may represent the persistence of traditional gender roles. The data varied significantly by country. Lessons may be learnt from institutions and countries whose students report fewer barriers and better research training.

**Conclusion:** Students perceive a number of key barriers to research involvement and pursuit of research-orientated careers. Programmes designed to engage students with research should focus on overcoming identified barriers. Greater effort is needed to engage female students who report greater barriers and less desire to follow research-orientated careers.

**Take Home Messages:** Efforts to promote research and research-orientated careers should focus on overcoming identified barriers and engaging female students.

## 90 Short Communication: Interprofessional Education: Postgraduate/Continuing Education

Location: MR 122 – P1

#901 (133191)

### GP and Pharmacist Inter-professional learning - A Grounded Theory Study

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Leon Zlotos

Ailsa Power

**Background:** Practice-based small group learning (PBSGL) is an established learning resource for primary care clinicians in Scotland and is used by one-third of GPs. The Scottish Government and other UK professional bodies have called for GPs and pharmacists to work more closely together to improve patient care.

**Summary of Work:** Established GP groups recruited one or two pharmacists for a pilot period of a year. Groups met in the evenings and studied PBSGL modules together. After the pilot ended GPs and pharmacists were interviewed separately in a series of focus groups and one-to-one interviews. Interviews were audio-recorded and transcribed and analysed using a grounded theory approach.

**Summary of Results:** Ten groups consisting of 91 GPs joined the pilot. 34 GPs and 8 pharmacists were interviewed. The main themes were of: GPs and pharmacists perceptions and experiences of inter-professional learning; Inter-professional relationships and team-working; group identity and purpose of existing GP groups.

**Discussion:** Pharmacists were welcomed by most groups and both professions valued learning from each other. Both professions gained a wider perspective of the NHS and communications improved between practitioners. Newly established GP groups were very welcoming to pharmacists but established groups found that they intruded a little into sensitive discussions amongst GPs

**Conclusion:** Inter-professional groups work well using PBSGL and will likely continue

**Take Home Messages:** Learning together outwith work can help pharmacists and GPs to improve relationships and team working.

#902 (132969)

### The role of collaboration and shared understanding in interprofessional teamwork

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**Background:** Teamworking, within and across healthcare organisations, is essential to deliver excellent integrated care. Drawing upon an alternation of collaborative and cooperative phases, we explored this teamworking and respective technological support within UK Primary Care. Participants used Bits&Pieces (B&P), a sensemaking tool for traced experiences that allows sharing results and mutually elaborating them: i.e. cooperating and/or collaborating.

**Summary of Work:** We conducted a two month-long case study involving six healthcare professionals. In B&P, they reviewed organizational processes, which required the involvement of different professions in either collaborative and/or cooperative manner. We used system-usage data, interviews and qualitative analysis to understand the interplay of teamworking-practice and technology.

**Summary of Results:** Within our analysis we mainly identified cooperation phases. In a f2f-meeting, professionals collaboratively identified subtasks and assigned individuals leading collaboration on them. However, these subtasks were undertaken as individual sensemaking efforts and finally combined (i.e. cooperation). We found few examples of reciprocal interpretation processes (i.e. collaboration): e.g. discussing problems during sensemaking or monitoring other's sensemaking-outcomes to make suggestions.

**Discussion:** These patterns suggest that collaboration in healthcare often helps to construct a minimal shared understanding (SU) of subtasks to engage in cooperation, where individuals trust in other's competencies and autonomous completion. However, we also found that professionals with positive collaboration history and deepened SU were willing to undertake subtasks collaboratively. It seems that acquiring such deepened SU of concepts and methods, leads to benefits that motivate professionals to collaborate more.

**Conclusion:** Healthcare is a challenging environment requiring interprofessional work across organisations. For effective teamwork, a deepened SU is crucial and both cooperation and collaboration are required. However, we found a tendency of staff to rely mainly on cooperation when working in teams and not fully explore benefits of collaboration.

**Take Home Messages:** To maximise benefits of interprofessional working, tools for teamworking should support both cooperation and collaboration processes and scaffold the move between them.



#903 (131666)

**Interprofessional Collaboration on the Run (ipcontherun): A Flexible Continuing Interprofessional Professional Development Online Resource**

*Donna Drynan\*, UBC, Vancouver, Canada  
Christie Newton  
Victoria Wood*

**Background:** After several years of successfully delivering a series of workshops to facilitate the incorporation of interprofessional collaboration (IPC) into practice, an interprofessional group of faculty developed an abridged version using online technology. This approach enabled well-tested, valuable content to be delivered in a less resource intensive and time-consuming manner.

**Summary of Work:** The online module series was designed to enhance participants' ability to practice collaboratively; and overcome logistical barriers of face-to-face CPD delivery. Based on the Canadian Interprofessional Competency Framework, the series includes one module for each of the competency domains and one introductory module that reviews evidence for IPC.

**Summary of Results:** The online series of modules has been pilot tested with 223 participants. Feedback gathered through an online survey has informed revisions to the modules. The modules now have over 1,200 users across a variety of settings. A follow-up survey evaluated how the modules have been implemented and their impact on practice.

**Discussion:** The modules have been used in the following ways: as preparation for practice placements with pre-licensure students; to deliver content in advance of interactive CPD session focused on IPC; and as part of broader practice-based initiatives. Users indicate the modules have the ability to improve their collaborative competencies.

**Conclusion:** The 'IPC on the Run' online module series uses short, user-friendly, online modules to facilitate improved collaboration in the clinical setting by a wide range of health professions. It is cost-effective, sustainable and flexible. It can be used as a standalone interprofessional learning opportunity or to enhance other interprofessional CPD.

**Take Home Messages:** The "IPC on the Run" online series is a viable method for teaching about competencies for interprofessional collaborative practice. It is an innovative, sustainable way to deliver interprofessional education concepts in both classroom and practice settings. As such it has great potential to enhance collaborative practice among the health professions.

#904 (133517)

**Professional Paradigms and Interprofessional Education: Theorizing Professional Conflicts and Congruencies through Cultural Historical Activity Theory**

*Renate Kahlke\*, University of British Columbia, Vancouver, Canada*

**Background:** The field of interprofessional education is populated with conversations about the conflicts and congruencies between the values and paradigms of different health professions. However, there is a need to better theorize how these tensions are produced.

**Summary of Work:** This presentation draws on results from a qualitative study, employing constructivist grounded theory techniques, that looks at how educators in medicine, nursing, pharmacy and social work construct unique understandings of what "critical thinking" means. "Critical thinking" is imbued with the values of each educator and each professional group.

**Summary of Results:** This study used cultural historical activity theory (CHAT) to examine tensions between different understandings of critical thinking, seeing them as situated in activity systems that overlap and conflict. Each activity system is oriented around particular rules, cognitive and structural "tools," and objects or orientations. These systems correspond with professional group, but also with the practice, institutional, and personal contexts in which educators live and work.

**Discussion:** CHAT offers a useful tool for theorizing tensions between the values of educators from different professional groups. Contradictions in values can be theorized productively; learning and change are produced through tensions in meaning-making approaches both within and between systems.

**Conclusion:** CHAT offers a way of looking at how overlapping systems add complexity to each paradigm – educators engage with multiple systems simultaneously, including practice (such as geriatrics) or personal context that overlap and destabilize meaning making within each professional group.

**Take Home Messages:** CHAT can be used to theorize the complex ways in which educators in different health professions produce meaning. Different professional groups do not produce single static paradigms and values; rather, meaning is constantly produced and reproduced as individuals interact with various shifting activity systems.

**#905 (135754) (Postgraduate Travel Award Winner)**  
**Towards New Models of Care: Developing a curriculum for interprofessional mental health training**

**Chris Attoe\***, Maudsley Simulation, London, UK  
Zainab Jabur (Maudsley Simulation, London, UK)  
Mary Lavelle (Maudsley Simulation, London, UK)

**Background:** Interprofessional training remains rare in mental health and psychiatry, yet this is an ideal area to benefit from this approach. Traditionally clinicians from various specialities have trained 'in silos', with knowledge expansion the focus rather than experiential team-based learning. There is no unifying mental health curriculum to meet training needs of healthcare workforces, particularly in light of New Models of Care. A move towards reducing traditional barriers between disciplines, and more collaborative patient-focused care, must be reflected in training strategies as well as service structure.

**Summary of Work:** A literature, strategy, and policy review identified best practice in interprofessional training for mental health. A scoping exercise collected current training plans for mental health across professions, mental health trusts, primary care and others within Community Education Provider Networks. Focus groups were held with key stakeholders across professions, trusts, and institutions to further develop the curriculum structure and pilot ideas. The curriculum was drafted and reviewed with local education leads, before being finalised.

**Summary of Results:** The final interprofessional mental health curriculum presents a clearly structured, innovative approach to mental health training applicable to all professions and organisations, with an interprofessional focus aiming to facilitate the transition to New Models of Care and improved patient experience and outcomes.

**Discussion:** The structure and content of the curriculum was designed for maximum utility in guiding the education around mental health of healthcare professionals working in the New Models of Care systems. Feedback received so far has been positive.

**Conclusion:** We hope that this curriculum will be adopted by local education leads and departments, and will have significant wide-reaching impact on mental health training and subsequently patient care.

**Take Home Messages:** The importance of human factors and values-based healthcare in designing an interprofessional mental health curriculum for new models of care.

**#906 (135345)**  
**Addressing Child Oral Health Inequalities: Doctors & Dentists Learning Together**

**Ben Holden\***, Imperial College Healthcare NHS Trust, London, UK  
Victor Gehani (Health Education England, London, UK)  
Elizabeth Jones (Health Education England, London, UK)  
Claire Robertson (Public Health England, London, UK)  
Robert Klaber (Imperial College Healthcare NHS Trust, London, UK)  
Mando Watson (Imperial College Healthcare NHS Trust, London, UK)

**Background:** Children's oral health in England is a serious public health issue. One third of five-year-olds are suffering from tooth decay, there are significant regional inequalities, and it is the most common reason for elective childhood hospital admissions. Children are admitted for multiple tooth extractions under general anaesthetic, despite dental decay being almost entirely preventable. Through the 'Connecting Care For Children (CC4C)' model hospital paediatricians and general practitioners (GPs) currently participate in joint clinics and multidisciplinary team meetings in community practices across North-west London. In these CC4C 'Hubs' we piloted an initiative that aimed to provide consistent and accurate oral health messages to families in local communities and create an integrated multi-disciplinary and collaborative educational network between dental and medical trainees, and allied health professionals.

**Summary of Work:** Recently qualified dentists and doctors attended child oral public health teaching sessions and CC4C Hubs before producing written reflections of their experiences. The initiative was evaluated by questionnaires assessing their level of confidence (on a scale of 1–5) with the relevant dental training curriculum competencies. Semi-structured focus groups after the initiative and a review of the participants reflections sought qualitative feedback from participants.

**Summary of Results:** The mean score of the 1-5 confidence in dental curriculum competency questions rose from 4.07 to 4.34 after the initiative. Using thematic analysis, we coded the qualitative feedback into five main themes: 1. Cross-disciplinary learning 2. Experience outside normal clinical practice 3. Delivering the oral health message 4. Challenges of integration 5. Practical issues

**Discussion:** Participants found the initiative enjoyable and beneficial to their learning and highlighted key challenges to integration between professionals.

**Conclusion:** CC4C increased participants understanding of child oral public health issues, and participation will influence the professionals future clinical practice.

**Take Home Messages:** Connecting Care for Children provides a valuable opportunity for cross-disciplinary learning and integrated child public health experience for doctors and dentists.

## **9P Short Communication: Feedback**

Location: MR 123 – P1

**#9P1 (135702)**

**Feedback as a tool to achieving clinical competence in postgraduate medical doctor training**

**Veena Singaram\***, University of KwaZulu-Natal,  
Durban, South Africa  
Chauntelle Bagwandeen, University of KwaZulu-Natal,  
Durban, South Africa

**Background:** Doctors in post-graduate training require adequate feedback about current performance in order to better achieve clinical competence. Feedback may be defined as 'information provided by an agent regarding aspects of one's performance', implicitly with the aim of impacting on improvement. In combining instruction with constructive criticism which incorporates an improvement plan, the process moves beyond an evaluative assessment to a correctional review.

**Summary of Work:** In order to investigate the value of giving and receiving feedback in postgraduate medical education, a study was conducted to determine the perceptions of all registrars and consultants in the six major clinical training programmes at the Nelson R. Mandela School of Medicine about the quality, efficacy and effectiveness of feedback.

**Summary of Results:** While registrars agreed that feedback was important to their clinical prowess they identified the need for more formalized processes to be implemented, in line with a clear operational definition of feedback. Perceptions of the quality of feedback received differed across disciplines. Registrars disagreed with the consultants' views that feedback was provided in all encounters with consultants, and that this feedback was well received and covered most aspects of required skills and graduate competencies. Consultants concurred that feedback was integral to postgraduate training, but cited lacking the appropriate competency in providing feedback, fear of being perceived as racist or sexist, heavy clinical loads and decreased availability of support structures as impediments to the process.

**Discussion:** Inadequacy of feedback, dissatisfaction with the process, training needs in provision of feedback and responses to feedback were identified as areas that impede provision of appropriate feedback. The resource constrained setting as well as the legacy of demographic and socio-economic differences from the apartheid era contribute to the difficulties.

**Conclusion:** A critical cornerstone to ensuring well trained, clinically competent registrars is the way in which feedback is mutually given and received by faculty and students. Elements of feedback should therefore be well defined, and appropriate interventions implemented to ensure compliance with meeting a defined standard, in the study setting.

**Take Home Messages:** Feedback is regarded as an essential component of medical education in order to produce competent postgraduate doctors. Training

institutions must endeavour to overcome obstacles to appropriate provision of feedback.

**#9P2 (133716)**

**Residents' and clinical teachers' perceptions of influential factors for feedback provision in a real-life busy emergency department**

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Yu-Che Chang (Chang Gung Medical Education Research  
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Hsuan-Ruey Yu (Chang Gung Medical Education  
Research Center, Taoyuan, Taiwan)

Lynn Monrouxe (Chang Gung Medical Education  
Research Center, Taoyuan, Taiwan)

**Background:** Feedback is an effective pedagogical tool in clinical teaching and learning, but little is known about the process of feedback in a real-life hectic clinical setting, such as the emergency department (ED). This study aimed to investigate the influential factors of feedback provision in the ED as perceived by residents and clinical teachers.

**Summary of Work:** This qualitative semi-structured interview study was conducted between August 2015 and June 2016. The participants were 20 attending physicians and 20 residents recruited by purposive sampling from the ED. Data were analyzed using thematic analysis with open coding approach.

**Summary of Results:** Data collection and analysis are still ongoing. Several major themes have been identified from the analysis so far: (1) variability in feedback approach - teachers varied in feedback styles, learners varied in feedback-seeking mannerisms, and the daily random teacher-learner encounter makes the adjustments to each others' style more complicated; (2) Balancing patient safety and student feedback - EM clinical teachers must carefully choose their moments for timely feedback to EM residents, while considering the issue of patient safety; (3) lack of protected space - interruptions during feedback are common; and (4) lack of reward systems for clinical teaching excellence.

**Discussion:** Despite that clinical teachers and learners recognizing the importance of feedback provision in ED training, teachers encountered difficulties while giving feedback. Strategies to facilitate feedback in a real-life hectic clinical setting should be developed accordingly.

**Conclusion:** This study provided in-depth information about the factors affecting feedback provision in a busy ED from the perspective of residents and clinical teachers.

**Take Home Messages:** Strategies to overcome the variety of feedback approaches need to be developed, and time and place should be reserved to facilitate feedback provision.

#9P3 (135872)

**What is the relationship between students' non-verbal behavior during feedback dialogues and their self-efficacy, satisfaction and performance after receiving feedback?**

*J.M.Monica van de Ridder\*, College of Human Medicine  
Michigan State University, Grand Rapids, USA  
Jorinde M. Beerens*

**Background:** In daily life a lot of information is retrieved unconsciously by observing non-verbal behavior. In feedback dialogues we assume that learners' non-verbal behavior gives information about the reception of the feedback. Because of ambiguity, non-verbal behavior of learners is not easy to interpret: they may smile when they are insecure but also as a response to someone else's smile. This raises the point whether or not it is worth to focus on learner's non-verbal behavior during the feedback process. The central question in this study is: What is the relationship between students' non-verbal behavior during a feedback dialogue and their satisfaction with the feedback process, their self-efficacy regarding a task, and their task performance after receiving feedback?

**Summary of Work:** Second year medical students (n=278) performed Weber and Rinne's tuning fork test. They repeated the task after receiving feedback. We measured students' satisfaction with the feedback process, their self-efficacy regarding the tuning fork test, and their task performance. The task performance and the feedback dialogue were videotaped and rated with observational checklists. 3-4 Non-verbal behavior includes for example body posture, eyecontact, smiling and self-comforting behavior. Linear regression models were carried out to answer the research question.

**Summary of Results:** We found a significant effect of body posture on student's satisfaction regarding the feedback process ( $F(2, 194)=4.46$   $p<.05$ , and their self-efficacy score regarding the tuning fork test ( $F(2, 194)=6.89$   $p<.05$ . Students with an open posture had higher self-efficacy than students with closed posture. These students are also more satisfied with the feedback process.

**Discussion:** Giving them more attention could increase their self-efficacy, and this might affect their performance. However, posture did not predict student's actual performance. We did not find a relationship between other non-verbal behavior and outcome variables.

**Conclusion:** Observing body posture might be helpful for feedback providers in identifying students with low self-efficacy.

**Take Home Messages:** Observing students during the feedback dialogue reveals useful information.

#9P4 (133953)

**Introducing a feedback OSCE for junior medical students; quality of feedback and student perceptions**

*Rob Lane\*, Leeds Institute for Medical Education,  
Leeds, UK*

*Joseph Gleeson (Leeds Institute for Medical Education,  
Leeds, UK)*

*Richard Fuller (Leeds Institute for Medical Education,  
Leeds, UK)*

*Gail Nicholls (Leeds Institute for Medical Education,  
Leeds, UK)*

**Background:** Within undergraduate medicine programmes, OSCEs are well-established tools for assessment of clinical performance, but their predominant use as summative 'assessments for progression' can neglect opportunities to capture feedback. This paper reports the initial outcomes from a formative OSCE focused on feedback for junior (Year 2) students as a way of providing feedback to help consolidate learning at the end of their initial clinical experience, and to help facilitate transition into more formal clinical rotations.

**Summary of Work:** Our new feedback OSCE (fOSCE) was planned around an assessment for learning (AfL) model, with the traditional OSCE checklist replaced by a narrative based format anchored against an 'expectations of practice scale' rather than numerically based checklists. All students received feedback within 3 weeks generated from the new narrative scoring system.

**Summary of Results:** All narratives were analysed for common themes and quality of feedback. This analysis has been further sensitized by interviews to elicit the views of students on the fOSCE, and to determine the impact of their feedback on their clinical skills development and their history and examination improvement during their next rotations. Lessons from the implementation and the feedback format will be shared. Thematic data from the interviews will be presented.

**Discussion:** Learning from the design, delivery and analysis will be discussed, focusing on the impact on the developing skills of students. The role of assessment for learning as a driver for improving skills will be discussed against the background of the findings.

**Conclusion:** The work involved in setting up a fOSCE is justified in light of the rich, timely feedback students obtain.

**Take Home Messages:** Students are seeking more feedback in terms of volume and quality. This need can be met within the AfL model by a fOSCE using a narrative based format of feedback.



#9P5 (134059)

**How do medical students use formative assessments for learning?**

*Cynthia Min\*, University of British Columbia, Vancouver, Canada*

*Renate Kahlke, University of British Columbia, Vancouver, Canada*

*Dan Pratt, University of British Columbia, Vancouver, Canada*

*Deborah Butler, University of British Columbia, Vancouver, Canada*

*Kevin Eva, University of British Columbia, Vancouver, Canada*

**Background:** Despite students' desires to learn and educators' desires to enable learning, there is often a disconnect between what educators intend from an educational exercise and how students engage with it. We conducted this study to advance understanding of how students learn from assessments that are intended to be formative and what factors influence such use.

**Summary of Work:** Using principles of constructive grounded theory, 15 first year medical students were interviewed about their experiences learning through a formative Objective Structured Clinical Examination (OSCE); students received immediate feedback from the examiner after each station.

**Summary of Results:** Preliminary results show that student characteristics, such as their personal goals, influenced how students used the OSCE for learning. Among a variety of learning goals were desires to understand the logistics of the OSCE itself as well as to understand whether their courses or personal learning technique offered adequate preparation for the OSCE. Characteristics of the assessment environment, such as the focus of the feedback from the examiner, also influenced how students used the assessment for learning. Some examiners focused on helping students improve subsequent OSCE performances whereas others focused on helping students improve their clinical skills.

**Discussion:** Using a self-regulated learning lens, the results are interpreted as indicating students' metacognition, strategic actions, and motivation to learn will impact upon how they engage with educational opportunities that are provided by faculty for the sake of student development.

**Conclusion:** How formative assessment is used for learning varies across students and can be influenced by both student and environmental characteristics.

**Take Home Messages:** When imagining the benefits that formative assessments might provide, educators need to take into account the influence of both students' personal goals and the qualities of the assessment environment.

## 9Q Short Communication: Assessment in Postgraduate Education

Location: MR 124 – P1

#9Q1 (133783)

The ENT OSCE: How well do residents perform?

*María de las Nieves Ganiele\*, Instituto Universitario del Hospital Italiano de Buenos Aires, Buenos Aires, Argentina*

*Gabriela Perez Raffo*

*María Dolores Arceo*

*Eduardo Durante*

**Background:** Ear, nose and throat (ENT) problems are very common in Primary Care (PC). However, studies about the competence of PC residents to diagnose and manage ENT problems are lacking. The objective is to assess the competence to diagnose and manage prevalent ENT problems in medical residents of PC by implementing an OSCE.

**Summary of Work:** We identified the prevalent ENT problems with a “Delphi” method including ten PC experts. A blueprint was defined to design the stations that included standardized patients and simulators. The OSCE included 2 six-station circuits: one with ENT problems in Pediatrics and the other, in Adults. Two stations, with adolescent ENT problems, were used in both circuits. Standard setting was calculated by the borderline group method. A post examination meeting was planned to provide feedback. A total of 25 PGY 3 and 4 residents from Family Medicine (n= 8), General Internal Medicine (n=10) and Pediatrics (n=7) voluntarily participated.

**Summary of Results:** The global Cronbach’s alpha coefficient was 0.70 (pediatric circuit= 0.56 and adult circuit= 0.64). In the pediatric circuit, the mean score of FM residents was 63.21% and pediatrics residents’, 67.38% (p= ns); in the adult circuit, FM residents mean score was 64.22%, and GIM’s, 55.80% (p=0.02). A passing score of 55.77% was obtained for the pediatric circuit and, 55.55%, for the adult circuit. Six GIM residents did not pass the adult circuit. All FM and pediatrics residents passed the OSCE.

**Discussion:** The common stations were passed by all the residents. The lowest scores were obtained in the procedural station of epistaxis and sinusitis (failure rate= 68% and 36%, respectively). Competence of PC residents in managing ENT problems is possible to be improved, especially in procedures. More intensive training is necessary.

**Conclusion:** Family Medicine and Pediatrics Residents perform better than General Internal medicine Residents in diagnosing and treating ENT in Primary Care.

**Take Home Messages:** The ENT OSCE is feasible and reliable. More intensive training in ENT problems in PC is necessary.

#9Q2 (128043)

Evidence-guided self-assessment and reflection: A novel use of a benchmark examination

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*Shirley Schipper (University of Alberta, Edmonton, Canada)*

*John Chmelicek (University of Alberta, Edmonton, Canada)*

*Denise Campbell-Scherer (University of Alberta, Edmonton, Canada)*

*Shelley Ross (University of Alberta, Edmonton, Canada)*

**Background:** Benchmark examinations are standardized assessments that are extensively used in US and some Canadian residency programs. In our Family Medicine program, the benchmark examination was introduced in 2009 and has been used in a formative way to aid academic programming and as an opportunity for residents to engage in self-assessment and reflection on their performance and knowledge.

**Summary of Work:** The purpose of this study was to examine the relationship between internally derived perceptions of one’s performance and the actual performance on the benchmark examination. Six years of data from 555 Family Medicine residents, who participated in a benchmark examination in their first and/or second years of residency at a Canadian university, were used in the Generalized Estimating Equations (GEE) analyses. Residents filled out a questionnaire before and after writing the benchmark examination, self-assessing and reflecting on their performance.

**Summary of Results:** Residents’ perceptions of their performance before and after writing the examination were found to be significant predictors of their actual performance on the examination (p<.01), with distinct patterns of stability/changes in residents’ perceptions of their performance before and after writing the examination. Irrespective of residency year, urban/rural background, and residency exposure, Canadian medical graduates performed better than international medical graduates on the benchmark examination (p<.01).

**Discussion:** The benchmark examination, when used as a formative assessment, provides an opportunity for residents to engage in evidence-guided self-assessment and reflection, with the ultimate goal of enabling residents to develop life-long habits in these professional areas.

**Conclusion:** With self-assessment and reflection being important for the successful and safe practice of medicine, creating assessment opportunities for learners to engage in the habits of self-assessment and reflection is the best we can do as educators and regulatory authorities.

**Take Home Messages:** Formative benchmark examinations offer an opportunity for guided self-assessment and reflection.

#9Q3 (134421)

**Validity evidence for using scores from a novel structured clinical observation assessment to inform entrustment decisions about patient handovers**

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Kathleen Wortmann (Uniformed Services University, Bethesda, MD, USA)

Jorie Colbert-Getz (University of Utah, Salt Lake City, UT, USA)

Robert Elander (University of Minnesota, Minneapolis, MN, USA)

Carol Carraccio (American Board of Pediatrics, Chapel Hill, NC, USA)

**Background:** Miscommunications during patient handovers between medical providers can lead to medical errors and patient harm. As a result, the ability to safely handover patients has been identified as an important Entrustable Professional Activity (EPA). Methods to effectively assess learner handover skills to inform entrustment decisions are limited. We designed this study to begin to fill this gap.

**Summary of Work:** Using a modified Delphi process, an expert panel developed a 21-item handover clinical observation tool (HandSCO) informed by behavioral descriptions that two authors created to represent 5 levels of performance (novice, advanced beginner, competent, proficient, and expert). In 2014-2015 trained faculty observers rated 89 pediatric first year residents with the tool during a patient handover OSCE station. We performed a generalizability study (one-facet [item]), decision study, and item discrimination analysis.

**Summary of Results:** The generalizability coefficient for the 21-item tool was 0.87. Residents accounted for most of the variance (77%), followed by the Residents x Items (14%) and Items (9%). Varying the number of items in the decision study suggested that only 12 items were required to maintain a generalizability coefficient  $\geq 0.80$ . Eighteen of 21 items had a point biserial correlation value  $>0.3$ .

**Discussion:** Scores from the HandSCO had very strong internal structure validity evidence and the tool could be shortened to 12 items and still maintain adequate reliability for high stakes decisions. Eighteen items showed good discrimination.

**Conclusion:** The HandSCO tool shows great promise to inform entrustment decision. Additional research is needed to develop a more complete understanding of the validity of this tool, especially in workplace-based assessment.

**Take Home Messages:** Our study demonstrated that the HandSCO tool has great potential to inform entrustment decisions about patient handovers, but more research is needed to establish validity in the workplace setting.

#9Q4 (133294)

**The Use of In-training Practice Simulated Office Orals as a Predictor of Certification Exam Performance in Family Medicine**

**Kendall Noel\***, *University of Ottawa, Ottawa, Canada*

Douglas Archibald (University of Ottawa, Ottawa, Canada)

Carlos Brailovsky (CFPC, Mississauga, Canada)

**Background:** Simulated Office Orals (SOOs) are used by the College of Family Physicians of Canada (CFPC) to evaluate family medicine resident readiness for clinical practice. Demonstrating that final end of training, certification exam performance can be partially predicted by a resident's performance on practice exams conducted during their training, will prove useful for faculty charged with evaluating a resident's readiness for future practice.

**Summary of Work:** A prospective cohort study was used to predict Certification Exam Scores on the oral component of the CFPC's Certification Exam, using scores generated on four practice exam sessions conducted during a 2 year residency training program. Nineteen residents participated in all four-practice SOO sessions. A weighted least square regression analysis was conducted on the data obtained. Progress testing feasibility was confirmed using a repeated measures analysis and generalizability was assessed via a G- Study.

**Summary of Results:** Weighted least square regression analysis using the four practice SOO session scores significantly predicted final certification exam SOO score, ( $p < 0.05$ ), with an adjusted R squared value of 0.29. Repeated measures analysis demonstrated that the residents' scores at each time point were statistically different from each other ( $p < 0.001$ ), and that the relationship over time could be represented by either a linear relationship or a quadratic relationship, ( $p < 0.001$ ). A generalizability study using a Residents crossed by SOOs nested in Time measurement design generated a relative G coefficient = 0.63.

**Discussion:** Our study explained a significant portion of the variance of the marks generated on the oral component of the CFPC certification exam. The repeated measures analysis provided evidence of on going progression and yet, the possibility of the data fitting a quadratic relationship, suggested a plateauing effect, whose inflection point might provide some evidence for attainment of competence on the curve of improving performance, as described by ten Cate.

**Conclusion:** Our results confirm the utility of practice SOOs as a progress test and demonstrate their feasibility to predict final scores on the SOO component of the CFPC's certification exam.

**Take Home Messages:** Practice simulated office orals can be used to measure progression and to help predict performance on the final oral component of the CFPC certification exam. Departments of Family Medicine should look to operationalize the use of practice clinical performance exams as an important component of a program of evaluation.

#9Q5 (134215)

**Testing a feedback model in residency education:  
Does it foster interaction, reflection and planning for  
change?**

*Joan Sargeant\*, Dalhousie University, Halifax, Canada*

*Karen Mann, Dalhousie University, Halifax, Canada*

*Jocelyn Lockyer, University of Calgary, Calgary, Canada*

*Marygrace Zetkovic, Rutgers University, New Brunswick,  
US*

*Sophie Soklaridis, University of Toronto, Toronto,  
Canada*

*Eric Driessen, University of Maastricht, Maastricht,  
Netherlands*

**Background:** New understanding is emerging about feedback and its role in learner development. It is being seen as an interaction in which engagement of supervisor and learner, supportive relationships, reflection, and cooperative planning are important features. In earlier research, we developed an evidence-and theory- based model for physician feedback. The model includes four phases: relationship building, exploring reactions, exploring feedback content, and coaching (R2C2). The purpose of this research is to study the use and effectiveness of the model across varied residency programs.

**Summary of Work:** The research uses case study methodology and includes five cases, each a formal residency program in Canada, United States, or Netherlands. Programs include Family Medicine, Psychiatry, Internal Medicine, Surgery and Anaesthesia. Each case includes up to ten residents and their supervisor(s) who normally provide their routine assessment/ progress reports. The study includes three phases: site assessment and supervisor preparation, R2C2 model testing and model refinement. Data collection includes audiotaping feedback sessions using the R2C2 model, debriefing interviews with residents and supervisors, and completion of learning change plans.

**Summary of Results:** To date (February 2016), two sites have completed data collection and analysis is in progress. Participants per program include 2 supervisors and 10 residents. Data collection for the remaining 3 sites will be completed by April. Themes arising from preliminary analysis include use of the model for a rich two-way discussion about performance data to foster reflection and support coaching, and co-creation of a learning change plan to guide development.

**Discussion:** Initial results demonstrate support of a feedback model which purposely fosters collaborative discussion of performance data, reflection, identification of performance gaps, coaching, and creation of a structured plan targeted toward those performance gaps.

**Conclusion:** Initial results are encouraging and will be confirmed.

**Take Home Messages:** Coaching and co-creating a structure plan for improvement are important activities.



**#9V Conference Workshop: Dealing with bias and other adverse examiner behaviours in live clinical assessments: How to minimise aberrant interactions between examiners, students, topics and standardized patients (135245)**

**Location:** MR 130 – P1

**Richard Turner\***, University of Tasmania, School of Medicine, Hobart Clinical School, Hobart, Australia  
**Michael Beresford\***, University of Tasmania, School of Medicine, Hobart Clinical School, Hobart, Australia  
**Neil Sefton\***, University of Tasmania, School of Medicine, Hobart Clinical School, Hobart, Australia

**Background:** OSCEs are a widely used assessment tool for high-stakes summative assessment in medical education, guided by rating instruments, with standardized patients (SP) also frequently playing a part of the performance-based assessment. Examiners primarily have the responsibility for observing and recording student performance from an objective position. It is considered critical that the scores generated by the rating instruments be valid and that raters be well trained and capable of generating valid and reliable scores. For the examiner and OSCE quality assurance process, an appreciation of examiner influence and bias on outcomes is paramount to help maintain the principles of good assessment.

**Structure of Workshop:** This 90-minute workshop is designed to engage participants in a QA exercise to identify examiner behaviours that may produce unwanted variance in assessment item scores. The structure will follow a scaffolding approach. After an introductory presentation, two short video vignettes will be shown to illustrate examiner behaviours that may impact assessment outcome. This will be followed by a discussion and brainstorming session to distil key points for incorporation into examiner training packages. Three expert presenters will facilitate discussion and group work, in order to identify areas within the OSCE assessment process that leads to adverse assessor variance.

**Intended Outcome:** By the end of this workshop participants will be able to: • Identify potential examiner variances that impact outcomes in OSCE assessments. • Reflect on their role and behaviour as examiner and/or SP trainer as a source of potential bias and adverse influence. • Develop strategies to overcome examiner variance that can be used for training purposes.

**Who Should Attend:** The workshop is designed for all examiners and examiner/SP trainers engaged in OSCEs.

**Workshop Level:** All levels

**#9W Conference Workshop: Developing inter institutional, reliable standards for assessing professional behaviour in medical undergraduates, and developing interventions for students breaching professional standards (134760)**

**Location:** Mr 131 – P1

**Judith Ibison\***, St George's University of London, London, UK  
**Nicoletta Fossati\***, St George's University of London, London, UK

**Background:** St George's (SGUL) has implemented a summative professionalism assessment in medical undergraduates since 2007. Assuring uniform standards for professional behaviour, at different stages of their training, is challenging. Furthermore, developing appropriate interventions for unprofessional behaviour is complex: requiring consideration of student behavioural trajectory; nature of behavioural breach; student insight; context and any mitigation. SGUL has five years' experience of systematically making such judgements in clinical students: triangulating information from students, clinical assessors and external independent advisors to make reliable judgements. SGUL has also developed a systematic approach to student remediation. The aim of the workshop is to develop international discussion of stage specific standards of professional behaviour for students, and management of common professional breaches, in medical student undergraduates.

**Structure of Workshop:** 0-20 mins: Audio-visual presentation: Programmatic assessment of professional behaviour in medical undergraduates. 20-45 mins: Small Group Work. Typical student case vignettes, of varying severity of breach, stage of student, and trajectory, will be discussed in small groups, to establish pass/fail standards. 45-60 mins: Discussion of management of case vignettes. Do we have shared standards between universities for managing professionalism breaches? 60-75 mins: Introduction to remediation: Audio visual presentation on theoretical approaches to remediation, in medical students exhibiting poor professional behaviour. 75-90 mins: Whole group discussion of the potential remediation options, and monitoring for students in the case vignettes, with consideration of required resource.

**Intended Outcome:** The workshop aims to develop shared practice with respect to reliable, stage specific international standards of professional behaviour for medical undergraduates, and develop a systematic shared approach to managing students who repeatedly exhibit unprofessional behaviour.

**Who Should Attend:** Educators interested in, or responsible for, the assessment of professional behaviour in medical students. Educators responsible

for the management of those students who exhibit unprofessional behaviour, who may be students in difficulty.

**Workshop Level:** All levels

### **#9X Conference Workshop: Simply create, edit, and share learning videos using iMovie (free iOS app) (134645)**

**Location:** MR 132 – P1

**Noviarina Kurniawati\***, Dept. of Medical Education, Faculty of Medicine, Universitas Gadjah Mada, Yogyakarta, Indonesia

**Widyandana Widyandana\***, Dept. of Medical Education, Faculty of Medicine, Universitas Gadjah Mada, Yogyakarta, Indonesia

**Background:** Students' overexposure to multimedia technology and information sources changed students learning and attention pattern. It is a challenging circumstance where students are more easily engaged to multimedia learning resources. With the flourishing e-learning and mobile learning, the demand for web-compatible multimedia learning resources also increases. However, making a multimedia learning material can be challenging in terms of technical complications, budgets, and time availability. Technology rise, on the other hand, also brings opportunity to simplify these processes. Internet and social media has become an important part of everybody's life. Telecommunication companies spoils mobile phone with high quality camera embedded in their phone, along with user-friendly multimedia applications to enable them making and sharing a multimedia entry in a simple way. This workshop aims to encourage participants using these features to support their teaching and learning activities, i.e. developing a simple learning video using one of the widely used multimedia application.

**Structure of Workshop:** - Overview of the workshop (15 min): Providing big pictures of the objectives of the workshop, sample viewing & short explanation on the technical steps required - Group work: Hands-on concepts & storyboard development (30 min) - Presentation & feedback for concepts & storyboard (15 min) - Group work: Filming & editing (30 min) - Presentation & feedback for edited film (15 min) - Wrap up (5 min)

**Intended Outcome:** Attendees are exposed to the experience in using a simple multimedia application to create a multimedia learning material, e.g. clinical procedural skills video or PBL trigger scenario. Discussion about contextualization and potential use of this experience is expected to emerge during the workshop

**Who Should Attend:** Clinical teachers, skills lab instructors, and teachers in general. Participants are required to bring their smartphones.

**Workshop Level:** Introductory

### **#9Z Conference Workshop: Successfully Implementing Virtual Patients in the Curriculum (134437)**

**Location:** MR 134 – P1

**James McGee\***, University of Pittsburgh School of Medicine, Pittsburgh, USA

**Nancy Posel\***, McGill Faculty of Medicine, Montreal, Canada

**David Fleiszer\***, McGill Faculty of Medicine, Montreal, Canada

**Background:** This workshop will provide educators with the knowledge and skills to implement online interactive cases (virtual patients, VPs) that teach and enhance clinical reasoning skills. VPs allow individuals and groups of healthcare learners to engage with realistic, relevant screen-based clinical scenarios that support deliberate practice (Cook and Triola) through hypothesis generation, problem-solving, and clinical decision-making (Eva) and thus develop clinical reasoning skills. VPs can provide active learning experiences over a range of clinical situations to meet specific competency, regulatory, and accreditation requirements (Lang, Kogan, Berman, and Torre).

**Structure of Workshop:** Duration: 120 minutes  
Interactive large group discussion: 40 minutes  
Workshop facilitators will review two collections of VP cases from their own schools; review the case development and implementation process; highlight 'lessons learned' and outcomes, both positive and negative. Small group activity: 30 minutes In small groups participants will seek answers to the following:  
1. Where, when and how should VPs be integrated within the curricula of your school? 2. How can VPs provide a solution to existing educational need? 3. How you can align VP cases to meet student and institutional core competencies and objectives? 4. How can VPs be used to meet accreditation and regulatory requirements? 5. How do the 'lessons learned' relate to participant's individual school's implementation challenges? Discussion: 30 minutes  
Small groups will present their solutions while facilitators encourage solutions that define the role of VPs within the curricula and local culture. Debrief and reflect, large group session: 20 minutes Group will create an outline of key "take home points" for using VPs to 1) meet specific curricular and institutional needs; 2) introduce and implement into a curriculum, 3) manage institutional challenges.

**Intended Outcome:** Participants will have the knowledge and tools to successfully establish a VP program at their own institution.

**Who Should Attend:** Health sciences educators, curriculum designers, simulation specialists

**Workshop Level:** Introductory

**#9AA Conference Workshop:  
Communication Matters: blending a  
comprehensive series of e-learning  
courses and face-to-face workshops  
(134123)**

**Location:** M 215 + 216 – M2

*Diana Tabak\**, University of Toronto, Toronto, Canada  
*Kerry Knickle\**, University of Toronto, Toronto, Canada  
*Carine Layat Burn\**, University of Applied Sciences,  
Neuchatel, Switzerland

**Background:** Developing holistic competence in real practice settings, in the areas of communication, collaboration and professionalism requires action, practice, self reflection, self-knowledge. Blending Communication Matters, a comprehensive series of e-learning courses and face-to-face activities provides a wide range of opportunities to improve and hone these complex abilities in a learner supportive way without disrupting actual patient interactions. Communication Matters is a series of on-line courses designed to provide a window into the health system and public expectation. Threaded throughout each course are video scenarios and brief learning activities that cover a vast array of important and relevant clinical topics. Communication challenges are continually emphasized. Effective skills and techniques are demonstrated that can improve an interaction – whether personal or professional. A wealth of resources in the form of interviews with opinion leaders, additional readings and video links are provided. Topics include, Teamwork, Conflict, Palliative Care, End of Life, Caring for the Elderly, Pain, LGBTQ and Canadian First Nations. The courses are in English and French and are freely available thanks to funding from the Ministry of Health and Long Term Care and Health Canada. Communication Matters was originally aimed at internationally educated health professionals. We have learned that they are a useful resource to anyone interested in understanding more about the intricacies of communication and professional behaviour. The e-learning activities can be further enhanced with face to face workshops that allow participants to practice, explore, hone and/or maintain their communication skills. The workshops can be tailored to individuals, groups, or institutions for all levels of trainee as well as continuing education and faculty development.

**Structure of Workshop:** Part 1: A guided, collaborative exploration of courses in Communication Matters. Participants will identify areas of interest to pursue. Reflection and discussion. (50 minutes) Part 2: Participants will consider the design of interactive educational face-to-face sessions to reinforce e-learning activities in a confidential and supportive environment to explore and improve. (50 minutes) Part 3: Large group debrief. (20 minutes)

**Intended Outcome:** This interactive session blends superb quality video of clinically relevant, challenging

scenarios and live experiential activities. Participants will: • Explore a comprehensive resource of e-learning modules • Understand how to design a blended e-learning and simulation based learning activity • Identify ways to integrate a blended communication focussed learning approach into the curriculum • Better understand engaging with simulated patients and feedback to enhance communication skills teaching and learning

**Who Should Attend:** We invite any and all faculty and educators working in simulation based education, engaging with simulated patients and/or with a teaching focus on communication and behaviour. Accessible from beginner to advanced levels.

**Workshop Level:** All levels

**#9BB Conference Workshop: Essential  
Leadership Skills for Emerging Leaders  
in Medical Education (134058)**

**Location:** MR 128 – P1

*Jerry Maniate\**, St. Joseph's Health Centre / Wilson Centre, University of Toronto, Toronto, Canada  
*Jamui Busari\**, Maastricht University, Maastricht, Netherlands

*Margaret Kennedy\**, The Royal College of Physicians & Surgeons of Canada, Ottawa, Canada

**Background:** Most physicians enter into clinical practice and are tasked with faculty responsibilities with little or no formal educational training. Likewise, most individuals who take on education leadership roles in universities, departments or hospitals, do so with little or no formal leadership training. In both cases, these individuals must work between and within complex organizations, multiple layers of administration, financial constraints, business plans, and a glossary of new terms such as “return on investment”. Many program directors and education leaders assume leadership responsibilities with often inadequate skill development. While steps have been taken to introduce leadership concepts in residency education, there is still a need to create new opportunities to provide focused professional development for new and emerging education leaders.

**Structure of Workshop:** 1) Introductions 2) Differences between the leader and manager activities of an education leader 3) Group discussion regarding the key leadership skills 4) Key steps for effective leadership 5) Summary

**Intended Outcome:** At the end of the workshop, participants will be able to: 1) Understand the difference between the role of leader and manager 2) Identify key leadership skills for program directors and education leaders 3) Identify challenges facing program directors and education leaders 4) Identify solutions to the challenges

**Who Should Attend:** New and emerging program directors, education leaders, and clinician educators

**Workshop Level:** Introductory



## 9CC Posters: Medical Education in Difficult Circumstances

Location:

#9CC01 (126489)

Cinema in new medical schools to incorporate active methodologies and the intercession of contents: Brazil's experience

**Judith Pinho\***, Federal University of Maranhão, São Luís, Brazil

Anne Karine Martins Assunção

Graciomar Conceição Costa

Mayara Cristina Pinto da Silva

Camile Gonçalves Amorim

Yago Galvão Viana

**Background:** The lack of medical training is clear, since a large part of the professionals resulting from this reality does not meet the demands of the population and thus a curriculum divided into basic and professional areas, fragmented into disciplines, has been redesigned. In this direction, the active methods have been constituted as a healthy alternative, to allow the promotion of the desired relationship between the university and the service.

**Summary of Work:** After the end of two cycles of the three that make up the semester, the teachers responsible for different modular components proposed a reflective activity from the movie "Dallas Buyers Club" in which different aspects have worked in contents related to ethics, microbiology, parasitology, pharmacology, immunology, psychology and epidemiology have been recognized by the students in a subsequent dialog to display the work. The film and discussion is encouraged other situations problems to be discussed in the classroom.

**Summary of Results:** Besides observing the applicability of the contents in practice, the students could realize the importance of working knowledge in an integrated way to trace treatment strategies in professional practice, and reflect on the doctor's attitude in delicate situations, always observing the code of professional ethics.

**Discussion:** The experiences of the Federal University of Maranhão - Campus Pinheiro's medical school students to conduct teaching and learning activities in problem-based education proposal, to realize the importance of scientific knowledge and its application in the doctor practice.

**Conclusion:** The methodology allows the integration of curriculum planning among teachers.

**Take Home Messages:** Curriculum integration is fundamental for better teaching and student performances and the use of cinema can be a strategic for this.

#9CC02 (127748)

Role play with input from a lawyer helps to teach physician-patient communication and aids learning about legal matters

**Chih-Hung Chen\***, Kaohsiung Chang Gung Memorial Hospital and Chang Gung University College of Medicine, Internal medicine, Kaohsiung Hsien, Taiwan  
Ching-Jung Hsieh

Li-chueh Kuo

Ber-Ming Liu

Meng-chih Lin

Yong-Chang Xiao

**Background:** Living under the threat of non-decriminalization of medical malpractice, physician-patient communications and legal problems are still the most stressful issues for medical students during their daily clinical work. From many aspects of evaluation such as 360 degree evaluation, mini-CEX, milestones and the OSCE, communication skill is the area most in need of improvement, especially the interactions between physician and patient.

**Summary of Work:** Since August 2015, around 12-15 students were enrolled in each echelon, 6 of them were chosen to play the role of patients, while the rest were physicians. A drama acting program was initiated. A local district prosecutor was invited as a commentator to provide simultaneously a guide and suggestions for the students. A questionnaire was developed to determine the course effectiveness and student satisfaction.

**Summary of Results:** 1. "Most beneficiary points for self-awareness". "Preserve lawsuit (50%)", "detail records (25%)", "audiotaping not effective (19%)". 2. Acknowledge audiotaping is illegal, but decline" (67%). 3. Avoid improper message under audiotaping, refer to attending physicians (67%). 4. 90.7% course satisfactory, "refer to specialist" (92.5%).

**Discussion:** Questionnaire data clearly established that the students' main focus is lawsuit matters. The most plausible reasons are that (1) only the attending physicians can explain the patient's condition, so let the VS do their job", (2) afraid without proper explanation of the patient's condition, it might cause VS trouble later, (3) afraid that audiotaping and lack of mutual trust, and improper communications might result in worse physician-patients relationship.

**Conclusion:** Law specialist provides simultaneously comments to elicit multiple directional discussions, but not to deviate from the original purposes and goal too much. The "most beneficiary points for student self-awareness" is valuable teaching material. Together with comments made by law specialists, we are able to adjust future teaching directions and provide learning efficiency.

**Take Home Messages:** Living under non-decriminalization conditions for medical malpractice, this course allows physician to access the law profession during formative education. Based on both law and medical professionalism it encourages a better physician-patient mutual communication skill to gain greater learning efficiency. Video playback,



important notes taken, points collecting, mutual feedback and comments help students to learn the topic.

#9CC03 (129089)

**Medical Education in rapidly growing economies - from faculty development to a Masters programme**

**Fabian Jacobs\***, Ludwig-Maximilians Universität München, Munich, Germany

Martin Fischer

Abraham Haileamlak Mitike

Tsedek Asaminew Alemu

Matthias Siebeck

**Background:** There is the pressing need to scale up the education and work force of health professionals in the training institution and health facilities, and transform the health professional education in rapidly growing economies due to increased public expectations in healthcare and societal trends towards increased accountability. Moreover, these are done in the context of limited resources and hence compromising the quality of graduates. The solution lies with a collaborative, need-based approach involving major stakeholders such as medical educators, involved ministries, planners and policymakers.

**Summary of Work:** Jimma University in Ethiopia and the Center for International Health, Ludwig Maximilians-Universität (CIHLMU) in Munich have conducted multiple faculty development workshops from one week to four weeks duration in Munich, Africa, Asia and Latin America. The overall goal is to train scientists to become excellent teachers, researchers, multipliers and change agents in the field of medical education and to enable medical teachers to develop locally applicable medical teaching methods.

**Summary of Results:** More than 100 key staff members from all participating partner institutions of the Center for International Health have been taught following a train-the-trainer approach. The course offered various modules related to teaching and students' assessment including problem based learning. Surveys among all participants demonstrated the relevance and outcomes of the courses. This approach emerged as a best practice example for development of a Masters of Health Profession Education at Jimma University, Ethiopia.

**Discussion:** Due to the rising importance of sustainable solving approaches to support for local higher education institutions, it is crucial to promote the development of faculties in DCs. By strengthening local opportunities for faculty staff the education system will benefit on different levels and brain drain will be reduced. This is particularly important in regard to medicine and medical education.

**Conclusion:** In future a cornerstone of excellent medical schools will be a transnational approach in which internationalization is integrated and embedded within a curriculum and involves collaboration

between a number of schools in different regions and countries (Harden, 2006)

**Take Home Messages:** The new MHPE program at Jimma University will qualify scientists and offer an opportunity to participants for a career in research and teaching in their native countries, to implement innovations at their home institutions and to provide a sustainable training and graduate program that fits to the local health care environment.

#9CC04 (133031)

**Economic crisis, brain drain and unsatisfactory medical education: A combination threatening the existence of Greek NHS**

**Nikolaos Keramaris\***, Hellenic Junior Doctors Society, Athens, Greece

Sarandos Kaptanis (Hellenic Junior Doctors Society, Athens, Greece)

Ioannis Lekkas (Hellenic Junior Doctors Society, Athens, Greece)

Dimitrios Theodoridis (Hellenic Junior Doctors Society, Athens, Greece)

Kyriakos Souliotis (University Of Peloponnese, Corinth, Greece)

Deborah M Rooney (University Of Michigan, Ann Arbor, Michigan, Usa)

**Background:** In Greece, medical education is characterised by inflexibility and lack of consistent evaluation, suggesting the need for updated and novel educational strategies. Although, there is paucity of data concerning the quality of medical education in Greece, previous surveys have identified that Greek medical students express pessimism about their teaching. In order to identify deficiencies and target best educational methods accepted by learners, our group created the REMEDI TOOL (REFORMING MEDICAL EDUCATIONAL INSTITUTIONS).

**Summary of Work:** Following IRB review, we developed and disseminated a 24-item questionnaire to clinical year medical students (4th, 5th and 6th year) and junior doctors in training. The first section comprised of demographics, the second section comprises questions concerning the current status of medical education in Greece, the third questions about the students' awareness of novel educational strategies (PBL, simulation based learning, integrated medical curricula) and the last section questions about their attitude towards reforms and possible implementation of these novel strategies in Medical Schools in Greece.

**Summary of Results:** A total of 396 participants completed the survey. Preliminary findings indicated more Greek medical students were attracted to surgical and medical specialties (31.6% and 36.1% respectively), and fewer to General practice (3.3%). Furthermore 59% stated they are keen to move abroad for their post graduate training (residency), but 27% had a previous experience from a foreign medical school or hospital. Although 19.7% of participants indicated they would emigrate for better

education/training, only 15.2% would do it purely due to the current Greek economic crisis.

**Discussion:** Preliminary analysis of demographic data suggests primary care remains unpopular amongst medical students and junior trainees in Greece, possibly reflecting the hospital centred attitude of the Greek health system and the neglect towards primary care. Findings may also indicate brain drain, the loss of trained specialists, and medical immigration will become a major problem for the future of the Greek health system.

**Conclusion:** The combination of economic crisis and low quality of medical education could have devastating effects on the Greek Health System and there is an urgent need to improve at least the quality of medical education in order to counterbalance the effect of economic crisis.

**Take Home Messages:** the survival of Greek NHS is undermined by the combination of economical crisis and unsatisfactory medical education leading to extensive brain drain

#9CC05 (134327)

**To speak or not to speak, is that a question? The preliminary exploration of the relationship between local-language speaking ability and the initial clerkship learning outcome**

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Ru-Yi Huang

I-Ting Liu

Li-Feng Liu

Wei-Chieh Hung

San-Nan Yang

**Background:** Arranging clerkship training program for international medical students is challenging regarding the language barrier and diverse cultural background. Since the first batch of non-native Mandarin speaking students started their clerkship in E-DA hospital last summer, the relationship between Mandarin speaking ability and clerkship learning outcome is explored for student remediation and future curriculum revision.

**Summary of Work:** Pearson's correlation for gender, nationality, school grade point average (GPA), Mandarin course score and clerkship grades of the international students was analyzed to reveal their relationship. Multiple regression analysis was also conducted to calculate the contribution of the variables to the clerkship course grades.

**Summary of Results:** There are 32 international medical students doing their clerkship in this hospital. None of them are familiar with Mandarin speaking before arriving Taiwan, and 6 students are also non-native English speakers. The first-2-year GPA showed moderately correlation with the clerkship grades ( $r=0.504$ ,  $p=0.003$ ) while Mandarin scores only modestly correlated with clerkship outcome without statistical significance ( $r=0.329$ ,  $p=0.066$ ). Multiple regression model also revealed GPA to be the only positively correlated variable with statistical significance.

**Discussion:** The result suggested that the clerkship performance is well correlated with the early efforts in their medical school, while the impact of Mandarin speaking ability is not well established. Since many students are considered not able to fluently communicate with patients in Mandarin, the result may also indicate that the teachers are accustomed to evaluate the students mainly according to their presentations or reports instead of direct observing their patient care performance.

**Conclusion:** The Mandarin speaking ability is not yet proved to influence the clerkship performance of the international students in a Mandarin-speaking area, but continuing follow-up is considered necessary till graduation.

**Take Home Messages:** The local language speaking ability is not as strong predictor as GPA to estimate the clerkship performance of the international medical students.

#9CC06 (135857)

**Internationalization of medical education in Iran: Development of policy draft; a focus on accessibility**

**Sadaf Jazayeri\***, School of Medical Education Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Soliman Ahmady, School of medical education Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran

**Background:** Health care policy of Iran emphasized on accessibility, quality and equity as three components of internationalization in medical education.

**Summary of Work:** Policy drafts, documents and statements published by Iranian government along with reports of WFME and WHO were reviewed and analyzed by focusing on accessibility in medical education. Accessibility components of quantity of universities, discipline and student enrollment were analyzed

**Summary of Results:** Quantity and distributing of public medical university escalated from 40 in 2004 to 65 in 2014. This significant change led to positive increase in the ratio of universities to population (from 1.5 million in 2004 to 1.19 million in 2014). Considerable increase in medical education disciplines (specialists, sub specialists and fellowships) from 550 to 728 training units was noticed during same period of time. Residency capacity improved from 1300 in compare to 3800 registered in mentioned decay.

**Discussion:** "The General Policy of Health" urged medical education institute to be pioneer in Middle East region until 2026. Insights and values of medical education in Governmental policy emphasized equity of higher education and development of new knowledge, which support medical education in terms of accessibility. Ministry of health and medical education of Iran followed this mission by developing a policy draft in 12 operational packages which named "Developments and innovations in medical education".

**Conclusion:** Accessibility by increasing enrollment capacity, new training units and establishment interdisciplinary programs are platform to achievement the Internationalization.

**Take Home Messages:** Internationalization introduce as major strategy of medical education. Increasing quantity of training institutions and capacity building for education is a first step forward of this way.

#### #9CCo7 (136100)

##### **Equitable access to healthcare: Postgraduate training sessions**

**Katerina Dima\***, *Associa-Med, Tunis, Tunisia*  
*Salma Bouguerra (Associa-Med, Tunis, Tunisia)*  
*Yasmine Missaoui (Associa-Med, Tunis, Tunisia)*  
*Arij Chatbri (Associa-Med, Sousse, Tunisia)*

**Background:** Today, Tunisia counts 24 governorates among which only 5 have efficient teaching hospitals generating a serious issue in the health care system as well as in the learning process of medical students. This great imbalance has actually limited the students field of learning to only 5 regions keeping them from getting proper trainings and making the rest of the regions mostly unapproachable by students. These two facts have actually led us to the increasing death rates year after year. Our project was then based on landing specialists in the other regions to spread knowledge and create new balance.

**Summary of Work:** The project, in collaboration with our faculty, is a series of trainings given by different specialists to the healthcare professionals in the regional hospitals in order to improve health care delivery and support the continuing education of physicians practicing in the North-West region. This project's ultimate goal is to transform regional hospitals into university hospital complex ready to form internal, external and residents, expanding our training ground.

**Summary of Results:** We have organised 6 sessions, yet, in 3 different regions during which we had more than 150 participants. The subjects discussed are chosen according to the region's needs. We are working on the media coverage of the project in order to recruit more trainers and participants and involve medical students in balancing health care system.

**Discussion:** The analysis of the project's impact, with the help of experienced doctors, was conducted through an evaluation form handed to the participants at the end of every session. After every four sessions, we gather with the steering committee to discuss the results of evaluation trying to mainly improve the content of the future sessions.

**Conclusion:** Learning is a life-long process especially in the medical field which should be constantly innovated and improved.

**Take Home Messages:** Even if you are a beginner, dream big and make it happen.

#### #9CCo8 (132261)

##### **Working in developing countries: A framework for students**

**Michelle McLean\***, *Bond University, Gold Coast, Australia*  
*Sarah Thomas*  
*Elizabeth Thomas*

**Background:** Increasingly, medical students are seeking to broaden their perspectives of global health through international experiences. As two Australian-Indian medical students wanting an experience in a developing country, we planned a three-week research project involving women in tribal communities in Attappady, a remote region of India.

**Summary of Work:** The purpose of our field project was two-fold: To develop an understanding of working in health in a developing country and to research our area of interest (women's health). We wanted to gain insight into the challenges of providing health care for women in communities where health literacy is low. Completing the University's ethics application required us to address issues such as power relations between us (interviewers) and participants, permission to work in the area, participant consent and confidentiality. Planning included transport logistics, extensive discussions with community contacts for context on cultural sensitivities and health and social interventions already in place.

**Summary of Results:** Despite this planning, we encountered both ethical and logistical challenges. Travel to the remote locations and limited access to technology proved difficult. As few tribal people spoke English, interpreters were needed. With many women illiterate, written consent was not always possible. An ethical challenge was that while some women interviewed needed medical attention, we were unable to intervene. We also faced physical safety (e.g. intoxicated and sometimes aggressive men) and health issues (e.g. infectious diseases).

**Discussion:** We offer a framework for working in areas with vulnerable populations and for fostering a mutually beneficial relationship between students and communities.

**Conclusion:** Working in developing countries and in remote areas in particular can be challenging.

**Take Home Messages:** Considerable planning is required when working in global health, not only relating to personal health and safety but also in terms of the logistics of accessing and communicating with members of the community.

#9CC09 (132481)

**Medical education - Georgian reality and European experience**

*Nato Alavidze\*, Akaki Tsereteli State University, Kutaisi, Georgia*  
*Irine Pkhakadze*  
*Tamara Valishvili*  
*Nana Shavlakadze*  
*Gulnara Shelia*

**Background:** Medical education, teaching and learning have recently undergone “major surgery” with the aim of “changing” sound educational theory with traditional teaching and learning methods.

**Summary of Work:** The intention is overview European experience and Georgian reality upon medical education specificities and to elucidate some distinctive aspects of teaching and learning in medicine for the relatively inexperienced teacher, in the context of first qualification education in Georgian universities medical/pharmaceutical profile.

**Summary of Results:** New curricula at the ATSU, with student-driven learning, ‘objectification’ and innovation within assessment, and the changing postgraduate structure have left much for the “jobbing” clinician/pharmacist and new teacher to keep up with.

**Discussion:** This thesis describe and comment on current practice as well as pointing to likely teaching, learning and assessment changes of the near future and focuses on: the curriculum and policy context in which undergraduate medical education takes place in Georgia; problem-based learning (PBL); skills and simulation; using technology; patient-centered teaching and learning; assessment;

**Conclusion:** Many in the undergraduate schools in Georgia question whether the revolution in medical education is worthwhile. Evidence, although measured on older criteria, suggests that these major changes are not producing a “better” graduate but are producing a different, perhaps more rounded, individual, one in whom the public can place confidence.

**Take Home Messages:** Traditional methods do not necessarily need to be thrown away, but can be improved and brought into line with modern educational theory and practice and the requirement for a “safe” doctor in the twenty-first century. This is a significant challenge for Georgia as well as developing countries in Europe

#9CC10 (133369)

**Re-opening medical education in Sierra Leone after the Ebola crisis**

*Suzanne Thomas\*, King's Sierra Leone Partnership, King's College London, Freetown, Sierra Leone*  
*Mohamed Samai (The College of Medicine and Allied Health Sciences, Freetown, Sierra Leone)*  
*John Rees (King's College London, UK)*

**Background:** The College of Medicine and Allied Health Sciences (COMAHS) is the only medical school in Sierra Leone which graduates 30-40 medical students per year. In 2012, King's College London set up a partnership with COMAHS to support curriculum, faculty and facility development. A new curriculum was approved in 2014 but the Ebola crisis from May 2014 to November 2015 changed the situation radically.

**Summary of Work:** The declaration of a state of public emergency forced COMAHS to close for nine months during which time four clinical faculty staff died. The college was re-opened in June 2015 in recognition of the critical need to maintain the training of healthcare professionals. Several new challenges had to be addressed including how to rearrange the academic timetable and how to provide clinical training while the risk of encountering suspect Ebola cases within the clinical setting remained, resulting in limited patient contact for students.

**Summary of Results:** The University of Sierra Leone agreed to a condensed academic year of 32 weeks, compared to the usual duration of 42-46 weeks, for the next three academic years such that the usual academic calendar will resume in September 2017. COMAHS was able to continue to award medical degrees in 2015 and will graduate two cohorts of medical students in 2016. Implementation of the new curriculum for the Department of Internal Medicine was supported by an expanded team of international volunteers from the King's Sierra Leone Partnership.

**Discussion:** Despite the challenges, some interesting opportunities have arisen such as work experience for medical students during a public health crisis, renewed interest in training students in infection prevention and control, learning exchanges between students and international teachers and new openings to participate in research.

**Conclusion:** Low resource environments are especially vulnerable to severe disruption from outbreaks such as Ebola. Ingenuity and hard work enabled COMAHS to restore the provision of medical education.

**Take Home Messages:** Ebola produced an effect on education which may have longer term implications.



#9CC11 (135883)

**Building windmills: Is a curriculum update feasible in Venezuela?**

**Tatiana Giusti\***, *Universidad Central de Venezuela, Caracas, Venezuela*

Vanessa Miguel (*Universidad Central de Venezuela, Caracas, Venezuela*)

Jacobo Villalobos (*Universidad Central de Venezuela, Caracas, Venezuela*)

Julieta González (*Universidad Central de Venezuela, Caracas, Venezuela*)

Miguel Ortiz (*Universidad Central de Venezuela, Caracas, Venezuela*)

Jorge Insignares (*Universidad Central de Venezuela, Caracas, Venezuela*)

**Background:** Central University of Venezuela (UCV) is the first Venezuelan University to appear in the ranking of Latin-American Universities, even though it cannot escape from budget reduction, decreasing investment on science and education, poor salaries, etc. In order to improve quality and social relevance of medical education, a curricular change to competency-based education was proposed in “Luis Razetti School of Medicine” of UCV, but considered to be unaffordable by the faculty of this medical school.

**Summary of Work:** A focus group analysis was realized with nine dean faculty members by using SWOT matrix, problem tree analysis, and cross-impact matrix to analyze the feasibility of a curriculum update.

**Summary of Results:** In the Problem Tree Analysis, the main problem was set as the progressive decline in quality and social relevance of medical education in our school. The causes found more relevant were poor teacher performance, poor student performance, difficulty of implementing changes, knowledge-centered teaching as well as the institutional crisis of the University and insecurity in the campus. The effects were little social contextualization of clinical practice, absence of some skills and exodus of graduates as well as little interest in rural medicine and dehumanization of medical practice. The cross-impact matrix analysis revealed that working on teacher performance and aiding in changes implementation would have greater success chances and impact on the main problem.

**Discussion:** These results were used to design strategies to achieve the main objective. Efforts are currently focused on curriculum update support, improvement of teacher performance and provide access to resources for better and innovative education.

**Conclusion:** Accepting drawbacks and analyzing in high resolution, has become the most important step to start working on them and achieve the goal.

**Take Home Messages:** During difficult circumstances, in order to find new and creative solutions to old problems, we are called to color outside the lines. “We cannot stop the wind, but we can build windmills”.

#9CC12 (132199)

**Learning medicine in a resource poor environment: qualitative analysis of the experience of clinical medical students at Aksum University, Faculty of Health Science**

**Catrin Morgan\***, *Barts and the London School of Medicine and Dentistry, London, UK*

Merron Teshome (*Aksum University School of Medicine, Aksum, Ethiopia*)

Israel Mamo (*Aksum University School of Medicine, Aksum, Ethiopia*)

Jonathan Fuller (*Barts and the London School of Medicine and Dentistry, London, UK*)

Andrew Dagens (*Chelsea and Westminster Hospital, London, UK*)

**Background:** Aksum School of Medicine was opened in 2012 along with 12 other medical schools to tackle the shortage of doctors in Ethiopia. Aksum is a rural town in Northern Ethiopia. The New Innovative Medical Curriculum (NIMC) is a four year programme implemented by the Ethiopian government.

**Summary of Work:** This study uses primarily qualitative research methods. Data collection was: structured group interview and observation of teaching. Data was collected through note making. The data was analysed by reconstructing the student experience and comparing it with the NIMC. The research was carried out at St Mary’s District Hospital in Aksum and Aksum University Referral Hospital. The data was collected over a period of 2 weeks covering the students’ clinical experience in Ophthalmology, Dermatology, Obstetrics and Gynaecology and Surgery.

**Summary of Results:** 61 3rd year students studied Ophthalmology and Dermatology. There was only one specialist in each department and one ophthalmoscope. The groups were large and there was lack of consistency in teacher engagement. In Obstetrics and Surgery the responsibility given to the 13 final year medical students at St Mary’s Hospital was vast. The students ran their own clinics, admitting, managing, prescribing medications and discharging patients.

**Discussion:** The combination of poorly resourced hospitals and lack of specialist doctors provides a difficult environment for medical students to learn. However it is a unique experience that is rarely seen in developed countries. Supervision is fundamental in enabling students to learn and this is a key area that was lacking in the students’ clinical experience.

**Conclusion:** The clinical year medical students at Aksum University have high levels of experience, expertise and responsibility. However, it highlights the need for more senior supervision across the field to maximise the students’ clinical experience and to optimise patient care.

**Take Home Messages:** Lack of specialist doctors is a major obstacle in ensuring a good clinical experience for medical students.

## 9DD Posters: Ethics/Care of the Dying

Location:

#9DD01 (136349)

**Ethics in Pathology Undergraduate Medical Curriculum – A pilot study to design a module in ethics**

*Mary Mathew\*, Kasturba Medical College, Manipal University, Manipal, Karnataka, India*

**Background:** The introduction of ethics in pathology undergraduate curriculum should be an integral part of medical training as the ethical dilemmas differ in comparison to their clinical counterparts. However, very few countries have incorporated this subject as part of pathology training even in India.

**Summary of Work:** A pilot questionnaire based study on the need for Ethics and implementation in the curriculum was administered to 4 general pathologist and 2 oral pathologists.

**Summary of Results:** The results showed that all unanimously agreed that ethics should be incorporated into the pathology syllabus. The total number of hours to be devoted ranged between 2- 4 hours. The specific topics included a) Informed consent b) Ethical issues in autopsy practice c) Legal and ethical issues in transfusion medicine d) Ethical and legal issues in the use of archival tissue and specimens. The method of teaching recommended were didactic lectures, Case based learning (CBL), debates and movies. An alternate and innovative method of teaching suggested was critiquing a histopathology/bone marrow report. The mode of assessment included assignments, short answers and few questions in viva voice. Based on these results a module has been designed for incorporation of ethics into the curriculum.

**Discussion:** Ethics in pathology training should be part of the undergraduate curriculum as this would provide a holistic training in the various aspects of pathology. The training and module should include assessment for a better outcome and significant impact on the learner. Critiquing a report is unique concept that is being addressed in this paper which would encourage ethical deliberation, responsibility and favorable pathologist-physician interaction and communication.

**Conclusion:** The aim of medical training is to produce well faceted doctors equipped with adequate knowledge of the subject inclusive of the ethical and legal aspects. The undergraduate medical curriculum currently has no formal inclusion of ethics in pathology which is the need of the hour in discipline specific training.

**Take Home Messages:** A pathology curriculum with an additional ethics module during training is essential to provide holistic learning in pathology

#9DD02 (135465)

**Ethical Erosion in Medical Education**

*Samir Zaman\*, King's College London, London, UK  
Naveed Khan (King's College London, UK)  
Katharine Stambollouian (King's College London, UK)*

**Background:** Morality is central to being a Doctor. They must empathize with patients as well as judge actions against their own moral compass. The literature identifies morality as an essential part of medical practice, yet paradoxically, it progressively declines in medical school (MS).

**Summary of Work:** The literature on the development of moral reasoning during MS was reviewed. Across studies the measurement of moral reasoning tracked a decline during MS. Databases were accessed using "Web of Science". Search terms included "Moral reasoning, medical school, decline" with inclusion criteria being papers in English and published 2009-2014.

**Summary of Results:** A decline in moral reasoning during MS was identified, the reasons for which are multifactorial. Studies showed that it declined specifically in the clinical years, with a corresponding decline in empathy, possibly due to few reported formal teaching opportunities in MS to facilitate this attribute.

**Discussion:** Medical curricula should encourage the growth and development of moral reasoning in future doctors. Despite this, the concept of "Ethical Erosion" during MS is well reported in the literature. Factors for decline include: the hidden medical curriculum, the hierarchy of the hospital environment and pressures associated with the clinical environment. More teaching in this area is needed throughout medical school (MS).

**Conclusion:** Moral reasoning underpins ethical practice. In British medical schools, teaching of morals reasoning is largely ignored. Formal ethics teaching is provided in clinical years. Moral dilemmas encountered in clinical settings need more attention with interactive small group sessions required.

**Take Home Messages:** The literature shows that moral reasoning declines in MS. Research is needed to find solutions to this problem. An action research project may help identify improvement in work-based learning in this area. Volunteering may be one such solution. It is already undertaken by a vast proportion of students, providing the opportunity to consider issues in a moral context.

#9DD03 (133302)

Teaching ethics to medical students: Where are we?

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Hospital, Nakhonratchasima province, Thailand)

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Hospital, Nakhonratchasima province, Thailand)

Chavasak Kanokkantapong (Maharat Nakhonratchasima Hospital, Nakhonratchasima province, Thailand)

**Background:** A Successful medical professional carrier has to be based on the ability to deal not only with clinical but also ethical issues. The Thailand Medical Council has announced "Medical Competency Assessment Criteria for the National License 2012" containing 28 issues of medical ethics. The medical students are expected to develop professionally required competencies for those ethical behaviors. This study was aimed to evaluate a curriculum for teaching ethics to medical students.

**Summary of Work:** We conducted a pilot survey using a structured questionnaire for clinical teachers in all departments.

**Summary of Results:** Most teachers (86.4%) taught medical ethics in the classroom and agreed that medical ethics should be taught as case study and topic-based issues. All issues were taught in our institute, however, the confidence of teaching were lowest for 9 issues. Most dilemma issues were relationship with the pharmaceutical industry, medical negligence, end-of-life decision, and disclosure of medical error. Only 18.1% of the departments integrated ethical teaching with other departments. Only 36.4% assessed medical ethics formally. The primary obstacles of teaching are a lack of qualified teachers, time of teaching, and integration.

**Discussion:** Teachers should be qualified, some issues should be taught in more detail, and medical students should be properly assessed. A table of specification for each issue should be set and integrated into the departments for all clinical years.

**Conclusion:** Teaching medical ethics in our institute covered all issues of the national criteria, but some weaknesses should be adjusted to strengthen the curriculum.

**Take Home Messages:** Dilemma issues need to be attended to improve the confidence of teaching.

#9DD04 (130555)

Effect of Reflective Group Dialogue on Ethical Dilemma in End of Life Care of neonates

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Tze-Yi Hung

Hsien-Feng Lin

Hsien-Hsien Chiang

**Background:** Advances in the care of critically ill neonates have resulted in the ability to save the lives of the majority of even the sickest and smallest neonates. However, this also brings the ethical dilemma into nurses that face the life and death of neonates. This study to investigate whether reflective group dialogue could reduce the stress of nurses in the ICU for withdrawing treatment to critically ill neonates.

**Summary of Work:** Reflective group dialogue with free talk, non-structural, open way was used as a critical reflective approach for ICU nurses. Each session was hold at least 90 minutes, and continued for 8 times with 6-9 participants. Each person reflected her care experience, feeling, difficulties, and thought. Then the feedback questionnaire and record of reflective group discussion were analyzed.

**Summary of Results:** A total of 12 nurses were participated in this study. The major issues of ethical dilemma obtained from the record of reflective group dialogue were: the lost in technology, conflicts in medical care, host-guest intertwined, and the understanding the existence.

**Discussion:** After 8 consecutive discussions, improvements were achieved. Top five were listed as: establishing the palliative care procedure for neonates, improvement of the quality for end of life care, reflection of mind, reducing the anxiety for end of life, and enhancement of nurse-patient interaction .

**Conclusion:** ICU nurses are constantly facing the pain of neonates and their parents. Reflective group discussion could help them by sharing their feelings and thoughts reflectively on the life and death of critically ill neonates and relief the burden of end of life care.

**Take Home Messages:** Ethical decisions on neonatal DNR, sufficient information on the neonates are essential for parents' proper decisions. If an ethics committee can provide role consulting and help with the surrogate decision process, this would protect newborns' best interests.

#9DDo5 (134485)

**Enhancing multi-perspective and convergent thinking for ethical deliberation in Year-Four medical students**

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Kung-Pei Tang  
Chao-Ching Huang  
Yi-No Kang  
Chien-Chih Wu

**Background:** Multi-perspective thinking is the essence of empathetic development. This interdisciplinary program involved 123 Year-Four medical students and engaged them in the role of patient's family who confronts with a dilemmatic end-of-life decision. This pedagogy aimed at activating divergent multi-perspective thinking before students converged a clinical judgement within Four-Box Approach.

**Summary of Work:** This integrated medical humanities program was carried out in ICU between October to December 2015 combining task-based bedside observation, case presentation, small-group discussion and reflective journal writing (Day-4). We assessed students' multi-perspective thinking before and during the small-group discussion as well as students' journal. Crystallization analysis is borrowed to extract the data from students' statements based on the Four-Box Approach and its sequence 4 roles: medical professions, patients, patients' families, community. Paired samples correlations and t-Test are useful for illustrating learning outcome.

**Summary of Results:** 28 (22.8%) of 123 students demonstrated their multi-perspective thinking in the beginning. The mean on the number of roles specified by the students was increased from 1.23 to 2.41 ( $t=12.12$ ,  $p<0.001$ ) in a small-group discussion, and 2.82 ( $t=17.67$ ,  $p<0.001$ ) in students' reflective journal. Single-perspective group progressed significantly (from 1 to 2.51;  $t=17.19$ ,  $p<0.001$ ) during group discussion, and even performed better than multi-perspective group (2.51 vs 2.07;  $t=2.325$ ,  $p<0.05$ ). Although the progress was not observed among multi-perspective students in the class (from 2 to 2.07;  $t=0.37$ ,  $p>0.05$ ), yet shown after their reflection (from 2.07 to 2.86;  $t=3.16$ ,  $p<0.01$ ).

**Discussion:** This educational work assumed that ethical problem-solving capability contains both divergent and convergent thinking process. The former represents multi-perspective thinking, which is related to cognitive empathy or moral sensitivity; while the latter is more crucial to ethical reasoning and decision making. Although inspiring students with ventilator-dependent patients did enhance pre-clinical medical students' divergent thinking, how well it contributes to their empathetic and ethical performance still needs to be verified.

**Conclusion:** Early ICU observation and group discussion may sensitize and extend students' perception on the complexity of prolonged mechanical ventilation-dependent patients. No matter whether students perform multi-perspective or not, reflective writing is helpful for students' learning

retention and knowledge transfer in ethical problem-solving.

**Take Home Messages:** Integrating small-group discussion and reflective journal after bed-side observation can sensitize medical students multi-perspective thinking and may be contributed to their empathetic development.

#9DDo6 (134663)

**Awareness of Medical Ethics Education: From the Perspectives of Pediatric Staff in a Regional Teaching Hospital in Taiwan**

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Li-Lin Kuo  
Lin-Yang Chi  
Oscar K. Lee

**Background:** Studies of medical ethics education in regional hospitals are few in Taiwan. The objective of this research is to survey the pediatric staffs' educational needs and their opinions about continuing medical education (CME) courses specifically for medical ethics in Taiwan.

**Summary of Work:** Participants viewed a multimedia case teaching video developed by the center for faculty development, Taipei City Hospital. Each film is associated with anonymous, self-administered questionnaires and satisfaction survey. This study was conducted on Apr 22, 2015.

**Summary of Results:** There were 24 completed questionnaires collected. In the questionnaires, Most of them had a strong agreement about the importance of medical ethics education (95.8%). More than half agreed certain hours is required (70.8%). However, less than half of them thought that medical ethics education is sufficient in our country (37.5%). More than 80% prefer small group discussion and teaching should combine with theories and practices (87.5%). 87% stated medical ethic teaching accompanied with videos or cases is more valuable. The most useful and most encountered topics were patient privacy (75%, 70.8%), followed by informed consent (66.7%, 62.5%) and surrogate decision (66.7%, 58.3%).

**Discussion:** Since 2003, a minimum of 18 credits of CME in the fields of biomedical ethics, over each six-year period, is required for practicing physicians to renew their licenses by the Department of Health and Welfare in Taiwan. According to this study, most of the pediatric staff in our hospital agreed that certain number of hours is required. However, less than half thought current medical ethics education was sufficient.

**Conclusion:** Medical ethics education is important and current medical ethics education may be insufficient for practicing pediatricians in Taiwan. For them, in addition to patient privacy and informed consent, surrogate decision is also listed as an important topic for medical ethics education.



**Take Home Messages:** Small group discussion accompanied with “multimedia case teaching video” is popular and may improve learning outcome.

**#9DD07 (136176)**

**Handling ethical issues: a challenge for medical students and for medical schools**

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**Background:** Students tend to recognize a mismatch between what they learn during medical school and the ethical situations encountered in clinical practice. Their experiences likely shape their views of the clinical environment's values. The aim of this study was to analyze the self-perceived comfort level of final year medical students handling clinical ethical issues in relation to previous ethics education.

**Summary of Work:** For this cross-sectional study, a questionnaire regarding ethics education, preparedness and comfort to handle ethical issues was adapted from previous literature (Silverman et al, 2012). Respondents included 155 students from University of Lisbon Medical School.  $\chi^2$  analysis was performed ( $p < 0.05$ ).

**Summary of Results:** From the 98 participants (63,2%) who felt prepared, only 37 (37,8%) felt comfortable with the indicated ethical issues. Regarding ethics education, 64 (41,3%) disagreed medical school training helped to prepare them and 115 (74,2%) recognized a need for more ethics education. Ethics training more than once a month was not associated with agreeing that medical school helped in the preparation to handle ethical issues ( $p > 0.05$ ). Ethical situations related to professional conduct were perceived as the least comfortable. Participants admitted relying on peers (92,2%), teachers (84,5%) and what they learnt in medical school (84,5%) when they needed help.

**Discussion:** The lack of comfort and the perception that medical school training was insufficient may hint that many ethical issues were never addressed during the course. The perceived need for more ethics education may expose the consequences of this school's lecture-based ethics curriculum.

**Conclusion:** Opportunities to improve the ethics curriculum should be considered. Identification of clinical ethical challenges students face could promote the practical application of medical ethics.

**Take Home Messages:** Students perceive a need for more ethics education and rely on what they learn in medical school. A setting for reflection based on students' ethical concerns should be provided.

**#9DD08 (136159)**

**Ethics Education for Resident Physicians Using Virtual Patients in OpenLabyrinth: A Pilot Study**

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Aliya Kassam

David Topps

Ian Mitchell

**Background:** There are gaps in evidence regarding best practices for teaching ethics and professionalism to resident physicians. OpenLabyrinth, an online virtual patient platform, allows a flipped learner-centered interactive strategy to introduce residents to potential ethical situations while engaging them to reflect on pertinent competencies. The objective of this study was to develop and pilot test two ethics cases relating to CanMEDS competencies using virtual patients in OpenLabyrinth.

**Summary of Work:** The first case pertained to patient consent against a family member while the other to research ethics and patient care. The relevant CanMEDS competencies included: Professionalism, Health Advocacy, Communicator, Scholar and Medical Expert. OpenLabyrinth allowed residents to enter a unique ID number to complete the cases within three days prior to a half-day ethics workshop. Data was collected, confidentially, in a secure OpenLabyrinth server. Particular analytics such as completion attempts and written evaluations of the entire workshop were reviewed.

**Summary of Results:** 38 residents completed the cases. Review of the written feedback from participants showed little value to doing the online cases prior to the workshop. The face-to-face, preceptor led small groups sessions were assessed as invaluable. Time spent on the case and specific navigation of the case will also be compared with respect to the competencies.

**Discussion:** The development of an online case to create a deeper learning experience for residents is difficult when teaching ethics. Using the OpenLabyrinth situations to do so requires more extensive curriculum development and evaluative measurements to ensure practical and effective implementation in the workshop itself.

**Conclusion:** OpenLabyrinth may be an effective tool as flipped learner-centered interactive strategy to encourage resident physicians to engage in self-reflection pertaining to ethics and professionalism but further research is needed.

**Take Home Messages:** Initiatives to develop blending online cases with small discussion groups in ethics education may be of value to increase resident physician competence.

#9DD09 (133836)

**What did students learn from ethics courses? A qualitative study of ethical sensitivity learning in College of Medicine**

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Gin-Hong Lee

Ping-Keung Yip

Miao-Ju Chwo

Ming-Teh Lin

**Background:** Cultivating ethical sensitivity is an important goal for ethical education. However teachers didn't understand much about what students learned after ethics courses. We had developed ethical sensitivity experiential learning modules and implemented them in College of Medicine, Fu-Jen Catholic University, Taiwan.

**Summary of Work:** The effectiveness of these modules was evaluated by the instrument—"Ethical Sensitivity Video-Based Situational Assessment Tool". This tool which contained six videos and one questionnaire related to ethical sensitivity was administered before and after the ethical sensitivity learning modules. The researcher analyzed the pre and post data of three ethics courses with thematic analysis.

**Summary of Results:** Thirty two of forty six(70%) valid questionnaires demonstrated various psychological changes on ethical sensitivity. These results indicated that students' sensitivity was improved on identification of ethical issues (2 themes with 10 categories), awareness of the others' needs (3 themes with 13 categories), and imagination of one's behavior consequences (2 themes with 6 categories).

**Discussion:** These changes of ethical sensitivity can not be easily measured by quantitative research. The qualitative results of this study shows that students had multiple and sophisticated changes in ethical sensitivity after these modules. These results may help teachers understand more about what students learned from these modules.

**Conclusion:** The students in our College had promising changes on ethical sensitivity after these ethical sensitivity experiential learning modules.

**Take Home Messages:** This qualitative study revealed the content of students' sophisticated psychological changes after ethics courses.

#9DD10 (133960)

**The Cambridge Bioethics Education Working Groups Network: aims and experiences**

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**Background:** In various European Countries, national Bioethics Education Working Groups have been established. National organizers have formed a Network, which meets once a year in Paris, at the Cambridge Education Retreat, and once a year in one of the member universities.

**Summary of Work:** During the meetings, best practices of bioethics teaching are exchanged, in order to learn from one another. Also, draft manuscripts on methods of bioethics teaching are discussed.

**Summary of Results:** The network has assembled best practices of ethics teaching in medical curricula in the participating countries. These include, amongst others, ethics skills training (how to provide informed consent in stressful clinical situations) and methods for reflection on moral dilemmas (moral case deliberation). Common to the best practice examples is the use of real-life cases and instruction which makes theoretical ethical notions directly relevant for practice.

**Discussion:** Exchange of best practices through site visits and actually experiencing ways of teaching and training provides a good basis for understanding various methods and learning from each other. This approach is in line with learning network theory.

**Conclusion:** A learning network in which best practices of bioethics education are shared can help teachers to experience new ways of teaching and thus to expand their educational tools and repertoires.

**Take Home Messages:** - A learning network in bioethics education, making use of site visits and actually experiencing best practices, enables network participants to get acquainted with alternative methods of teaching and training - Common to best practices in bioethics education identified by the network is the use of real-life cases and instruction, making theoretical ethical notions directly relevant for practice

#9DD11 (134970)

**Analysis of ethical reasoning and morality (the Aristotelian ethos) of medical students from School of medicine, Universidad Michoacana, Mexico**

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*Mario Jair Gonzalez-Arredondo*

**Background:** The core of medical education is to promote clinical competencies and ethical behaviors in medical students to develop their professionalism as future physicians. About Humanities, our curriculum basically includes extracurricular courses on bioethics-medical ethics and history of medicine. However, the impact of such activities is currently not being assessed.

**Summary of Work:** To analyze ethical reasoning and morality of 1st - 5th school year medical students. An open, prospective, longitudinal, research-action project. Universe of study: 2,444 medical students, a sample of 333 selected by convenience, who answered 2 semi-structured surveys validated by piloting trial. We focused on 10 variables divided into 4 dimensions: me-others, nature-culture according to Aristotelian ethos. We set an "open library" and developed workshops on reading and critical thinking; also discussions about emblematic ethical topics.

**Summary of Results:** First survey showed a traditional student's morality. Only a third joined the extracurricular activities. When comparing both questionnaires there was an improvement, each student moved forward on 6 variables. Students need to get involved in theoretical-practical activities in humanities; they complained that many teachers are not "good-ethical-role-models".

**Discussion:** Aristotelian ethos has four dimensions (me-others-nature-culture). Our medical students' moral reality is traditional and built through their closest relationships. However, coexistence with physicians, health workers and peers at medical school and hospital settings provided them newer and significant influences to their ethical reasoning.

**Conclusion:** Only some variables showed predictable results. Many students faced for the first time the necessity to think ethically before acting, and realized they did not know that they had not done this before.

**Take Home Messages:** Ethical reasoning is a mental ability that can be learned by anyone at any time, beyond the morality.

#9DD12 (126577)

**Influence of patient contact on confidence and knowledge in practical ethics**

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*Liang Shen (Yong Loo Lin School of Medicine, National University of Singapore, Singapore)*

**Background:** This cross-sectional study explores how medical students' knowledge and application of ethical principles and professional attitudes develop during a medical education course before commencement of the fifth year student internship program (SIP).

**Summary of Work:** Anonymized questionnaires assessing knowledge and values of medical ethics, conflicts between autonomy and beneficence, respect for human rights, confidentiality, advanced care planning, mental capacity and end of life care were administered to preclinical year students (second year (n=81)) and clinical year students prior to SIP (fourth year (n=90)).

**Summary of Results:** Year 4 students (54.4%) had a more positive attitude towards medical ethics compared to Year 2 students (35.8%). Confidence in managing ethical issues was greater in Year 4 students (77.8%) compared to Year 2 students (54.3%). While Year 4 students were better in medical ethics application, there was variance in judgments when considering clinical ethical decisions.

**Discussion:** Teaching ethics, law and professionalism during the clinical years promotes a positive attitude and increases students' ethical reasoning and sensitivity. Circumventing negative influences and misconceptions should involve ward-based ethics discussions and problem-based learning. A further study will be done to evaluate if SIP impacts students' views and approaches towards medical ethics.

**Conclusion:** The provision of a conducive teaching and learning environment where students are able to express opinions, raise questions and reflect on medical ethics is essential in the medical curriculum. Students should be equipped to address and handle the many ethical dilemmas in medicine.

**Take Home Messages:** As medicine becomes increasingly globalized, doctors will need to be equipped to confront the inevitable and complex ethical conflicts arising from diverse cultures, beliefs, values and ideas. Although ethical reasoning and sensitivity increased among Year 4 students, variance in judgment and opinions suggests the need to reinforce ethical principles at the post-graduate level.

#9DD13 (134634)

**Bioethics Teaching in Undergraduate Medical Education: a scoping review**

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Nadeem Zubairi  
Adrienne Torda  
Lubna Baig*

**Background:** Bioethics, an essential part of medical curriculum, does not have an evidence-based method for developing and delivering curriculum. Published literature from different regions discusses the influence of socio-cultural factors on bioethics teaching, however, there is gap regarding a consensus on how this influence effects the teaching of bioethics and whether, or not, the discipline needs a culture specific curriculum and method of delivery for effective. The evidence from this scoping review will provide guidelines for future curriculum development and educational research in Bioethics.

**Summary of Work:** This review provides an overview of existing literature regarding curriculum and teaching strategies for bioethics in medical institutes around the World, and suggests culture-specific recommendations for its development and delivery.

**Summary of Results:** The search identified 96 papers from PubMed and Web of Science, and another 53 from first 20 pages of Google search for grey literature. A total of 50 (38+22) publications were included in the final analysis. Papers covered almost all regions of the world including North and South America, Europe, Africa, and Asian regions (middle-east, central, south-east and far-east). The analysis identifies a number of curriculum designs and teaching strategies, along with ongoing efforts to find the optimum in bioethics education.

**Discussion:** A wide variety of topics are being taught in bioethics using different methods. However, there is no consensus from educators regarding the optimum curricular content and delivery strategies. Context specificity is often ignored in planning and implementation.

**Conclusion:** The study identifies areas with gaps in evidence that require research.

**Take Home Messages:** Bioethics education requires evidence-based, contextual curriculum and innovative strategies for its delivery.

#9DD14 (135581)

**A survey of McGill medical students' knowledge and attitudes regarding organ donation**

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Sam Shemie*

**Background:** Given the fundamental role physicians play in the identification and referral of organ donors, it is no surprise that having organ donation (OD) in the undergraduate medical curriculum has been shown to improve donation rates. Our objective was to implement a pre-clinical OD course at McGill University and evaluate its impact on medical students' knowledge of and perception towards donation.

**Summary of Work:** The course consisting of a one-hour didactic lecture was produced following a literature review, analysis of existing donation courses and expert consultation. A physician donation specialist supported our effort throughout and agreed to teach the course. With buy-in from the professor responsible for the pre-clinical neurology lectures, the course was introduced into the schedule after a lecture on brain death. A validated pre- and post-intervention survey was used to assess changes in students' knowledge and attitudes towards donation.

**Summary of Results:** Our response rate was 75% (128/170) for the pre-intervention survey and 61% (113/186) for the post-survey. The majority of students strongly felt that the lecture positively influenced their knowledge of (76%) and attitude towards (60%) OD. These perceived changes were also reflected through comparison between pre- and post-lecture surveys ( $p < 0.05$ ). An additional 11% of students discussed their donation wishes with their family post-lecture, and students scored better on several knowledge items including clinical characteristics of possible organ donors. 23% more students (62% to 85%) also strongly supported inclusion of OD in the curriculum.

**Discussion:** We successfully implemented a lecture on OD which significantly improved the attitudes and knowledge of medical students. We look forward to expanding our curriculum to three hours and including tissue donation and bioethics topics in order to increase learning following students' positive reaction about the course.

**Conclusion:** We have demonstrated the effectiveness of a short educational intervention on increasing medical students' support for and knowledge of OD.

**Take Home Messages:** In this study, medical students clearly expressed their interest in and support for more lectures on organ donation. Their positive change in knowledge and attitudes reflected the success of this intervention.



#9DD15 (134904)

**Medical Students' Learning of End-of-Life Decision-Making in a Modern Art Museum**

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Fernando Echarrí

José Miguel Carrasco

**Background:** End of life medical decision-making (EoLDM) requires clinician perception of patient needs and recognition of values influencing the process. Students trend to be more focused in specific knowledge than in abstract attitudes or subjective wishes. We explore the feasibility of teach EoLDM in a museum of modern art.

**Summary of Work:** We have taught a 5-days EoLDM optional course in the new university museum of modern art. Teaching starts visiting a gallery and receiving explanation of paintings or sculptures, inviting to the contemplation and reflection. After 45 minutes, the group meet in the museum classroom for lectures and discussions. Topics for each days were death, suffering, pain, sedation, nutrition, etc. At end they did a) standard quality evaluation of the subject, b) learner evaluation with two open questions about changes in EoLDM understanding and commitments to change or to do in their future practice. Informed consent was required.

**Summary of Results:** 20 students attended and gave consent. They assert that learned issues are valuable to their training (5/5), satisfaction was highest than any others courses of the medical degree (4,9/5 vs 4,6/5 other optional subjects and 3,7/5 mandatory subjects). The thematic analysis of the learners' evaluation revealed: better understanding about euthanasia controversy, complexity of EoLDM, demand of particular professional attitudes, positive view and understanding of palliative care. Students commit to change the own way to practice medicine, for to do an internal change of professional values, to open a broad dialogue with patient, to care preserving patient's dignity, to listen the patient.

**Discussion:** A museum of modern art aimed can facilitated the greater opening of mind required to learn EoLDM in Medical Education. The issue need further confirmation, perhaps with a focus group.

**Conclusion:** The experience to teach EoLDM in a modern art environment was successful: students liked very much, and learning objectives were achieved.

**Take Home Messages:** Unexpected findings talk about synergism between art and medical education.

#9DD16 (132636)

**Death and Empathy in Medical Education: Time to tackle these uncomfortable realities**

**Emma Figures\***, University of Cambridge/Walsall Manor Hospital, Walsall, UK

Jacob Schofield (Walsall Manor Hospital, Walsall, UK)

Jonathan Pepper (Walsall Manor Hospital, Walsall, UK)

**Background:** While death is faced by every doctor, studies suggest it is underrepresented in medical undergraduate education (Mileder, 2015). Moreover, it has been recognised that empathy is "eroded" during medical training (Hojat, 2009). In response to this troubling evidence and concerns raised by our students, we trialled an innovative simulation exercise, incorporating students role-playing relatives, diagnosing death and breaking bad news, with in-depth debrief and feedback.

**Summary of Work:** 40 final year students were divided into groups, with 1 playing the "relative" and 3 forming the resuscitation team. A faculty "plant" assisted. The scenario was an out-of-hospital arrest brought into ED, accompanied by the patient's relative, thus adding a complex, realistic and stressful component. Resuscitation was terminated, the students diagnosed death and broke bad news. Following de-brief, each student completed an anonymous questionnaire on their experience and learning from the session.

**Summary of Results:** The results were overwhelmingly positive. 100% of students felt more prepared to become junior doctors, found the session useful and wanted more. The mean positive response rates were favourable, with students stating the session improved their: communication (96%), teamwork (96%), capacity to deal with death (100%) and empathy (100%).

**Discussion:** The simulated relatives benefitted relatively more in empathy, but less in teamwork. This could be overcome with more sessions and students swapping roles. Overall feedback was positive, with comments such as "eye-opening to put self in relative's shoes" and "I now feel more prepared for real situations". Importantly, this session was conducted with compassion, given the sensitive subject.

**Conclusion:** Death and empathy are glaring gaps in the curriculum, uncomfortable and difficult to teach, yet vital for tomorrow's doctors. This session was a well-received, valuable learning tool that engaged students.

**Take Home Messages:** Challenging simulation scenarios and role-playing relatives can help students prepare to be doctors, deal with death and develop empathy. This should be integrated into medical training.

#9DD17 (135463)

**Death and Dying: Competent to Care?**

**Clare Tucker\***, NHS Education for Scotland, Glasgow, UK

Hazel Scott

Janice Turner

Gemma Sullivan

Rebecca Northridge

Hannah Hesselgreaves

**Background:** Communication at the time of death impacts on bereavement experience. Preparation and understanding enhances such communication. However, we were concerned that clinical training rarely addresses how to approach such situations outside those of expected death, with this gap in competency adversely impacting on patient care and also potentially on staff wellbeing and resilience.

**Summary of Work:** After undertaking a rapid literature review which confirmed our initial hypothesis, we analysed current UK curricula to examine how competency in handling the relevant range of death situations per specialty would be developed and assessed. In addition, we analysed trainee views on their experiences and preparedness for this area of practice.

**Summary of Results:** We have identified significant training needs for many specialty areas of training, especially in relation to sudden death contexts. Gaps exist between what is intended as competency outcomes and what is delivered.

**Discussion:** In response to our results, we are now developing a Scottish training framework for all career stages to support attainment of competencies, relevant to clinical practice and we have created new training resources to foster understanding.

**Conclusion:** Deficiencies exist in the competencies, provided by current training, needed to provide satisfactory care at the time of death. However, measures to address these can be readily integrated into undergraduate, foundation and specialty training.

**Take Home Messages:** Clinical training regarding death and death-related communication needs to take account of the varying situations in which specialty practice occurs.

#9DD18 (133379)

**Application of role-play simulation immerse courses in palliative and end-of-life care education**

**Oscar Lee\***, Taipei City Hospital, Taipei, Taiwan

Shao-Yu Hsu (Taipei City Hospital, Taipei, Taiwan)

Yang-Ching Chen (Taipei City Hospital, Taipei, Taiwan)

Ting-Fang Chiu (Taipei City Hospital, Taipei, Taiwan)

Lin-Yang Chi (Taipei City Hospital, Taipei, Taiwan)

Li-Lin Kuo (Taipei City Hospital, Taipei, Taiwan)

**Background:** Since 2015, Taipei City Hospital has provided palliative and end-of-life care in urban communities, and each branch began to form teams from interdisciplinary health care professionals. To improve team members' skill, role-play simulation was used as education platform to enhance knowledge, attitude and overall performance.

**Summary of Work:** We set up immersive courses, including three scenes of community-based palliative care. The first two scenes are about the decision phase, and the third the dying phase. Doctors, nurses and social workers were randomly selected for role-play with the standardized patients, followed by debriefing and discussion with the facilitator. The three most and least important interventions perceived by the participants were investigated in the pre- and post-course questionnaire of the participants.

**Summary of Results:** We held 6 immersive courses in different branches. A total of 498 employees, including health care professionals and administration staffs, have attended. In pre-course questionnaire, the top three important medical choices for the first two scenes are (1) Holding family meeting to explain the patient's condition (87%), (2) Discussing treatment, prognosis and possible survival period (61.8%), (3) Consulting the palliative team (54.5%). For the third scene are (1) Conducting health education for the dying phase (80.8%), (2) Saying goodbye and thank-you to the dying patient (73%), (3) Conducting bereavement counseling for the patient's family (40.3%). In post-course questionnaire, the percentages of choosing the least important interventions related to hospice care has decreased. (First two scenes from 26.3% to 20.9%, third scene from 24.3% to 21.1%)

**Discussion:** In this study, the most important interventions in palliative care perceived by staff were discovered through role-play simulation.

**Conclusion:** A role-play based immersive course was effective in increasing the awareness of palliative care.

**Take Home Messages:** Role-play simulation is recommended for education and training of palliative care among hospital staffs.

#9DD19 (126518)

**Utilising simulation for undergraduate training in modern, high quality, end-of-life care**

**Pippa Leighton\***, *Musgrove Park Academy, Taunton, UK*

*Holly Mincher (Musgrove Park Academy, Taunton, UK)*

*Amy Dawson (Musgrove Park Academy, Taunton, UK)*

*Hussein Waljee (Musgrove Park Academy, Taunton, UK)*

*Alan Cordey (Weston Hospital Academy, Weston, UK)*

*Bethan Warwick (Weston Hospital Academy, Weston, UK)*

**Background:** Doctors are central to the provision of high quality end-of-life care, which is currently under focus in the NHS, with the recent release of new guidance and media interest. Medical students receive limited teaching on end-of-life care; rarely is this 'hands-on'. There is a gap in undergraduate training,

**Summary of Work:** We designed a structured training course for senior students using high-fidelity simulation. Ethical approval was gained. We used simulation resources to create an end-of-life scenario, designed to be realistic, cost-neutral and student-centred. We collected quantitative and qualitative data using a structured questionnaire and joint interviews respectively to assess intervention impact.

**Summary of Results:** 55 students have undertaken the session. Significant increases in confidence of communication (1.8 pre-test, 3.5 post-test;  $p < 0.0001$ ) and drug prescription (1.7 pre-test, 3.3 post-test;  $p < 0.0001$ ) were recorded in the structured questionnaire. Students were more positive and confident in the post-course interview analysis. Verbal feedback will be presented.

**Discussion:** Our study provides evidence that simulation is an effective medium through which to teach the emotive and difficult topic of end-of-life care. There is real need to develop this training style for undergraduate medical education. During the next project stage we plan to audio-tape students for detailed reflection and feedback.

**Conclusion:** We aimed to assess the suitability of simulation in training medical students to understand modern end-of-life care, in preparation for the foundation years. We achieved this with a simple, structured course that ran with minimal resources.

**Take Home Messages:** Simulation is an excellent medium for undergraduate end-of-life training. We recommend the incorporation of high-fidelity simulation into undergraduate communication skills training.

## 9EE Posters: Junior Doctor as Teacher

Location:

#9EE01 (134143)

Clinician Educator Elective for Pediatric Residents

**Robyn Bockrath\***, Ann & Robert H Lurie Children's Hospital of Chicago, Northwestern University Feinberg School of Medicine, Chicago, USA

Karen Mangold

**Background:** Residency is the time to prepare physicians for independent practice. For residents seeking a career in medical education, graduate medical education has fallen short in preparing residents to serve as clinician educators. We addressed this educational gap by developing a Clinician Educator Elective.

**Summary of Work:** We followed Kern's 6-step approach to curricular development: 1. General needs assessment; 2. Targeted needs assessment; 3. Goals and objectives; 4. Educational strategies; 5. Implementation; and 6. Evaluation and feedback.

**Summary of Results:** A general needs assessment via literature review identified models of an ideal approach. Questionnaires distributed to pediatric residents and faculty addressed a targeted needs assessment. Resident surveys identified career interest in medical education and the elective, and perceived inadequate training in teaching skills, educational scholarly activity, curriculum and administration. Faculty surveys evidenced interest in the elective and participation, and perceived inadequacy in current medical education residency training. Goals and objectives with aligned educational strategies were developed focusing on teaching skills with formative feedback, learning theory, curriculum development, instructional design, feedback, evaluation, mentorship and reflection.

Implementation began as a pilot in Spring 2015. We added an educational portfolio to promote professional development based on elective feedback.

**Discussion:** A Clinician Educator Elective was successfully implemented using Kern's 6-step approach. Through targeted learning strategies, we provided improved readiness for careers in medical education. The curriculum is limited to a single residency program; however, Kern's steps can be applied to other institutions with this curriculum as a model.

**Conclusion:** The Clinician Educator Elective for pediatric residents was successfully implemented using Kern's 6-step approach and has addressed an educational need for residents pursuing an interest in medical education. Further studies are needed to assess the impact of curriculum on preparation for future career as educators.

**Take Home Messages:** The Clinician Educator Elective can serve as a curricular model to address educational needs through Kern's 6-step approach.

#9EE02 (135280)

Residents as Teachers: medical students' activeness may influence the outcome

**Shang-Feng Tsai\***, Center for Faculty Development, Taichung Veterans General Hospital, Taichung, Taiwan  
Chao-Huei Chen, Center for Faculty Development, Department of Education, Taichung Veterans General Hospital

Shr-jya Chen, Center for Teacher Education, Tunghai University and Graduate Institute of Education, Tunghai University

Chia-En Daniel Teng, Center for Teacher Education, Tunghai University and Graduate Institute of Education, Tunghai University

Hei-Wen Wang, Graduate Institute of Education, Tunghai University

Wei-Ting Hung, Center for Faculty Development, Department of Education, Taichung Veterans General Hospital

**Background:** Regarding clinical teaching for medical students, residents play an important role as clinical teachers in teaching hospital. However, some of the residents did not recognize his/her role as a clinical teacher and formal training curricula focusing on residents as teachers (R as T) were few. This study aimed to explore the expectation of residents as teachers (R as T) in a teaching hospital, which is not affiliated to any medical school.

**Summary of Work:** A qualitative method was used to investigate residents' expectation. Data were collected through focus group interviews. A total of 29 residents from different departments (surgery, internal medicine, pediatrics, emergency, anesthesia, and traditional Chinese medicine) and 8 medical students from three different medical schools in a medical center-level teaching hospital were invited to join the study. The focus group discussions were recorded and transcribed word by word.

**Summary of Results:** Most of the residents and medical students recognized the importance of being clinical teachers, but many of residents did not teach due to shortage of manpower and time. Residents also mentioned that they are not confident in clinical teaching, no matter in knowledge base or teaching skills. Quality and frequency of residents teaching depended on medical students' enthusiasm and activeness. However, medical students complained about being ignored and their needs of learning were not satisfied by residents. Residents did not perform well in orientation and giving feedback as a clinical teacher. Two groups both mentioned the important of role modeling in learning clinical teaching.

**Discussion:** According to the study, residents and medical students appreciated the role as clinical teachers. However, learners' enthusiasm and activeness influenced greatly on the motivation of residents in teaching. Formal curriculum for residents as teachers shall include orientation, creating learning environment and giving feedback.

**Conclusion:** Medical students' activeness may influence the quality and frequency of clinical teaching



given by residents. Formal residents as teachers curriculum is needed.

**Take Home Messages:** Medical students' activeness may influence the quality and frequency of clinical teaching given by residents. Formal residents as teachers curriculum is needed.

#9EE03 (126932)

**What should residents learn to teach? A modified Delphi survey to define competencies of resident-as-teacher**

**Tadayuki Hashimoto\***, Hashimoto Municipal Hospital, Wakayama, Japan

Makoto Kikukawa (Kyusyu University, Fukuoka, Japan)

**Background:** Residents are the pivotal role of clinical education. Previous study revealed 20 percent of a resident's time was spent on teaching activities. Several workshops for young attendings or residents have been held since more than 20 years. Despite their critical role as teachers, no teaching competency for residents exists yet.

**Summary of Work:** We conducted a modified Delphi process to examine teaching competencies for residents. 50 items were generated from literatures regarding teaching competencies in any levels. 24 panelists (6 each medical educators, program directors, chief residents and residents) from various facilities were recruited to rate the importance on a scale of 7.

**Summary of Results:** Recovery rate was more than 80 percent in all rounds. In this study, we set a standard of consensus, which is a more than eighty percent answerer rated 7 (important) or 6 (very important) without any comments. The Delphi approach resulted in a list of 25 competencies after 3 rounds.

**Discussion:** Our study revealed that young attending or residents are expected as a "Clinical or practical teacher", "Teaching role model", "On-the-job role model", "Learning facilitator" and "Student assessor" among the 12 roles of the teacher.

**Conclusion:** This is the first study to find the competencies for young attendings and residents by modified Delphi approach. We are planning to hold a resident-as-teacher workshop following this result. Through workshops, we are going to verify validity of these competencies.

**Take Home Messages:** It is very important to make residents good teachers. We should consider which educational competencies are more essential as residents.

#9EE04 (133402)

**Implementing the Feedback Orientated Observed Teaching (FOOT) scheme at a DGH; a useful learning tool or simply another session to attend?**

**Jacob Schofield\***, Walsall Manor Hospital, Birmingham, UK

Emma Figures (Walsall Manor Hospital, Medical Education, Walsall, UK)

Christian Katz (Walsall Manor Hospital, Medical Education, Walsall, UK)

Khyati Patel (Walsall Manor Hospital, Medical Education, Walsall, UK)

David Magee (Hillingdon Hospital, FOOT Liaison, London, UK)

Jonathan Pepper (Walsall Manor Hospital, Head of Teaching Academy, Walsall, UK)

**Background:** Hattie and Timperley (2007) state that one of the most powerful things we can do to influence achievement of students is to give feedback. The FOOT scheme was designed specifically to optimise the bedside teaching of medical students. The students are paired with a junior doctor who provides them with one hour/week clinical examination teaching. The aim of our study was to assess the effectiveness of this programme via student feedback.

**Summary of Work:** 18 fifth year and 30 third year students were assigned in pairs to receive teaching from a junior doctor for a term of ten weeks. The students were asked to complete anonymous feedback in the form of a Likert scale set of questions and white-space comments.

**Summary of Results:** Feedback was received from 77% of third years and 67% of fifth years. 100% of third years met with their tutor compared with 42% of fifth years. The mean positive response rate from 3rd years was 79%. 5th year students provided a mean positive response rate of 40%.

**Discussion:** There are many reasons for the difference in feedback received from the two year groups, such as a different motivation for learning (preparing for FY1), variable experience and knowledge levels, better alternative learning opportunities, busy timetables etc.

**Conclusion:** In general the programme received positive reviews. The focus of the negative comments was on the difficulty of organising a time to meet with the junior doctor tutor due to other commitments, e.g. ward work. Going forward, we have modified the programme so that fifth years now tutor the third years. Further feedback will be gained as the programme progresses.

**Take Home Messages:** The FOOT programme is an effective and useful adjunct to the learning of clinical examination but may best be targeted at more junior medical students.

#9EE05 (133221)

**Building confidence: teaching improvement for junior doctors**

**Andrew Hughes\***, *University Hospitals of Leicester, Leicester, UK*

**Pip Divall** (*University Hospitals of Leicester, Leicester, UK*)

**Chris Wighton** (*University Hospitals of Leicester, Leicester, UK*)

**Joanne Kirtley** (*University Hospitals of Leicester, Leicester, UK*)

**Background:** Following the success of a two day faculty development course for consultants we were commissioned to provide a one day version for junior doctors (FY2s). This course compliments formative assessments of teaching in the clinical environment and should help to demonstrate progression.

**Summary of Work:** Six individual days were delivered over six months to groups of 10-12 doctors. Structured preparation and delivery were discussed followed by exercises to reinforce concepts covered. Teaching using a range of modalities was encouraged and active participation helped develop solutions to challenges encountered when teaching. Aside from some core concepts, topics were tailored to the needs of the group. These included: teaching in the clinical environment, managing challenging behaviour and giving feedback.

**Summary of Results:** Using in-course polling we showed: • Increased confidence that their teaching sessions would be effective learning episodes. • Increased confidence in managing difficult behaviour. • All would be more likely to follow a structure in planning future teaching sessions. • All would recommend the course to colleagues (with a lowest average rating of 8.3/10 for the days).

**Discussion:** We used non-medical topics in the exercises to obviate the anxiety or academic focus that occurs when using medical subjects. The learning points were then translated into clinical examples. FY2 supervisor assessments should demonstrate improved teaching episodes but it was unable to obtain this information.

**Conclusion:** A significant portion of face-to-face teaching within a trust is delivered by 'junior' doctors, yet they may not have much training in doing this. FY2s have some experience of teaching to allow them to relate to the concepts covered and start to appraise those teaching them.

**Take Home Messages:** • Popular non-medical topics standardise factual knowledge within the group. • Encourage non-didactic teaching methods is to increase individuals' repertoire. • Junior doctors have some teaching experience to draw on (compared to students) allowing them to construct new teaching techniques grounded in educational theory.

#9EE06 (133618)

**Faculty versus trained resident (peer-led) teaching of a bone marrow aspirate and trephine biopsy simulation course**

**Winnie Teo\***, *National University Cancer Institute, Singapore, Singapore, Singapore*

**Guan Sen Kew** (*National University Hospital, Singapore*)

**Jia Neng Tan** (*National University Hospital, Singapore*)

**Eng Soo Yap** (*National University Cancer Institute, Singapore, Singapore*)

**Background:** Acquisition of bone marrow aspirate and trephine biopsy (BMAT) techniques is a critical skill for haematology residents. These skill sets are traditionally taught in a faculty-led course using a BMAT simulation model. We hypothesised that a peer-led simulation-based teaching would result in similar learning experience to that led by faculty.

**Summary of Work:** From 1st February 2015 -1st February 2016, we randomly assigned residents to be taught in a faculty-led or peer-led BMAT course. The teaching resident is one who had previously undergone the course and had been accredited to do BMAT independently. The peer-led teaching was observed by a consultant during teaching to ensure consistency in the teaching. After the course, residents filled up an anonymous survey to assess their learning experience. A validated scoring system, Satisfaction with Simulation Experience Scale (SSES) was used in our survey.

**Summary of Results:** 50 residents underwent the BMAT course, of which 32 residents via faculty-led and 18 residents via peer-led. The mean scores in peer-led group was consistently higher than faculty-led group although the differences in the scores did not reach statistical significance. The way the instructor taught the simulation was suitable to be way I learnt was the only question in which the mean score was lower in the peer-led group (4.3 versus 4.4).

**Discussion:** Peer-led teaching showed similar learning experiences as faculty-led. We believe that this may be due to a less stressful environment while learning from peers which enhances interaction, leading to increased engagement and learning. The opportunity to teach their peers also empower residents to take a more proactive role in their learning.

**Conclusion:** A peer-led BMAT course has similar learning experience as that led by faculty.

**Take Home Messages:** Simulation-based teaching by peers could be as effective as that taught by faculty.

#9EE07 (134481)

**Residents as Teachers training needs in a non-medical-school-affiliated Teaching Hospital**

*Chao-Huei Chen\*, Taichung Veterans General Hospital, Taichung, Taiwan*

*Wei-Ting Hung*

*Shr-Jya Chen*

*Daniel Chia-En Teng*

**Background:** Residents play an important role as clinical teachers in the hospital. However, the design of many resident training curricula seemed not meeting residents' needs for teaching. This study aimed to explore the training needs of residents as teachers (R as T) in a teaching hospital, which is not affiliated to any medical school.

**Summary of Work:** A qualitative method was used to investigate residents' needs. Data were collected through focus group interviews. A total of 29 residents from different departments (surgery, internal medicine, pediatrics, emergency, anesthesia, and traditional Chinese medicine) in a medical center-level teaching hospital were invited to join the study. The focus group discussions were recorded and transcribed word by word.

**Summary of Results:** Most of the residents, except those from the traditional Chinese medicine, recognized the importance of being clinical teachers, but many of them were not confident about teaching. They were not confident in providing orientation, assessing medical students, giving feedback after the assessment, making presentation, patient communication, clinical skills, and operative teaching. Residents' concerns about teaching included their own clinical knowledge base, not knowing the learning objectives of medical students, and not having the opportunity to receive evaluation and feedback for their teaching skills.

**Discussion:** It was also found that the needs of teaching strategies and skills were different among different disciplines. Role model plays an important role in learning clinical teaching. The enthusiasm and activeness of the medical students would also influence the residents' attitude toward teaching.

**Conclusion:** According to the investigation, the content of the R as T program needs to be modified in different disciplines in the hospital. In addition to the formal training curriculum, hidden curriculum should also be considered. Some promising R as T training models for this independent teaching hospital will be suggested.

**Take Home Messages:** The content of the R as T program needs to be modified in different disciplines in this hospital. Faculty development is crucial for the R as T program as hidden curriculum is important.

#9EE08 (133694)

**Inspiring confidence in future doctors : a tailored, near-peer led programme combining theory and simulation teaching for undergraduates**

*Amy Woods\*, Croydon University Hospital, London, UK*

*Lucy Tomlinson (Croydon University Hospital, London, UK)*

*Micol Lupi (Croydon University Hospital, London, UK)*

*Vaughan Holm (Croydon University Hospital, London, UK)*

**Background:** Medical students and newly qualified doctors are often apprehensive about managing the acutely unwell patient. The Near Peer Simulation programme, created and run by the 'Foundation Year 1 Simulation Faculty' aims to address issues around the practicalities of acute medical care, facilitating the transition from theory to clinical practice.

**Summary of Work:** This academic year the programme was redesigned to reflect lessons learnt by the faculty during their early experience in the NHS and in dealing with unwell patients, bringing together both clinical and human factors. More focus was centered on comprehensive ABCDE assessments, safe prescribing skills and effective handover

**Summary of Results:** 48.7% and 59.5% of students listed prescribing and managing acutely unwell patients as the most worrying aspects of future clinical practice, respectively. Average student confidence ratings in ABCDE assessments, prescribing and handover, before sessions, were 5.4/10, 4.8/10 and 5.3/10 and increased by 36.2%, 30.2%, and 25.8% respectively, after sessions.

**Discussion:** There are clear shortcomings in medical student education which fail to empower future doctors with the confidence to assess acutely unwell patients, prescribe safely and handover effectively. Near-Peer education has been shown to encourage students to participate in active learning and can increase student confidence in clinical practice.

**Conclusion:** Near-peer education and simulation are effective modes of teaching medical students, promoting confidence in the areas of clinical practice that most medical students find challenging. Identifying and addressing barriers preventing students from making a smooth transition between theoretical and clinical practice will ultimately be beneficial for patient care and safety.

**Take Home Messages:** Students lack confidence in some of the clinical skills and knowledge required to manage acutely unwell patients. Programmes that combine Near-Peer education and simulation provide a safe and realistic environment where students can develop these skills; as a result they are effective in increasing student confidence in practicing clinical medicine.

#9EE09 (133395)

**Teaching final-year medical students key FY1 skills by developing an FY1-lead, twilight teaching program**

**Andrew Deans\***, NHS Highland, Inverness, UK

David Gamble (NHS Highland, Inverness, UK)

Greg Marlow (NHS Highland, Inverness, UK)

Bhavika Khera (NHS Highland, Inverness, UK)

Stephen Fisher (NHS Highland, Inverness, UK)

John Duncan (University of Aberdeen, Aberdeen, UK)

**Background:** The benefits of near-peer facilitated teaching are becoming increasingly understood, both for students and the teachers themselves. Reported benefits include development of role models, safe and comfortable learning environments and cognitive congruence. Currently, little research exists specifically examining the benefits of near peer teaching on key, real-life FY1 skills, such as prescribing, imaging interpretation, inter-departmental presentation, SBAR hand-over skills and dealing with emergencies as the junior member of a team.

**Summary of Work:** At Raigmore Hospital, Inverness, a FY1 led twilight teaching program was developed for final year medical students from Aberdeen medical school. The program, informed by a 3-session pilot delivered earlier in the year, consisted of a 7-session programme, with a focus on key junior doctor (FY1) skills that ran for two consecutive cohorts of students. The sessions focused on these key FY1 skills as well as other core curriculum subjects. Feedback and quantitative confidence questionnaires were collected before and after each session.

**Summary of Results:** There was a statistically significant increase ( $p < 0.05$ ) in student confidence with these key FY1 skills following the teaching program. Students rated the sessions very highly and also rated the usefulness of near peer teaching very highly. As developing clinical teachers, the junior doctors themselves found the opportunity to teach and share their experience to be valuable.

**Discussion:** Our results show that near-peer teaching had a positive impact on final-year student learning. A novel focus on key FY1 skills, often overlooked in traditional curriculum, was considered highly beneficial.

**Conclusion:** We have shown that near-peer tutoring of upper-year medical students, with a focus on key FY1 skills, should be considered an important role for FY1 doctors.

**Take Home Messages:** Near-peer teaching, from junior doctors to senior medical students, on key FY1 skills, was beneficial to both the students and the doctors.

#9EE10 (134733)

**Resident as Teacher (RaT) Program: Residents' and Medical Students' Perceptions**

**Sermasak Sukpanichyingyong\***, Khon Kaen Hospital, Khon Kaen, Thailand

**Background:** Active learning (and teaching others) is one of the most effective learning strategies. "Resident as Teacher (RaT)" program can improve knowledge and interactive skills of residents, as well as medical students. The Department of Orthopedics, Khon Kaen Hospital initiated and implemented RaT program in 2014, aiming to determine the overall perceptions of the residents and medical students on RaT program.

**Summary of Work:** The RaT program encompassing 1-hour lecture, small group discussion and bedside teaching by third and fourth year residents was offered to fourth and sixth year medical students. Residents' self-reports and 5-point Likert scale questionnaires were collected from 11 residents and 62 students. Teaching skills, learning skills and attitudes toward teaching were assessed. To avoid a Hawthorne effect, all completed the questionnaires anonymously and confidentially after sessions.

**Summary of Results:** The total number of topics taught covered 48 topics over a 2-year period. Most of them encompassed common problems in orthopedics. Residents' self-reports revealed the high level of appreciation on attitudes toward teaching, collaborative learning skills, communication skills, professionalism, self-reflection and knowledge retention. Nonetheless, they perceived that they were not confident in their teaching skills. Based on students' questionnaires indicated the high value of appreciation on resident teaching skills and being their professionalism. All of them would like to continue RaT program.

**Discussion:** The topics taught were selected according to residents' expertise and passionate, also students interested in, including close relationship between them may affect the results.

**Conclusion:** The residents and medical students show high satisfaction with RaT program. They perceived that it was benefit to both parties even though residents were not confident with their teaching skills.

**Take Home Messages:** To teach is to learn twice. It is recommended that residents be better prepared in their teaching skills. The department in charge should provide ample orientation regarding roles as educators, workshops and resources to strengthen future RaT program.



#9EE11 (127570)

What do medical students think about junior doctor led student teaching?

*Gemma McGrory\*, NHS Lanarkshire / Hairmyres Hospital, Glasgow, UK*

**Background:** To allow medical students to learn from doctors at different stages, a novel programme of JD led student teaching was implemented at Hairmyres Hospital. The aim of this study is to establish the value of JD led student teaching and what could be done to improve the programme for future.

**Summary of Work:** A questionnaire was distributed to the students which asked (1)What are your thoughts regarding the JD teaching programme?; (2)Would you recommend that JD teach students?; & (3)What topics would you like to see included in future? Data was collected anonymously and analysed using a thematic framework.

**Summary of Results:** Feedback from was universally positive. Students commented on the JDs' enthusiasm, and practical applications of the teaching. 57% felt the topics were 'more clinically relevant' to FY1 working than similar teaching by senior colleagues. Future topic suggestions included practical working (e.g. drug prescribing), and FY1-level management of common emergencies.

**Discussion:** It is interesting that medical students value teaching by JDs highly. Teaching delivered by JDs was felt to be clinically relevant to their future jobs as FY1s and they appreciated having teaching from someone who has gone through that experience recently.

**Conclusion:** This novel programme was successful and future implementations of this programme have incorporated the students' suggestions regarding content.

**Take Home Messages:** JD teaching is valued by medical students, and felt to be clinically relevant whilst providing valuable teaching opportunities for enthusiastic JDs.

## 9FF Posters: Ultrasound and Imaging

Location:

#9FF01 (133878)

Peer-Teaching of Basic Ultrasound Skills using a Flipped Classroom Concept – Experience from Hannover, Germany

*Sabine Schneidewind\*, Hannover Medical School, Hannover, Germany*

Gerald Stiller

Marianne Behrends

Volker Paulmann

Volkhard Fischer

Andrej Potthoff

**Background:** Performing abdominal ultrasound constitutes an essential physician skill. Even young doctors are expected to handle an ultrasound machine correctly and to perform a basic abdominal ultrasound. Nevertheless, most medical undergraduate curricula lack ultrasound classes. Teaching ultrasound usually takes place in electives allowing only limited numbers of participants.

**Summary of Work:** We developed a peer-teaching tutorial that enables its participants to practice abdominal ultrasound on their own. It is based on a flipped classroom concept in which participants are asked to study a handout on ultrasound setting as well as watch a movie of a best practice example of abdominal ultrasound before class. The video consists of an introduction explaining the function of the essential buttons followed by the actual examination shown on a split-screen with the patient's abdomen to the right, the ultrasound picture and the buttons that are being used to the left.

**Summary of Results:** The tutorial takes place twice a month and is always fully booked. During the two two-hour tutorial sessions, participants master "knobology" as well as finding and measuring the organs under supervision of the trained student tutors. Preliminary data show that most participants do have ultrasound experience, but that they lack knowledge about image optimization. Students change their ultrasound technique after having participated and feel more confident in finding and measuring the abdominal organs and finding the aortic branches.

**Discussion:** The fact that students show deficits in image optimization emphasizes the need for a structured introduction before free practice. Teaching ultrasound requires many facilitators. We show that this can be successfully done with student tutors.

**Conclusion:** Engaging student tutors in basic abdominal ultrasound can reconcile the gap between students' need for ultrasound classes and availability of physician teachers.

**Take Home Messages:** Teaching basic abdominal ultrasound skills using a flipped classroom concept assures that participants focus on practicing during the tutorial session.

#9FF02 (133529)

Ultrasound-facilitated anatomy teaching and learning outcomes

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Heather Jamniczky

Mike Paget

Kevin McLaughlin

Sylvain Coderre

**Background:** Ultrasound is increasingly used as a teaching tool in medical education and is well-liked by learners. Although teaching ultrasound has been shown to improve ultrasound skills and knowledge, its impact on non-ultrasound related learning outcomes is unknown. Using the framework of cognitive load theory, this study seeks to evaluate the relationship between cognitive load associated with using ultrasound and actual learning outcomes in anatomy.

**Summary of Work:** Consenting first year medical students (n=161) underwent ultrasound-guided anatomy training laboratories. Relationship between reported cognitive load on using ultrasound and learning outcomes was evaluated using linear regression analyses. Anatomy examination scores between two years of students who were taught with ultrasound (n=318) were compared with historical controls (two years of students who were not taught with ultrasound; n=348).

**Summary of Results:** Weighted factor scores on cognitive load were not significantly associated with examination scores, although the higher the cognitive load on image interpretation, the lower the scores [ $F(1,135)=0.28$ ,  $\beta=-0.22$ ,  $p=0.61$ ]. Cohorts exposed to ultrasound-guided anatomy training had significantly higher scores than historical controls (82.4%  $\pm$  SD 8.6% vs 78.8%  $\pm$  8.5%, Cohen's  $d = 0.41$ ,  $p<0.001$ ).

**Discussion:** The incorporation of ultrasound as a teaching tool for anatomy is associated with improved learning outcomes in anatomy. Although a detrimental effect of high cognitive load on learning outcomes is not shown in our study, the direction of this relationship suggests that educators should exercise caution in introducing tools that may impose a high cognitive load on learners.

**Conclusion:** Using ultrasound to teach anatomy does not negatively impact learning and may improve learning outcomes.

**Take Home Messages:** We recommend the use of ultrasound as an educational tool for anatomy but careful attention should be paid to cognitive load considerations in designing ultrasound-facilitated teaching interventions for novice learners.

#9FF03 (134446)

**Flipped Classroom: A Valid Approach to Teaching Bedside Ultrasound Concepts to Undergraduate Medical Students**

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*Una Mrsic*

*Jan Hansel*

*Gregor Prosen*

**Background:** We implemented the flipped classroom model in Ultrafest, a single-day intensive hands-on ultrasound course for undergraduate medical students, to investigate its validity for teaching basic theoretical ultrasound concepts.

**Summary of Work:** Students attending Ultrafest (n=134) were provided with video lectures a month in advance to study basic ultrasound concepts. The seven selected videos were recorded by University of California Irvine and lasted 4 hours altogether. Theoretical knowledge was tested on the day of the event by a pre-test consisting of 15 single best answer multiple-choice questions of mixed format (recall questions, clinical vignettes with pictures). Ultrafest was concluded by students completing a 5-point Likert scale questionnaire.

**Summary of Results:** There was a statistically significant difference between pre-test results of students who reviewed 0-4 videos (mean score 11.86, n=21) and students who reviewed 5-7 videos (mean score 14.05, n=113) ( $p < 0.0001$ ). On the post-event survey students agreed that video lectures were appropriate for achieving learning outcomes (4.81), considered them useful for further studies and clinical practice (4.82) and mostly preferred video lectures to classic lectures (4.24).

**Discussion:** Students who reviewed more video lectures beforehand performed better on the pre-test. According to student feedback video lectures in a flipped classroom context cannot completely replace classic lectures. Our study was limited by uneven research groups due to opportunity sampling.

**Conclusion:** The flipped classroom approach utilizing video lectures is a valid modality for teaching theoretical ultrasound concepts to undergraduate medical students and students see it as a welcome augmentation to classic lectures.

**Take Home Messages:** The flipped classroom is a time-saving approach that offers a valuable tool for educators even in basic point-of-care ultrasound education at the undergraduate level.

#9FF04 (134950)

**Collaborative Ultrasound Objective Structural Practical Examination (OSPE) in Gross Anatomy**

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*Anjali Bhagra (Department of General Internal Medicine, Mayo Clinic, Rochester, MN, USA)*

**Background:** Use of ultrasound as a diagnostic tool is fast becoming an expectation in clinical practice. Learning anatomy through ultrasound is a standard practice for many anatomy courses in the United States. However, very few if any offer formal assessment of students' ultrasound skills and anatomical knowledge at the same time.

**Summary of Work:** Throughout the anatomy course at Mayo Medical School, first-year medical students were provided with both didactic briefing sessions and hands-on training on ultrasound basics, image interpretation and scanning techniques. The ultrasound content was integrated with the overall course material. As part of the final practical examination, students were expected to complete a collaborative team-based, hands-on ultrasound skills assessment. During this collaborative OSPE, students in four-person teams were expected to (1) setup the ultrasound machine, then (2) obtain, (3) orient, and (4) label an assigned image on a live model.

**Summary of Results:** Teams were graded using the rubric scale for each of the four components and given an overall score as a team. Each student was given a unique role within the exercise corresponding to the four tasks. The average OSPE score was 72% ( $\pm 21\%$ ). Students were the best at labeling the obtained images - 100% correct score. The most challenging task to achieve was the selection of the correct ultrasound probe and set up of the machine - 40% ( $\pm 51\%$ ) correct score. The OSPE scores were included as part of the final laboratory practical grade.

**Discussion:** The entire OSPE was performed in the classroom at 4 stations with 4 live models. Rotating through all 4 stations, students obtained, oriented and labeled 4 different structures. Collaborative OSPE was organized and supervised by near-peer teachers, who were trained third-year medical students working as teaching assistants (TAs) in the course. In final course evaluation, students were very positive regarding their collaborative ultrasound OSPE experience.

**Conclusion:** Collaborative OSPE assessment demonstrated an effective method to evaluate ultrasound skills in a preclinical anatomy course.

**Take Home Messages:** Collaborative OSPE can be successfully used to assess ultrasound skills and anatomy knowledge learned in the anatomy course

#9FF05 (133452)

**Ultrasound in the Undergraduate Medical Curriculum. A pilot project to introduce ultrasound skills to medical students to facilitate peer-led delivery of an ultrasound-assisted physiology session**

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Daniel Curley  
Asya Costa  
Liju Ahmed*

**Background:** The use of bedside ultrasound in increasing in the UK. Cheaper machines and a wider appreciation of the safety and diagnostic benefits of ultrasound in common clinical scenarios and procedures have led to a growing call for post-graduate ultrasound training, a need which is difficult to meet. The solution may be teaching ultrasound in the undergraduate medical curriculum, both as a skill to be learned but also as an adjunct to the teaching of subjects such as physiology, where real-time visualisation of live structures could form a powerful learning tool.

**Summary of Work:** We performed a pilot project where a cohort of medical students trained in the basic skills of ultrasonography, provided the faculty for a peer-led lesson, linked to concurrent curriculum learning on cardiac anatomy and physiology, delivered to the entire first-year cohort.

**Summary of Results:** Feedback from 255 students was extremely positive. Students were keen on more teaching of this nature, and felt that integrating ultrasound into their teaching would help their learning. Thematic analysis of free-text feedback demonstrated a variety of mechanisms that were felt to make the sessions a success. Follow-up feedback is currently being sought on perceived long-term benefits.

**Discussion:** Our pilot project has shown a possible solution to introducing ultrasound to the whole undergraduate curriculum of our medical school, through the development of a student faculty.

**Conclusion:** Ultrasound will increasingly form part of our clinical work. A place for it to be taught as both a skill and a way of understanding physiology, anatomy and pathology is during the undergraduate curriculum. We have demonstrated the feasibility of this approach without needing a large, expert faculty.

**Take Home Messages:** Teaching ultrasound to medical students is feasible and may provide a route to introducing ultrasound across the curriculum of undergraduate medicine, allowing the graduation of doctors skilled in the use of ultrasound.

#9FF06 (132454)

**Lessons learned from teaching ultrasound: defining specific motor-cognitive skills required for training, assessment and quality assurance of ultrasound training**

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**Background:** Ultrasound is an imaging modality on high demand in health care organizations. Multiple specialties and disciplines perform and teach ultrasound. This has resulted in a variety of different approaches of how to teach this imaging modality.

**Summary of Work:** We retrospectively reviewed our experience in the past three years performing interdisciplinary workshops of ultrasound guided vascular access and ultrasound teaching in elective rotations in our interventional radiology unit. The trainees included from medical students up to staff physicians. By observation we isolated and defined motor cognitive skills that were perceived as important for training and assessment of ultrasound.

**Summary of Results:** The specific motor-cognitive skills identified were: a) Dominant hand transducer control; b) Image creation/optimization; c) Non dominant hand control of keyboard; d) Normal anatomy visualization; e) Abnormal finding identification; f) Hands coordination for procedure performance.

**Discussion:** We have isolated six specific cognitive motor skills required to effectively train and assess ultrasound skills. We are going to pilot a teaching approach based on these skills in our ultrasound guided vascular access workshop in the 2016 calendar year.

**Conclusion:** We provide our experience defining specific cognitive motor skills that we believe are required to design, implement and assess ultrasound training programs. Testing is underway to assess if this approach is effective.

**Take Home Messages:** Ultrasound teaching programs need to define and train competencies based on certain motor cognitive skills to reach acceptable quality standards.



#9FF07 (132840)

**Development of the Experience of Ultrasonography Learning Model for Undergraduate Medical Students: A Case study of the Faculty of Medicine, Burapha University**

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Nattawat Asawaworarit

Wethaka Klinwichit

Pakaphun Dinchuthai

**Background:** Ultrasound is widely used by physicians today. Therefore, the need for ultrasound education is evident. Ultrasound training in undergraduate medical students has been increasingly incorporated but the teaching methods vary among medical schools. The effective teaching model was proposed by adding hands-on ultrasound experience proctored by radiologists on live patients in the last clinical year.

**Summary of Work:** A two-week radiology elective course was offered for sixth year medical students at Burapha University hospital. The elective students were provided ultrasound experience on live patient in real-life clinical settings. All sixth year students then completed a 25-ultrasound image quiz, and a questionnaire at the end of the academic year. The ultrasound test scores were compared between elective students and non-elective students. The students' background characteristics were determined by a grade point average and the ultrasound experience was determined by the number of scans. These were collected, and analyzed for the relationship with the ultrasound test scores.

**Summary of Results:** Fourteen medical students participated in the elective course. The ultrasound test scores in the elective group was significantly higher than in the non-elective group ( $p = 0.013$ ). The students' background characteristics and ultrasound experience have no significant relationship with the ultrasound test scores.

**Discussion:** In only 2-weeks of training, radiology elective students show significant higher US test scores than non-elective students, regardless of their background performances or previous US experience. This study suggests that the training had substantial impact on US knowledge with background independence.

**Conclusion:** Adding hands-on ultrasound experience using live patients proctored by radiologists for final year medical students, in the space of two weeks, is an effective ultrasound learning model for undergraduate medical students. This model should be considered in the curricular design.

**Take Home Messages:** US training in undergraduate medical education has been proved to be useful. Direct hands-on US experience on positive live patients is a valuable part of a student's medical education.

#9FF08 (134338)

**Hands-on Ultrasound in Musculoskeletal Anatomy Education**

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Mia Østergaard (Rigshospitalet, Copenhagen, Denmark)

Kristina Nielsen (Rigshospitalet, Copenhagen, Denmark)

Jørgen Olsen (University of Copenhagen, Copenhagen, Denmark)

Michael B. Nielsen (Rigshospitalet, Copenhagen, Denmark)

**Background:** Ultrasound has seen a growing use across many clinical specialties in the last 10 to 20 years. This means there is an opportunity for medical educational institutions to include ultrasound education in the undergraduate medical curriculum. Previous studies have shown that ultrasound can be a useful tool for teaching and learning basic anatomy. Our primary aim is to determine whether access to hands-on ultrasound improves the musculoskeletal and peripheral neurovascular anatomy knowledge of medical students as compared to those without access. Secondly, we want to determine whether hands-on ultrasound is an attractive learning tool without expert instruction by differentiating between an expert instructed group and a self-taught group.

**Summary of Work:** Participants were randomly divided into one of three groups: A) With access and instruction by a doctor with ultrasound expertise. B) With access and overseen by a lab assistant. C) Control group without access. Participants receive maximum total of 16 hours intervention over 8 weeks in the ultrasound lab, where they are encouraged to scan each other to investigate musculoskeletal anatomy.

**Summary of Results:** 202 students ( $n=202$ ) currently enrolled in the musculoskeletal and peripheral neurovascular anatomy course have agreed to participate in the study. Their use of the hands-on ultrasound anatomy lab will be registered and their results from the practical anatomy written exam will be collected and compared.

**Discussion:** Furthering the knowledge on the use of ultrasound as a tool for teaching anatomy could be useful for including ultrasound in anatomy curriculum designs of the future. In these instances, finding an efficient method for integrating ultrasound without expert instruction could increase the affordability of such curriculum designs.

**Conclusion:** The study is ongoing and data collection will end in April of 2016.

**Take Home Messages:** Is hands-on ultrasound a useful tool for teaching musculoskeletal anatomy?

#9FF09 (133604)

**Current condition and future perspective of diagnostic imaging education in undergraduate education: results of questionnaire survey to world-wide.**

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**Ruri Ashida** (*The Jikei University School of Medicine, Tokyo, Japan*)

**Mariko Nakamura** (*The Jikei University School of Medicine, Tokyo, Japan*)

**Joseph Ledsam** (*University College London, London, UK*)

**Background:** Despite increasing dependence on diagnostic imaging (DI) in clinical medicine, there has been little discussion about the importance of undergraduate DI education. The purpose of this research was to investigate the current condition of undergraduate DI education and gain insights into its future.

**Summary of Work:** A questionnaire survey was sent to forty-two radiologists, all of whom are presidents of radiological societies. The responses were collected and analysed to investigate current and potential future directions for undergraduate DI education.

**Summary of Results:** Twenty-one radiologists responded; Europe 7, North-America 5, Asia 5, and other areas 4. Classroom-style lecture is performed in 17. E-learning materials are used in 11. DI-related research is performed in 13. Nineteen responded that DI-related research should be introduced into curriculum. DI-OSCE is performed in 9. Nineteen responded that DI-OSCE should be performed in the future.

**Discussion:** In order to facilitate self-learning and flipped classrooms, we should develop attractive e-learning material. DI-related research can be an attractive curriculum for future doctors, with proposed topics including pure-DI, radiation safety, and imaging-related medical economics. Through DI-OSCEs students can learn safe and effective practice in DI, which may lead to DI-related safety improvements and reduced medical expenditure.

**Conclusion:** Although DI-related research is a small theme, there is interest in providing undergraduate research opportunities in DI, DI/social economics and safety in medical imaging. It is expected that through introduction of DI-OSCEs future doctors will choose more effective imaging algorithms, care more about patient safety and show interest in medical economics.

**Take Home Messages:** DI-related research during undergraduate education is recommended. Introduction of the DI-OSCE is expected, and cooperation between radiologists and medical education faculties is necessary to achieve this.

#9FF10 (132942)

**An educational course for the achievement of confidence on basic Focused Assessment with Sonography in Trauma (FAST): Evaluation of a small group workshop in Thai medical student**

**Thawatchai Tullavardhana\***, *Department of Surgery, Faculty of Medicine, Srinakharinwirot University, Ongkharak, Nakhon Nayok, Thailand*

**Background:** Trauma has become a leading cause of death in developing country as Thailand. After graduating from the institute, the medical students have to work in emergency department of community hospital. Our goals were to improve the confidence of the student on Focused Assessment with Sonography in Trauma (FAST).

**Summary of Work:** The one-day small group-training course was organized at Faculty of Medicine, Srinakharinwirot University. Twenty-five participants affiliated in the small group workshop; the participants have divided up into 3 groups (7-8 participants /group). The training program initiates with 1-h lecture by an instructor and spent 6-h in hands-on practice session. The participants complete a questionnaire in the confidence of basic knowledge on equipment use, ability to illustrate 4 standard views and decision-making in FAST; based on a 5-point Likert scale. The scores between pre-and post-workshop was compared by paired t test statistical analysis.

**Summary of Results:** The small workshops demonstrate a significant improvement of the confidence in basic skill and decision-making in trauma patient on the basis of FAST result. The mean overall score of pre-and post-workshop were 24.9 and 37.6 respectively ( $p < 0.001$ ).

**Discussion:** FAST is an initial diagnosis tool for abdominal trauma, which is helpful for planning for optimal management. The training model has been developed such as a simulator. However, the limitation was consisted of the cost of the simulators, the needs of technical maintenance and software upgrades. Our results verify the effectiveness of small group workshop as an excellent training model for practice in FAST, which was suitable for socioeconomic of developing countries.

**Conclusion:** The small group workshop is an effective model of training for better performance in FAST.

**Take Home Messages:** Small group hand-on workshop is a valuable education method for achieving an experience to the students even in the limited resources situation.

#9FF11 (131335)

**Learning through visualization and feedback:  
integrating ultrasound in physical examination  
improves confidence**

**Adrian Yee\***, UBC, Victoria, Canada

Steve Chang

Jim Salzman

Christine Simmon

Pete Tonseth

Joshua Williams

**Background:** Portable ultrasound technology is becoming a standard part of undergraduate medical curriculum. We piloted a program integrating ultrasound technology with the traditional teaching of the head and neck anatomy and physical examination.

**Summary of Work:** The pilot study was conducted by the undergraduate medical program at UBC. One-hundred and thirty students participated in the pilot. Participants received a lecture about the operation and clinical application. This was followed by a hands-on workshop with tutor demonstrations using ultrasound to visualize anatomical structures of head and neck.

**Summary of Results:** Ninety-two participants completed the survey and eighty-six participants indicated that the pilot supported and complemented learning in clinical skills. Hands-on experience, one-on-one interaction with tutors, and visualization of the anatomy with interpretation of images were perceived to be factors in improving confidence in physical examination and clinical reasoning skills.

**Discussion:** Our pilot confirmed medical studies value the use of ultrasound in clinical skills and anatomy. One possible explanation for our results is that teaching ultrasound requires direct one-on-one feedback and visualization, both of which are key factors in improving clinical skills learning.

**Conclusion:** Our pilot confirmed the feasibility of integrating portable ultrasound technology into the physical examination curriculum. Medical students have a positive perception about using ultrasound to improve learning in physical examination. Further research is needed to identify whether direct observation and/or visualization are the reasons.

**Take Home Messages:** Integrating portable ultrasound technology into clinical skills teaching may have multiple benefits.

## 9GG Posters: Virtual Patients and Simulated Patients

Location:

#9GG01 (133393)

**Information needs of virtual patient collection users: a longitudinal analysis of visitor queries in the eViP project repository**

**Andrzej Kononowicz\***, Jagiellonian Univeristy Medical College, Kraków, Poland

Inga Hege (Ludwig-Maximilians-Universität, München, Germany & Geisel School of Medicine, Dartmouth, USA)

David Davies (University of Warwick, UK)

Nabil Zary (Karolinska Institutet, Stockholm, Sweden)

Terry Poulton (St. George's, University of London, UK)

**Background:** A recent literature review identified seventeen on-line virtual patient (VP) repositories including the eViP collection of over 320 VPs. Despite their availability there are hardly any reports summarising their use based on longitudinal observations. The aim of our study was to inform more efficient design of digital repositories by analysing how one of them was queried over five years.

**Summary of Work:** We processed query logs from a simple free-text search box of the eViP repository during a five years' period and analysed qualitatively and quantitatively the keywords. We used the emerging themes to establish categories of keywords and then calculated their frequencies.

**Summary of Results:** We analysed 1955 queries in the years 2010-2014 (five years after the eViP project ended). Three general categories of keywords were established: medical (14 themes; 71% keywords), technical (7 themes; 15%), and educational (1 theme; 2%). The most common themes in the medical category were "diagnose/disease" (most often: diabetes, cancer, depression) followed by less common "specialty" (gynaecology/obstetrics, neurology, psychiatry) and "symptom" themes (dementia, chest pain and abdominal pain). In the technical category most popular searches were for VP provenance (authoring institution), language and VP system.

**Discussion:** Analysis of search terms helps to understand information seeking behaviour. We discovered that pedagogical search terms including educational level or setting of VP use (e.g. self-directed or PBL case) were hardly ever used.

**Conclusion:** Our analysis revealed that most search queries contained medical sign, symptom, or diagnosis keywords, with substantially fewer technical or pedagogical terms.

**Take Home Messages:** The observed pattern of information seeking behaviour has implications for how learning resources including VPs are described using metadata, with a recommendation to enhance medical condition keywords.

#9GG02 (134205)

**Virtual Patient Cases: Can They Teach Foreign Trained Health Professionals about Differences in Health Culture and Context?**

**Alison Greig\***, University of British Columbia, Vancouver, Canada

Sue Murphy (University of British Columbia, Vancouver, Canada)

Glenn Regehr (University of British Columbia, Vancouver, Canada)

**Background:** Many health care professionals decide to practice their respective profession in another country. Differences in practice culture and health care contexts may pose unique challenges. Virtual Patient (VP) cases are educational computer simulations that present clinical scenarios and target clinical reasoning processes. This study explored whether interaction with VP cases impacted the enculturation of internationally trained physiotherapists (IPTs) to a Canadian health care context.

**Summary of Work:** The participants (IPTs) interacted with twenty-three VP cases which included clinical scenarios across multiple physiotherapy practice contexts. A mixed methods approach, including six semi-structured interviews and a survey questionnaire, was used to explore the impact of the VP cases on identification of cultural and contextual differences in health professional practice, and to gain understanding of participants' prior clinical experiences and knowledge of the Canadian practice context.

**Summary of Results:** All participants stated that they gained important insights into the culture of physiotherapy practice in Canada through interacting with the VP cases, which was seen as fundamental to successful transition into Canadian practice. Participants noted subtle differences in approaches to patient encounters, communication and professional practice that were apparent in the VP cases.

**Discussion:** IPTs identified differences in Canadian physiotherapy practice and were able to compare them to practice standards in their respective countries. Many of the pillars of physiotherapy practice in Canada, such as interprofessional collaboration and client-centred care, were identified by IPTs through their interactions with the VP cases, even though these elements were deliberate learning objectives in the cases.

**Conclusion:** VP cases can be effective educational tools to teach learners about cultural contexts of health professional practice. Even when the stated objectives of the cases do not focus on the cultural context, learning may occur around practice elements such as health professional culture, communication and professional standards.

**Take Home Messages:** VP cases can be effective in teaching health professional context and culture.



#9GG03 (133503)

**The effect of the use of virtual patients in undergraduate curriculum on students' knowledge about family medicine**

**Dejan Dinevski\***, *University of Maribor, Faculty of Medicine, Maribor, Slovenia*

*Zalika Klemenc Ketiš, University of Maribor, Faculty of Medicine, Maribor, Slovenia*

*Branka Čagran, University of Maribor, Faculty of Education, Maribor, Slovenia*

*Ivan Krajnc, University of Maribor, Faculty of Medicine, Maribor, Slovenia*

**Background:** Virtual patient (VP) is a computer program which simulates the real patients' cases and hence enables the students to gather patient's history, perform clinical examination and decide on diagnostics and therapy. The main usefulness of VP is in effective learning of clinical reasoning. Since there are only few studies dealing with the use of virtual patients in family medicine undergraduate education, we decided to perform an experimental research aimed at studying the efficiency of use of virtual patients (MedU) in the course on family medicine from the viewpoint of the students' knowledge.

**Summary of Work:** A case-control prospective study was done at our Medical Faculty in 2015. We performed a static-group-pretest-posttest with analysis of the covariance; the experimental factor had two modalities: the traditional class on family medicine (control group) and the class with additional use of the virtual patients (experimental group). The research population consisted of all undergraduate students who enrolled to the 4th study year in 2014/2015 and attended the course on family medicine (N = 99). We randomly assigned the students to two groups and tested their initial and final knowledge of family medicine subject.

**Summary of Results:** There was no statistically significant differences in parameters of both groups and the initial knowledge of family medicine. At the final assessment of knowledge, students achieved from 31 to 49 points in total out of 50 MCQ questions. The mean score was  $40.9 \pm 4.2$  points, the skewness was -0.5 and the kurtosis 0.4. There was a statistically significant difference in initial and final family medicine knowledge.

**Discussion:** To the best of our knowledge, this is a first study to assess the effectiveness of virtual patients in undergraduate teaching of family medicine. The EG and CG students were nearly equal in the level of their attained family medicine knowledge, while during the experiment, the EG students made little but significantly more progress than the CG students.

**Conclusion:** Our research showed that the use of virtual patients during the class of family medicine in the 4th study year did positively affect the students' knowledge of family medicine.

**Take Home Messages:** The use of virtual patients in family medicine can be as effective as traditional teaching methods.

#9GG04 (133756)

**How students' communicate in an interprofessional setting.**

**Karin Bjoerklund\***, *Academic primary health care centre, Huddinge, Sweden*

*Charlotte Silén*

**Background:** Communication skills and professional language are essential when communicating with patients and professionals both professionally and interprofessionally. Today, there is limited experience of how students learn to communicate in an interprofessional setting. In order to facilitate students' communicative learning process knowledge is needed about how students communicate with each other.

**Summary of Work:** In a virtual patient setting occupational therapist and physiotherapist students carried out a simulated patient encounter in pairs of two, using one computer each, sitting side by side. The students' conversation was recorded in video films and the oral communication was transcribed. Discourse analysis (Fairclough, 2003) was used to analyse the data.

**Summary of Results:** A social learning environment was created posing questions and acknowledging each other. They clarified their own profession using familiar concepts. When comparing their professional views they related the peers' statements to their own profession. The communication was characterized by a meaning making process aiming to understand each other's perspectives.

**Discussion:** Working with the simulated patient encounter the students created a reciprocal learning situation with two dimensions; one cognitive and one social merging together during the session. Their communication reveal a meaning making process indicating that this kind of simulation can promote students' learning about their own profession as well as about other professions.

**Conclusion:** Observing and analyzing students from different professions working together in a virtual patient setting revealed communication patterns that can be facilitated to enhance professional and interprofessional learning. The results can also be used to improve the design of the patient encounter in terms of stimulating professional and interprofessional communication.

**Take Home Messages:** Students can practice and develop both professional and interprofessional communication skills through common work in a virtual patient setting. These learning activities could be used as preparation for interprofessional clinical practice.

#9GG05 (132142)

**'Microbiology Virtual Patients' medical applications in medical education. A retrospective study examining global changes in e-learning**

*Junet Iqbal\*, NHS Ayrshire and Arran, Glasgow, UK  
Adrian Raudaschl  
Iain Johnson*

**Background:** In 2013, two medical students developed and evaluated a free medical application for use on smart phones and tablet devices. Using the topic of microbiology and infectious diseases 9 cases were written which, following input from topic experts were transferred into a virtual patient medical application.

**Summary of Work:** Using statistical data gathered from the MVP application downloads, we analysed key global statistics. 2. A literature review was carried out examining changes in e-learning in the context of global curricula. 3. Feedback pre and post use of the medical application was used for the purpose of evaluation.

**Summary of Results:** From January 2014 to January 2016 total downloads from MVP were 24,995. Breakdown of these downloads: 52% USA, 10% UK, 3.64% Philippines, 2.59% Canada, 2.30% India. Feedback from students found MVP an effective way to learn with 100% of students using the application again and gaining knowledge after its use.

**Discussion:** Healthcare and technology advancements have allowed medical applications to have a greater role in medical education. MVP application downloads of 62% support this theory within western teaching. India has many established teaching medical institutions and over 100% more than the US and the UK put together.

**Conclusion:** Literature suggests that there is a move away from traditional teaching methods within the UK and the USA. They are adapting an approach similar to the adult learning theory. India, amongst other developing countries, continues to utilise the resources available to them, which at present does not include application-based learning.

**Take Home Messages:** Access to technology may be preventing the developing world from applying this mixed learning approach. Within India, the next five years will be pertinent given the rapid incline in available technology and increase in server capabilities. We must continue to evaluate the effectiveness of e-learning in mixed learning theories.

#9GG06 (135624)

**The visual design of virtual patients affects students' attitudes towards them**

*Isobel Neville\*, Queen Mary's University of London, London, UK  
Salaj Masand (Queen Mary's University of London, London, UK)*

**Background:** Digital media is part of everyday life. The design and aesthetic of a product are well known to impact its usability and credibility. Virtual patients are increasingly being used in medical education. Student feedback shows that the virtual patients designed for the year 3 students at Queen Mary's University of London have an outdated aesthetic.

**Summary of Work:** We aimed to create a virtual patient that is visually appealing and to assess whether this increases student engagement with the virtual patient. We used Articulate Storyline 2 to create the virtual patient. We took advice from e-learning technicians on the design of the virtual patient. We concentrated on consistency, colour-scheme and alignment. We trialled the virtual patient with a focus group of students. They gave feedback on its aesthetic and usability, as well as their enjoyment of it, using a five-level Likert scale.

**Summary of Results:** The students in the focus group were impressed with the visual aspects of this patient. They added that this made it appealing and enjoyable. They found it easy to use. It was more enjoyable than the older virtual patients and they would be more likely to use it again.

**Discussion:** The focus group engaged enthusiastically with the virtual patient. The visual design of the patient influenced students' attitudes and created a positive learning environment. This engagement and ease of use allowed the students to fully immerse themselves in the learning.

**Conclusion:** The aesthetics of a virtual patient should be considered during their design as it will affect students' reaction to and interaction with the tool. The challenge will be keeping these patients up to date as the accepted design of online tools is rapidly evolving with technological advances.

**Take Home Messages:** We instinctively form judgements based on aesthetic. A pleasing design will motivate students to engage with and learn from the virtual patient.

#9GG07 (133412)

**There is no significant performance difference between students using virtual patients and paper based PBL**

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*Monika Sobocan, Faculty of Medicine University of Maribor, Slovenia*

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**Background:** Virtual patients (VPs) have been in use as an add on educational methods to traditional teaching. Through multimedia and interactive elements students get an insight into the clinical decision making process. VPs allow medical students to gather valuable experiences and knowledge in clinical practice. It enables the development of clinical reasoning through pattern recognition and in particular, the students learn the correct decision-making algorithms and increase their knowledge.

**Summary of Work:** Our study compared the substitution of paper based PBL cases with VPs. 3rd year medical students, at the beginning of their clinical education, have been taught PBL sessions in cardiology and gastroenterology either with paper based PBL cases or virtual patients. The outcomes were measured with standard knowledge examinations at the end of each module as well as with the Diagnostic Thinking Inventory (DTI) questionnaire.

**Summary of Results:** Initial data after 2 modules shows no significant difference between students using paper based PBL or virtual patients. At the baseline, using only paper based PBL cases (cardiology exam) both groups achieved comparable results (73.5% vs. 72.3%). When group A was taught with virtual patients and group B with paper based PBL there was no compelling distinction between two group results (69.9% vs. 69.3%).

**Discussion:** In comparison to performed studies where students, using VPs outperformed students studying with traditional methods, there was no significant difference between groups in our study. It might be students have not been subjected yet to enough virtual patient cases to have an impact on their performance. Further evaluation follows.

**Conclusion:** VPs in our study did not show an improvement in students knowledge in the short term. Results should be further tested for long term knowledge improvement and diagnostic thinking skills.

**Take Home Messages:** Virtual patients can be a useful educational tools but further evaluation is need on case size for proper effects.

#9GG08 (133674)

**How do Virtual Patients model clinical encounters? A grounded theory approach**

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**Background:** Virtual Patients (VPs) are interactive web-based programs that simulate clinical encounters of healthcare professionals and patients. As simulations are an abstraction of reality, developers must decide on which details they put an emphasis on. Our aim was to analyze how VPs model clinical encounters.

**Summary of Work:** We applied a grounded theory approach based on the following resources: VPs, interviews with VP system developers, and literature. Based on an open coding structure, we iteratively applied axial and selective coding to develop a model of relevant aspects of the clinical encounter.

**Summary of Results:** Based on the data we elaborated the following main categories: clinical context, learning context, set-up, and process model. The subcategories of set-up are: actor, environment, and equipment which have further subcategories such as audiovisual representation interaction, and amount of information. The process model describes the progress of the storyline and encompasses subcategories such as navigation model and time.

**Conclusion:** We discovered different approaches how the clinical encounter is being modeled. However, a VP system typically focuses on the representation of one specific aspect, such as providing a visually realistic environment, giving the learner as much interaction as physicians would have, or showing the consequences of decisions. Our work gives insights for the VP community on approaches that are used, which will foster focused VP development. As a next step we will interview students and clinicians, on which aspects of the clinical encounter they consider to be relevant

**Take Home Messages:** There is a large variety of approaches how a clinical encounter is modeled in VPs. However, there is still a need for a deeper understanding of the effects on the learning experience that the different approaches have.

#9GG09 (134016)

**How do virtual patients represent the reality? A comparison with the healthcare system**

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**Background:** An important aspect of virtual patients (VPs) is their authenticity. This includes design and presentation aspects, but also how a VP collection represents a patient population. Therefore, our aim was to analyze VPs integrated into the 3rd year medical curriculum at the University of Munich (LMU) and compare the results with the German healthcare system.

**Summary of Work:** We developed a coding schema with four main categories patient data, patient as person, diagnoses, and setting. Based on the coding schema we analyzed the 66 VP narratives provided for 3rd year medical students at LMU and compared the results to data from the German healthcare system.

**Summary of Results:** Especially in the categories patient data and patient as person the VPs presented an unrealistic image of the real world; topics such as unemployment, disability, or migration background were almost non-existent. The diagnoses of the VPs and the course of time were comparable with the healthcare data.

**Discussion:** Since the VPs have been created based on curricular learning objectives, it is not surprising that they reflect the healthcare data in terms of diagnoses. An explanation for the lack of representativeness of the patient data and patient as person might be that the VPs were based on fictional patient stories and VP authors tried to minimize complexity and cognitive load for the students.

**Conclusion:** We suggest to offer more guidance for VP authors on how to create more realistic representations of patients without overwhelming their students. VPs should be based on both, clinical and patient-oriented learning objectives.

**Take Home Messages:** We recommend to put more emphasize on the representativeness of a VP collection. Complex topics such as disability or migration background should be carefully included to better prepare students for their clerkships.

#9GG10 (126709)

**Students create cases for Simulated Patients**

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*Claudia Schlegel, Bern Centre of Higher Education of Nursing, Bern, Switzerland*

**Background:** Students cannot participate in the creation of learning environments. At a Swiss school for nursing, students' acceptance of simulated patient (SP) cases conceived by educational designers is low. When evaluating SP encounters, students complain that the contents of the cases do not mirror their experience in clinical practice.

**Summary of Work:** To integrate students' experience and perspective when designing SP cases, a pilot project was conducted, in which four nursing students developed an SP case. Based on their experience in clinical practice, they wrote the role script for the SP, drew up the checklist and conducted the SP role training.

**Summary of Results:** A total of 180 students went through a simulation based on an SP case developed either by professionals or by students. In a questionnaire, students rated the case developed by their peers as more realistic. In addition, the four nursing students involved in the pilot project gathered valuable learning experience.

**Discussion:** Both students and professionals expressed predominantly positive opinions as to the possibility of letting students develop SP cases. However, the support and guidance faculty members provided to the students in the pilot project must not be underestimated.

**Conclusion:** The main conclusion from this pilot project is that participatory student design appears suitable for use in designing SP cases.

**Take Home Messages:** Integrating the perspective and experience of students in the creation of learning environments can increase students' learning motivation.



#9GG11 (133869)

**A comparative study of medical students' satisfaction towards learning between standardized patients and regular general patient treatment in the instruction at the outpatient clinic otolaryngology, Phramongkutklao College of Medicine**

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*Suthee Ratanathummawat*

*Pariyanan Jaruchinda*

*Greetha Muangthong*

**Background:** Currently, the education of 4th years medical students study from general patients who walk in to outpatient department (OPD) including ear nose throat (ENT) section, but it had limitation by number of patients. Therefore a concept was created by study with the volunteers or standardized patients and assess the medical students' satisfaction. Both methods had different advantages and disadvantages and no previous study.

**Summary of Work:** The patients were divided into 2 groups; the general patients group and the standardized patients group who had one of 12 standard diseases which were appointment. The standardized patients must not have the urgent conditions and approved to be the volunteers with circular appointment such as allergic rhinitis, nasal polyp etc. The medical students had to complete history and physical examination in both groups in alternative weeks under the medical instructors control then evaluate the satisfaction by answering the validated questionnaire and focus group interview.

**Summary of Results:** The medical students' satisfaction showed statistically significant towards standardized patients than regularly general patients. Moreover, they were satisfied towards the variety of disease, the prompt answering about their symptoms, the participation and willing to be volunteer. For the question about motivation for learning had no statistically significant differences between two groups.

**Discussion:** Standardized patients have benefit for medical students at OPD. The limitation is the effect of disease could not be seen obviously at the appointment time, for instance; vertigo and sinusitis.

**Conclusion:** The medical students satisfied the standardized patients than the regularly general patients learning and preferred to the disease diversity. The patients willingly concurred with the medical students' instruction.

**Take Home Messages:** The medical students had more satisfaction in learning with standardized patients than regularly general patients. The quantitative of the results need more study.

#9GG12 (132524)

**"I'm playing a schizophrenic": The use of simulated patients in a communication skills training program for psychiatry (ComPsych)**

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*Julia Koller-Smith (University of Newcastle, Newcastle, Australia)*

*Philippa Ditton-Phare (University of Newcastle, Newcastle, Australia)*

*Harsimrat Sandhu (Hunter New England Local Health District, Newcastle Australia)*

*Sean Halpin (University of Newcastle, Newcastle, Australia)*

*Brian Kelly (University of Newcastle, Newcastle, Australia)*

**Background:** ComPsych communication skills training (CST) program provides mental health clinicians with advanced skills for discussing difficult psychiatric news. Simulated Patients (SPs) portray patients with schizophrenia during training. The utility and feasibility of employing SPs within the program was evaluated.

**Summary of Work:** Data from fifty-nine clinicians and seven SPs is reported. Subjective and objective measures were collected. Actors rated satisfaction with SP training, materials and scenarios. Clinicians rated the efficacy and authenticity of SPs' performance. Standardised Patient Assessments (SPAs) were conducted as part of the ComPsych methodology and were scored by three independent coders using standardized format to assess SPs performance and compliance with instructions. Qualitative interviews were piloted in a small subset of SPs (n=3) to examine the impacts and potential harms associated with SP performance in psychiatry.

**Summary of Results:** Based on a five-point Likert-type scale (strongly disagree 1 - strongly agree 5), SPs rated the efficacy of SP training as 4.28 (SD = 0.87) showing training was beneficial. Clinicians rated SPs performance as authentic and a valuable training tool. Qualitative findings revealed fewer negative (n=14), compared with positive (n=21) SPs experiences performing psychiatry roles. SPs stated that the ComPsych structure and training was largely protective, the work rewarding, and they developed insights into mental illness as a consequence. Scored SPA data showed SPs performance was of a high quality.

**Discussion:** The efficacy of the SP training led to high-caliber performances, as rated by clinicians. SPs received high SPA scores for their ability to conform to performance requirements and to respond appropriately to clinicians during SPA scenarios.

**Conclusion:** When provided with adequate training and standardisation, SPs demonstrated the ability to perform psychiatric roles to a high standard. This translated into a positive learning experience for the clinicians.

**Take Home Messages:** SPs are an effective training tool for use within psychiatry CST with self-reported benefits to SPs from participation.

#9GG13 (133936)

**Male genital examination skills training for medical students by male teaching associates: effect on self-confidence, a students' perspective**

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*Hester Daelmans*

**Background:** Practicing intimate examination on each other, such as the examination of the male genitals, appears to be threatening for students. Practicing on a person though, is expected to have more impact on self-confidence than practicing on a mannequin only. Therefore we introduced an obligatory skills training in male genital examination by male teaching associates (MTAs). We aimed to investigate whether students feel more self-confident after the training

**Summary of Work:** Students at VUmc School of Medical Sciences who follow a MTA training, were asked to evaluate this training by filling out a written questionnaire with open-ended questions. In order to learn whether students' self-confidence increased due to the training, we studied the questionnaires filled in during the period 2010-2015 (N=1668).

**Summary of Results:** Students reported more self-confidence to perform the male genital examination on real patients after the MTA training.

**Discussion:** Students often report reluctance to perform intimate examination in real patients. It is believed that MTA training contributes to the self-confidence of students, which could have a beneficial effect on their motivation to perform intimate examination in practice.

**Conclusion:** We can conclude that a male genital examination skills training by MTAs is useful for students. Moreover, because the training is scheduled just before the clerkships, students are able to immediately perform the male genital examination on real patients in the workplace.

**Take Home Messages:** MTAs genital examination training for medical students can be of great value to increase self-confidence.

#9GG14 (135254)

**Assessing standardized patients' performance between tutors and medical students in innovative basis clinical skills curriculum**

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*Chin-Chou. Huang, Taipei, Taiwan (R.O.C.)*

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**Background:** How was standardized patients' performance? How did we evaluate that? Lidewij A Wind (2004) and Shifra Bouter (2013) were published the assessing questionnaires with well reliability and validity, which could provide teachers and medical students for evaluating standardized patients' performance.

**Summary of Work:** We modified the assessing questionnaires which were published by Lidewij A Wind (2004) and Shifra Bouter (2013). Then, we use it assessing standardized patients' performance between tutors and medical students in innovative basis clinical skills curriculum. So, we will allow standardized patients to understand their own performance, and we can adjust the standardized patient training mode, and strengthen the necessary training.

**Summary of Results:** Total 74 and 318 assessing questionnaires from tutors and students separately in innovative basis clinical skills curriculum were analyzed in May and Jun 2015. The Cronbach's Alpha value of the standardized patient assessment form was 0.844 in our study. There were significant different ( $p < 0.05$ ) from tutors and students over 5 in 10 items about the reality of SP's performance, and 3 of 9 items about the feedback to students.

**Discussion:** The performance of SP was different in the views between tutors and students, even in well designed assessing questionnaires. These are interesting for doing more researches to find the reasons.

**Conclusion:** 1. The modified standardized patient assessment form were still had well reliability and validity in Chinese. 2. The suggestions of tutors and students for this innovative basis clinical skills curriculum could provide the reference in training standardized patients and curriculum.

**Take Home Messages:** 1. The Cronbach's Alpha value of the standardized patient assessment form in Chinese was 0.844 under the usage by tutors and students in our study. 2. We can use it to assess our standardized patients' performance. 3. The different views of tutors and students were interesting and we could do some studies for reasons.

#9GG15 (135381)

Exploring the value of parent markers in medical student written assessments

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Caroline Fertleman

**Background:** The General Medical Council have highlighted that the roles of patients in medical education are changing. There is greater consideration to what patients/relatives themselves can contribute to the educational process and what the benefits or harms are to them in doing so. It is common practice for real and simulated patients to be used in assessment and examinations and to provide feedback. Little research exists looking at patient/relative contribution to written assessments. Our study aims to evaluate the possible benefits of using 'expert' parents to mark and

**Summary of Work:** Our study aims to evaluate the possible benefits of using 'expert' parents to mark and provide text feedback on students' written assessments. The students on BSc paediatrics and child health were asked to write reflective essay on patient journey sessions. The purpose of this assignment is to improve the students' skills in reflective practice: using their own and others' experiences along with relevant literature to improve their future practice.

**Summary of Results:** Our study compares parent markers to medical (academic) markers and a peer marker, analysing the efficacy of parent marking and how it can contribute to student education outcomes. Result of 2 parents marking 20 essays each being collected.

**Discussion:** Following on from a pilot study, We aim to now compare and analyse the quality and usefulness of feedback given to students. Students will be given feedback and grade from peer marker, medical marker and parent marker.

**Conclusion:** We believe parents/patients have an increasing role to play as new educators but further research is required

**Take Home Messages:** Parent markers add a human perspective to clinical paediatric care that is much needed for holistic training of future doctors.

## 9HH Posters: Teaching and Learning

Location:

#9HH01 (132932)

**Drama as a Tool for Development of Medical Students in a 21st Century School**

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C Sirinan

N Kaseamkosin

S Putnual

**Background:** The objective of this qualitative research was to study the use of drama as a tool in developing competence and self-awareness of medical students in the Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Thailand.

**Summary of Work:** The study was conducted on 15 junior-year medical students who initiated and participated in drama activities for the faculty. Data were collected from their written journals, experience notes, informal conversations, and direct observation during each and every activity.

**Summary of Results:** Results showed that medical students possessed self-exploration through participation in activities they have never done before. They learned new strengths from new perspective, understood more of themselves, and came to realization of self-development in order to create better outcomes. They accepted their weaknesses and controlled their tempers in order to avoid arguments. They have also learned social skills to work as a team.

**Discussion:** Changes accomplished from this study were only the first step to self revolution. Throughout 10 months of working in a team, they have learned to make 2 kinds of changes—basic change in oneself and positive consciousness for the community. Direct experience from this activity would be a concrete foundation for students to have better understanding of themselves and others.

**Conclusion:** Management of annual faculty play helped students to explore themselves, understand themselves, reflected on their personalities and self control process as well as adjusted their attitude and perspective in order to be accepted and admired as a team member. Students also got to manage their social skills, understood differences among peers, working as a team, and learned about time management. In the end, they were able to master communication skills which ignited common understanding that led to smooth correlation.

**Take Home Messages:** Extracurricular activities are indispensable for Curriculum of Medicine because they help students with self exploration, self understanding, respect of individual difference, relationship improvement and teamwork development.

#9HH02 (134333)

**Narratives as a focus for second year medical students' learning about emotions at primary care at Helsinki University Medical School**

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**Background:** A narrative is a powerful learning tool. Interviewing enables one to understand people's lives and emotions what they have experienced. We wanted to expose our second year students to explore narratives of people in various ages. The course is part of primary health care course aiming the students to understand psychological development, life course and how people experience their lives and suffering at different ages.

**Summary of Work:** Our students visited nurseries, older people's homes and either centers of handicapped people or centers for people recovering from life crisis like drug addiction. The students interviewed one person at every place and wrote stories about them.

**Summary of Results:** We analyzed the narratives qualitatively. "Most rewarding aspect of these visits and interviews was to see how the development of various aspects of life changed at different ages and in different situations". "Narratives offered me the experience of "living through" the person's life. Narratives were not simply knowledge about the interviewee". The students also performed later in small group meetings an act that reflected their experience of the visits. These acts were also connected to theories of developmental psychology like Levinson's theory

**Discussion:** Narratives allow students to have more immediate emotional experiences that they can comprehend based on their earlier experiences.

**Conclusion:** The second year students showed an improved understanding towards people coming from various life contexts

**Take Home Messages:** It is important to teach the primary health care viewpoint for the medical students with early patient contacts.



#9HH03 (136312)

**Tutoring and school success in medical students**

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Giseh Griselda Sanchez Cañas (Autonomous University of Chihuahua, Chihuahua, Mexico)

Jair Carrasco Palafox (Autonomous University of Chihuahua, Chihuahua, Mexico)

Salvador Gonzalez Ortiz (Autonomous University of Chihuahua, Chihuahua, Mexico)

Rene Nuñez Bautista (Autonomous University of Chihuahua, Chihuahua, Mexico)

**Background:** The objective of the study is to show which tutoring duties promote success in medical students. Teachers tutoring or providing personal advice to students (ANUIES, 2000:4) promote an integral development in higher education; it is a strategy to reduce the rates of drop-out and academic failure favoring students' success.

**Summary of Work:** A cross-sectional, co-relational, descriptive study was conducted to 178 medical students. Through the Likert scale, 55 simple variables on the tutoring activities that promote academic success and the integral development were assessed. The information was analyzed applying a descriptive and inferential statistic with a significance level of 0.05.

**Summary of Results:** Remarkable activities promoting academic success regarding value of means were: tutor providing assessment (2.75;  $\pm$ 1.17), support solving academic problems (2.91;  $\pm$ 1.14), help developing new skills and positive attitudes towards academic life (2.91;  $\pm$ 1.09), foster responsibility for self-learning (3.03;  $\pm$ 1.10), advice when detecting family problems (2.93;  $\pm$ 1.07) and promote development of basic competences (2.49;  $\pm$ 1.20). Same is observed in the analysis of frequencies where 70% of the students stated that teachers are supportive most of the time. It does not only imply being part of academic progress ( $X=2.12$ ;  $\pm$ 1.25) or work to improve school average ( $X=2.20$ ;  $\pm$ 1.25) but also effective tutoring through a systematic and sustained accompaniment fostering academic success.

**Discussion:** The performance of the tutor as advisor in this study is very important, because is observed that when they provide support to the students in academic problems it contributes to school success. This means that we must stop seeing mentoring only as a remedial strategy. (Cruz, Chehaybar and Abreu, 2011).

**Conclusion:** Integral tutoring activities caring for medical students favor academic success better than only focusing on academic improvement or improving school average.

**Take Home Messages:** Promote academic success by providing comprehensive tutoring to students.

#9HH04 (135959)

**The Effect of Self-Explanation of Pathophysiological Mechanisms of Diseases on Medical Students' Diagnostic Performance**

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Henk Schmidt (Erasmus University, Rotterdam, The Netherlands)

**Background:** Self-explanation strategy fosters medical students' diagnostic performance. In previous studies on self-explanation, students were free to self-explain any aspect of the case. Elaboration on knowledge of pathophysiological mechanisms of diseases has been largely unexplored in studies of strategies for teaching clinical reasoning. The purpose of this experiment was to investigate the effect of self-explanation of pathophysiology during practice with clinical cases on students' diagnostic performance.

**Summary of Work:** In the training phase, 39 4th-year medical students were randomly assigned to solve 6 clinical cases (3 of jaundice; 3 of chest pain), either self-explaining the pathophysiological mechanisms of the disease ( $n=20$ ) or not ( $n=19$ ). One-week later, all students solved 8 new cases of the same syndromes.

**Summary of Results:** A repeated-measures analysis of variance on the mean diagnostic accuracy scores showed no significant main effects of study phase ( $p=.34$ ) and experimental condition ( $p=.10$ ) and no interaction effect ( $p=.42$ ). A post hoc analysis found a significant interaction ( $p=.022$ ) between study phase and syndrome type. The performance of the self-explanation group (but not of the non-self-explanation group) on jaundice cases significantly improved between training and assessment phases ( $p=.035$ ) whereas no differences between phases emerged on chest pain cases.

**Discussion:** It is to be questioned whether it is more effective to have students self-explaining in such way that they not only relate causal mechanisms to clinical findings, but also match clinical findings to alternative diagnoses. Perhaps self-explanation focused on the causal mechanisms of diseases work better when the diseases share similar pathophysiological processes. A question emerging from this study is which format of self-explanation would work better to enhance students diagnostic competence.

**Conclusion:** Apparently, the positive effect of this form of self-explanation on performance depends on the studied diseases sharing similar pathophysiological mechanisms, such as in the jaundice cases.

**Take Home Messages:** It seems that instructional effect of self-explanation is greater when clinical syndromes share pathophysiological mechanisms, which did not occur when clinical syndromes share only clinical manifestations.

#9HH05 (134919)

**DermARTology: Can a dermatology art workshop improve undergraduate recognition of skin lesions?**

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Shalini Narayan (University Hospitals Bristol, Bristol, UK)

Justin Morgan (North Bristol Academy, University of Bristol, Bristol, UK)

**Background:** It has been shown that medical students have poor diagnostic accuracy for recognising skin cancer lesions after their dermatology training. Several studies have demonstrated that after visual training in an art museum, medical students improved their observational skills. Interestingly, a similar study showed that visual art training did not require specially trained personnel or art museum partnership. Our aim was to use visual art training in a classroom setting followed by additional drawing of dermatological lesions in an attempt to improve observational skills and the recognition of benign and malignant lesions.

**Summary of Work:** Eight students with no prior training in art attended the workshop. To train students to 'see' and improve their observational skills, the first half of the lesson was spent looking at paintings. During the second half of the lesson, students drew dermatological lesions with crayons. Students completed a quiz on dermatological lesions before and after the session.

**Summary of Results:** The mean number of observations before the session was nine, and after visual art training students identified an additional eight observations. The first test scores mean was 6 out of 25 (range 4 to 10) and the post-session mean score was 15 out of 25 (range 11 to 18). Six of the students rated the session 5 out of 5 for enjoyment and two students rated it 4 out of 5.

**Discussion:** The students stated: 'Art helped to enhance my memory. Describing the lesions helped my memory as well'; 'Made me more observant. More thorough when looking at a lesion'; 'I think drawing skin lesions was a really good way of making me stare at lesions and burning them into my memory'.

**Conclusion:** Observing art improved medical students observational skills. The addition of drawing improved recognition of skin lesions.

**Take Home Messages:** A novel art workshop improves undergraduate observational skills and recognition of skin lesions

#9HH06 (132779)

**Towards integrating Health Economics into medical education in Thailand**

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**Background:** The Medical Council of Thailand clearly stipulates that medical students should be able to apply principles of health economics (HE) to make clinical decisions. Despite being part of the core curriculum, there remains a dearth within medical curricula of the knowledge and teaching resources needed to achieve this goal. The contents of HE education vary considerably across medical schools, leading to inconsistent standards of teaching.

**Summary of Work:** In 2015, the Collaborative Project to Increase Production of Rural Doctors, Ministry of Public Health, Thailand, initiated the development of the HE study guide (SG), as a supplement to the HE module. The SG consists 4 sections of theoretical content (introduction to HE, health services and efficiency, economic evaluation, and health finance) and five case studies showing the application of HE in clinical practice. The SG was made available to fifth-year medical students approximately one week prior to the class session on HE and served as the basis for discussion during class.

**Summary of Results:** Students were asked to evaluate the usefulness and relevance of the SG on a 5-point Likert scale, ranging from 'Strongly disagree' to 'Strongly agree'. Out of 45 students, 40 agreed that SG helped clarify the objectives and contents of HE, 41 indicated that case discussion demonstrated how HE may be used in real clinical practice, and 38 reported that case discussion highlighted their remaining questions regarding HE.

**Discussion:** Using the SG in addition to the standard textbook produced positive learning experiences among students. More widespread adoption of the SG could help standardize the contents of HE education across medical schools.

**Conclusion:** Students have a positive response to standardized HE teaching.

**Take Home Messages:** More effort should be made to integrate a standardized tool for teaching HE into the medical curriculum.

#9HH07 (133047)

**Large Cohort Case Based Learning; The balanced Goldilocks Conundrum**

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*Steve Riley (Cardiff University, Cardiff, UK)*  
*Marcus Coffey (Cardiff University, Cardiff, UK)*

**Background:** Delivery of a student centred, small group CBL curriculum consistently for large cohorts is challenging. Understanding the different approaches of a heterogeneous group of trained non-expert facilitators should allow the development of techniques to calibrate the faculty in their approach.

**Summary of Work:** CBL was implemented in 2013 and has just completed the initial 2 year cycle. To better understand the study groups, students completed an evaluation on multiple occasions over the course of one academic year.

**Summary of Results:** Facilitators with successful student satisfaction demonstrated an interest in their learning but did not dominate the group dynamic. A facilitator that indicated, but did not explicitly inform students, that study topics were in alignment with the intended learning outcomes generated greater trust within the group leading to increased group satisfaction.

**Discussion:** Small group facilitation is a skill that needs to be developed and is more than simply development of knowledge by the students. Student centred approaches to learning rely on engagement and enjoyment of the participants to succeed. The facilitator therefore has a significant role in developing the group dynamic.

**Conclusion:** This long term curriculum delivery evaluation has been of great value for calibration of the faculty, further training and curriculum development. By using the evaluations and training we have been able to improve the system to become more consistent in curriculum delivery.

**Take Home Messages:** Case Based Learning Study groups are an invaluable tool for student curiosity, understanding and learning but are a goldilocks conundrum for each group. Too much or too little of each can lead to problems. Getting it just right is the skill to be nurtured.

#9HH08 (135767)

**Enhancing students' academic and professional skill development through group academic tutoring**

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*Reza Zamani (University of Exeter Medical School, Exeter, UK)*  
*Amanda Pocklington (University of Exeter, Exeter, UK)*  
*Kate Hellman (University of Exeter, Exeter, UK)*  
*Corony Edwards (University of Exeter, Exeter, UK)*

**Background:** Academic tutoring provides essential undergraduate support during transition to higher education and development of academic and professional skills. In a tutoring system based on three individual tutor-tutee meetings per year, tutors were increasingly providing reactive support to students struggling with academic or pastoral issues. In order to enhance pro-active skills support and promote academic success for all students, we developed and piloted a curriculum for group academic tutorials.

**Summary of Work:** Group tutorials were piloted for year 1 and subsequently year 2 Medical Sciences students. Each academic tutor group (ATG) consisted of an academic tutor and up to 10 students who met together for six skill development-themed interactive tutorials per year. A student "Peer Leader" was assigned to each ATG, and offered integrated peer-assisted learning through a series of complementary student-led sessions.

**Summary of Results:** Initial results indicate that, despite a decrease in tutor workload, students in the ATG system met more frequently with their tutor than students in the traditional 1:1 system. 80% of year 1 responders were clear on the goals of ATGs and 72% agreed useful information was covered. Year 2 students experiencing ATGs were more likely to apply earlier for summer and sandwich research placements and be successful.

**Discussion:** Successful tutoring can significantly enhance the development of key academic and professional skills critical for undergraduate success. Group tutoring can strengthen this development by providing significant opportunity for peer support and dialogue.

**Conclusion:** Group academic tutoring increases the amount of student time focussed on skills development yet reduces tutor time. Evaluation of key outcomes including the impact on assessment results, resilience, retention and employability is currently under way.

**Take Home Messages:** Tutoring students in a group improves efficiency in delivering support for undergraduate skills development, provides a network for supportive peer and academic dialogue and may lead to improved measures of student academic and professional success.

#9HH09 (134732)

**Music workshop for first year medical students**

**María José Arteaga\***, *Universidad de los Andes, Santiago, Chile*

Eduardo Browne (*Universidad de los Andes, Santiago, Chile*)

Flavia Garbin (*Universidad de los Andes, Santiago, Chile*)

Marcela Assef (*Universidad de los Andes, Santiago, Chile*)

**Background:** Music is loved by everyone. It promotes emotion, which an empathic physician needs for communication. Artistic activities, such as making music, create a break from the barrenness of medical school. They present students with challenges, like facing a group of unknown people, but also promote a well rounded approach to medical education. The purpose of this study is to describe the student's opinions on how a 3-weeks music workshop, during their first semester in medical school, improves skills stated in the graduated profile.

**Summary of Work:** Since 2009, during the first month in medical school, first year students complete a 3-week musical workshop promoting: teamwork, leadership, time management, creativity, self-assessment and music appreciation. It includes sessions on musical composition and rehearsal techniques; performances in front of the class, feedback and private rehearsals. They create a musical sketch including singing, acting and instrumental accompaniment. The evaluation consists in performing the sketch in front of teachers and families, and a written report. The workshop was evaluated by the students in 2009, and in 2015, their last year as students.

**Summary of Results:** The activity has been highlighted by the students as one of their best experiences during first year. They emphasize how this activity helped them to get to know new classmates, overcome shyness and assume roles they didn't feel comfortable with. When asked directly about the contribution of this activity to the development of the graduate profile, students pointed out the building of a trustful and respectful environment, teamwork and leadership, the development of strategies and recognizing their own limitations.

**Discussion:** Teaching the value of communicational skills and teamwork is essential in modern medicine.

**Conclusion:** Reinforcing these skills through musical performance has been greatly appreciated and treasured by graduating medical students.

**Take Home Messages:** Teamwork and other skills for doctors can be trained through musical performance. It should be a curricular activity.

#9HH10 (134451)

**Observation and Uncertainty in Art and Medicine: A Mixed Methods Assessment of Curricular Outcomes**

**Deepthiman Gowda\***, *Columbia University College of Physicians and Surgeons, New York, USA*

Carol Capello (*Weill Cornell Medical College, USA*)

Rachel Dubroff (*Weill Cornell Medical College, USA*)

Aubrie Sein (*Columbia University College of Physicians and Surgeons, USA*)

Anna Willieme (*ArtMed-inSight, USA*)

**Background:** Visual art is increasingly used in medical education. A museum-based visual art elective course, Observation and Uncertainty in Art and Medicine, was offered to first-year students in two New York City based medical schools. We performed a two-year quantitative and qualitative course evaluation.

**Summary of Work:** 23 first-year medical students from Columbia and Weill-Cornell were enrolled in an art and medicine course taught at the Metropolitan Museum of Art. The course, led by an art educator experienced in medical education, consisted of 6 two-hour sessions with objectives of improving observation skills, enhancing awareness of cognitive biases, and strengthening tolerance of uncertainty. Students completed a pre- and post-course Groningen Reflection Ability Scale (GRAS), Implicit Association Test (IAT), and Tolerance for Ambiguity (TFA) scale. All students completed narrative post-course evaluations, which were coded and thematically analysed.

**Summary of Results:** Pre-post analysis showed a statistically significant improvement in the GRAS (GRAS score increased from 87.8 to 90.5,  $p < 0.05$ ), Responses to the TFA and IAT scales did not change significantly. In qualitative analysis, the following themes emerged: 1) enhanced observation skills (slow looking); 2) improved skills of perception (emotional engagement and self-awareness); 3) expanded ways of thinking (biases and tolerance of uncertainty); 4) awareness of need for self-care (appreciation of beauty, pleasure, and life-balance); 5) recognition of importance of the team process (multiple points-of-view).

**Discussion:** Limitations include the small sample size that may have impacted ability to see significant changes on two of the outcome scales.

**Conclusion:** Reflective ability improved after the intervention. Qualitative analysis revealed themes central to medical education: observation, self-care, and team process. In addition, students noted increased awareness of biases and need to tolerate uncertainty.

**Take Home Messages:** Incorporating visual art into medical education is a promising pedagogical method for addressing competencies central to training. Further research and curricular expansion is needed in this field.



#9HH11 (133908)

**Gender matters in medical students' technical self-efficacy beliefs and technical skills studying**

*Taina Joutsenvirta\*, University of Helsinki, Helsinki, Finland*

*Eeva Pyörälä*

**Background:** University of Helsinki started a pilot in mobile education in 2013. First year students were delivered iPads for personal study use. Students use iPads in all learning activities, for example in taking notes, reading, seeking and sharing information.

**Summary of Work:** The participants of the study are first year students. Data were collected with a web-based questionnaire. This study focuses on the following questions: 1) How students' gender effect their technical self-efficacy beliefs? 2) How students' gender effect their learning technical skills?

**Summary of Results:** There were differences in statements measuring students' technical self-efficacy beliefs between genders. Men (77%) were certain they can learn well the skills of using technical equipments required in they work (female 48%). Learning technical skills female (49%) reported asking from friends (men 20%); while men (31%) learn by watching videos (female 24%).

**Discussion:** This study has provided that there is a gender difference in students technical self-efficacy beliefs and technical skills learning. Future doctors have to have good technical skills to manage in their working life. Technical self-efficacy beliefs can be one indicator of future doctors' preparedness for working with technology.

**Conclusion:** This study has provided a window to the gender differences in students' technical self-efficacy beliefs and technical skills learning. Technical learning outcomes should be included to medical courses. Students' technical capabilities can be strengthen so that different kinds of technical equipments, like iPads, are integrated to their everyday studying lives.

**Take Home Messages:** Technical skills needs to take into medical courses. Also gender differences in studying technical skills should be taken into account in course design.

#9HH12 (133754)

**Are online expert faculty rated as highly as in-class expert faculty?**

*Ankur Doshi\*, University of Pittsburgh School of Medicine, Pittsburgh, USA*

*Francis Guyette, Pittsburgh, USA*

*Jon Rittenberger, Pittsburgh, USA*

*Clifton Callaway, Pittsburgh, USA*

**Background:** Thought leaders live in geographically diverse regions. Medical students may benefit from interaction with these thought leaders. In-person interaction may be impossible due to time and cost constraints. We hypothesized that senior medical students taking a course on the Science of Resuscitation would rate sessions led by remote experts similarly to sessions led by in-class experts.

**Summary of Work:** Science of Resuscitation is a selective at the University of Pittsburgh SOM (Pittsburgh, USA) limited to 10 senior students. The course focuses on review of primary literature with daily discussions centered around one topic. Course directors and core faculty attend each session. Authors of primary articles and other experts are invited to help lead the discussion. Recent invitees include scientists from USA, Europe, Japan, and Australia. Those experts unable to be physically present are invited to 'attend' using web-based meeting tools. At the conclusion of the course, we measured student satisfaction with each session's teaching strategy using 10-point Likert scales.

**Summary of Results:** Students rated sessions led by remote experts and in-class experts similarly (mean $\pm$ SD: remote 8.6 $\pm$ 1.1; in-class 8.5 $\pm$ 1.5). When compared with the Mann-Whitney U test, there was no significant difference.

**Discussion:** Potential benefits of using remote experts include increasing student engagement, meeting leaders in the field, and bringing diversity of thought to a local institution. Challenges include: time differences and technical challenges with hardware and software. The scalability of this method of instruction for large group settings or for longer courses was not assessed.

**Conclusion:** Senior medical students rate topic sessions led by remote experts using web-based conferencing technology similarly to sessions led by local experts in terms of teaching strategy. Future studies should evaluate scalability and equivalence in student satisfaction.

**Take Home Messages:** Students rate online experiences with experts similarly to in-class experiences.

## 9II Posters: Student Wellbeing

Location:

#9II01 (131683)

**Should Medical Students Receive Varicella Vaccine Before Entry into the Clinical Year?**

*Thida Khwanna\*, Vachiraphuket hospital, Phuket, Thailand*

**Background:** Varicella was highly contagious but can prevent by vaccine. If medical students got varicella infection during clinical years may had severe disease, effected to learning process and spread to other persons. Since October 2015 were varicella outbreak in pediatric department. Medical students were expose. Students without immunity must find out and received vaccination.

**Summary of Work:** The outbreak began in NICU then spread to PICU and pediatric ward, 3 nurses and 2 patients got infection. History of varicella disease and vaccination and serologic were check from 20 medical students working in department during outbreak. Students without immunity had received vaccine and observe symptom for 6 weeks.

**Summary of Results:** 12 students had history of varicella disease in childhood, IgG positive 3 students received 2-doses vaccine within 2015, IgG positive 4 students had no history of disease and vaccination, IgG positive 1 student had no history of disease and vaccination, IgM and IgG negative

**Discussion:** History of varicella disease diagnosed by healthcare provider was strong evidence of immunity. 2-doses vaccine had high efficacy in immunity booster. 80% of medical student without history of disease and vaccination already had immunity but 20% of this group still had no immunity and need for vaccination.

**Conclusion:** Medical student with history of varicella disease or vaccination no need for serology test. Medical students without history of disease and vaccination need the serology test (600 bath) to confirm immunity before received 2-doses vaccination (2600 bath).

**Take Home Messages:** The history of disease, vaccination and immunity of varicella and other vaccine preventable disease must screen in all preclinic medical students. Vaccination must give to the student whom serology negative before entry the clinical year.

#9II02 (131566)

**The Happiness Exploration of Medical Students using Self- Administered Questionnaire Happinometer**

*Ueamporn Summart\*, Roiet Medical Center, Roiet Province, Thailand*

*Narongchai Sangsa  
Sakda Peinprasertkul*

**Background:** Happiness during medical study is desirable environment for both students and teachers. It can enhance their learning and teaching process. We used the Happinometer, which developed by Thai health promotion foundation (www.happinometer.com) to examine the medical students happiness status. The aim is to monitor and manage to increase their happiness.

**Summary of Work:** This cross-sectional survey study were conducted. Participants were all of 4-6th year medical students. Data were obtained from a full version self-administered Happinometer questionnaire. This tool was sets of happiness questions that consisted of 9 happy components included: body, relaxation, heart, soul, family, society, brain, money and work-life respectively.

**Summary of Results:** All of 75 medical students, Almost 90% were happy ( $\bar{x} = 63.9 \pm 6.8$ ). Data shown that the level of happiness were decreasing inversely to the class. The 4th year medical students demonstrated both the highest level of happy average scores ( $\bar{x} = 67.3 \pm 5.8$ ) and in all of happy components. The level of happiness in Happy Soul component was the highest ( $\bar{x} = 71.8 \pm 10.1$ ) and relaxation was the lowest ( $\bar{x} = 54.1 \pm 11.8$ ).

**Discussion:** happiness status and relaxation of the medical students were decreased inversely to the class. As a result of high responsibility caused them fell stress as in another previous studies had been presented.

**Conclusion:** Most of medical students are happy, but happiness was more likely to decrease inversely to the class. Relaxation found to be the lowest component, thus it is a good supporting data of their executives in developing campaign to improve it in order to support their learning and health status.

**Take Home Messages:** Happinometer is a simple tool to measure happiness level. we can do it and get a results in many way: by manual, websites and application.

#91103 (135175)

**“Happy Friday”: The relaxing activities for medical students**

*Benjamas Duangkamnoi\*, Mahasarakham Hospital, Mahasarakham, Thailand*

**Background:** “Happy Friday” is the extracurricular activities was held for medical students to teach the non-medical skills and reduce academic stress. The purpose of this study is to evaluate the satisfactions and reflections of medical students on the Happy Friday activities.

**Summary of Work:** The 4th to 6th year medical students at Mahasarakham medical education center were enrolled in this study. Each student completed the questionnaire about their satisfactions level as overall of Happy Friday activities which consist of cooking, drawing, photography, movies and excellent service behavior (ESB). The scores range from 1 (very poor/very dissatisfied) to 5 (very good/very satisfied); the satisfactions score was interpreted as poor, fair and good.

**Summary of Results:** 107 questionnaires were returned and analyzed. We evaluated and found that the 3 most satisfactions were on drawing (mean  $4.6 \pm 0.6$ ), cooking (mean  $4.5 \pm 0.6$ ) and ESB (mean  $4.4 \pm 0.8$ ). The less satisfactions was photography (mean  $4.1 \pm 0.9$ ), however overall satisfactions level were very good in every domains. The beneficial from this project are relaxing and can be practical in the real life (88.2% and 11.2%) respectively, moreover the students got the new experiences to improve their skill and self development, almost their reflections suggest to be continue for this project (94.1%).

**Discussion:** The finding in this study showed the satisfactions rate in many domains were very good. The happy Friday activities not only relieve academic stress but, also can be practical in the real life from this experience and skill.

**Conclusion:** The Happy Friday project is very good relaxing activities for medical students, the satisfactions rate was very high.

**Take Home Messages:** The medical curricular and the extracurricular activities were essential for medical students to become a good and happiness doctor in the future.

#91104 (132984)

**Awareness of and experiences with mental support services in medical students**

*Elizabeth Romer\*, University of Leeds, Leeds, UK  
Rhannon Davison (University of Leeds, Leeds, UK)*

**Background:** Mental health problems are more common among medical students compared to the general population. Limited research exists in this area especially within the UK but literature broadly suggests that students often feel inadequately supported.

**Summary of Work:** This research aims to evaluate the awareness of and experiences with mental health support in medical students at Leeds University and to identify what improvements could be made. This cross-sectional observational study collected quantitative and qualitative data between January and October 2015 via an anonymous electronic questionnaire sent to years 1, 3 and 5 of the MBChB programme.

**Summary of Results:** N=156. Almost half of respondents reported personal experience of mental health problems, with 20.5% starting whilst at medical school. Most respondents (73.1%) knew where to access support but were not confident to seek help (55%).

**Discussion:** Personal tutors and GP were the most widely known sources of support. Students were most likely to access the GP and student counselling centre. They were least likely to access the academic subdean and disability support. The main barriers to support were academic threat and lack of time. Free text responses revealed a variety of positive and negative experiences. Respondents felt they received the right amount or too little information and wanted to receive more information via a website.

**Conclusion:** Students favour sources of support which are confidential, easy to access, independent from the medical school, involved someone they had rapport with and without threat to academic progress. Recommendations for change are made based on the conclusions.

**Take Home Messages:** Work is needed to tackle the barriers to help seeking and improve access to support systems for medical students. It is recommended that universities closely adhere to the guidance given by the GMC in order to bring standard practice into line with the best interests of their students.

#91105 (132009)

**Does mindfulness affect empathy, resilience and stress in our learners? The results of 1 year of a mindfulness curriculum intervention in undergraduate medical education**

**Gary Viner\***, University of Ottawa, Ottawa, Canada

Heather MacLean (University of Ottawa, Ottawa, Canada)

Millaray Sanchez-Campos (University of Ottawa, Ottawa, Canada)

Diana Koszycki (University of Ottawa, Ottawa, Canada)

Azin Arari (University of Ottawa, Ottawa, Canada)

Douglas Archibald (University of Ottawa, Ottawa, Canada)

Carol Gonsalves (University of Ottawa, Ottawa, Canada)

**Background:** A longitudinal mindfulness curriculum in undergraduate medical education has recently been implemented at our university. Cross sectional and longitudinal results on measures of mindfulness, empathy, resilience and stress over the first year of the curriculum will be presented.

**Summary of Work:** 191 medical students completed questionnaires on mindfulness, empathy, resilience and perceived stress before and after 1 academic year of a longitudinal mindfulness curriculum. Participants were also surveyed for age, gender, intended career specialty, attendance at mindfulness sessions, amount of home mindfulness practice, and subjective experience.

**Summary of Results:** High levels of stress and low resilience were seen across all 4 years of medical school. Empathy declined over the course of training ( $p = 0.029$ ). Home mindfulness practice showed statistically significant correlations with mindfulness ( $p = 0.001$ ), resilience ( $p = 0.001$ ) and perceived stress ( $p = 0.007$ ). Level of mindfulness was found to be positively correlated with resilience ( $r = 0.506$ ) and negatively correlated with perceived stress ( $r = -0.395$ ). Correlations were statistically significant at the  $p < 0.01$  level. Levels of mindfulness increased in medical students after 1 year of exposure to the curriculum.

**Discussion:** The benefits of a mindfulness practice appear to be “dose related”, at least with respect to measures of mindfulness itself, resilience and stress. Our medical trainees encounter high levels of stress in the context of relatively low levels of resilience throughout undergraduate medical training. Our study suggests the potential value of interventions that increase mindfulness practice.

**Conclusion:** The results of this study underscore the need for wellness-related initiatives in undergraduate medical education.

**Take Home Messages:** Opportunities for students to practice mindfulness regularly as part of their core curriculum may result in improvements in resilience and perceived stress.

#91106 (134985)

**A longitudinal study on Quality of Life of Brazilian medical students**

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Itamar Santos

Patricia Z. Tempski

Silmar Gannam

Paulo Silveira

Milton A. Martins

**Background:** Medical course can affect medical students' physical and mental health as well as their quality of life (QoL). The aim of this study was to assess medical students' perception of their QoL during the medical program.

**Summary of Work:** We did a longitudinal study with 186 (112 females and 74 males) medical students from 22 Brazilian medical schools. They answered to questionnaires twice, in 2011 (in the first three years of medical school) and in 2015 (in the last three). QoL was assessed using the WHOQOL-BREF and also a questionnaire specifically designed to evaluate QoL of medical students (VERAS-Q).

**Summary of Results:** There were a decrease on scores of Psychological ( $P < 0.001$ ) and Social Relationships ( $P = 0.04$ ) domains of WHOQOL-BREF and Educational Environment ( $P < 0.001$ ), Psychological ( $P < 0.001$ ) and Total Score ( $P < 0.001$ ) domains of VERAS-Q. These differences were observed for both male and female students. We did not observe statistically significant differences in Physical Health and Environment domains of WHOQOL-BREF and in Physical Health and domain of VERAS-Q. Considering the Time Management domain of VERAS-Q, there was a significant decrease in scores only in females ( $P = 0.01$ ).

**Discussion:** We observed an important decline in QoL after three years of medical program. Many factors may have influenced these results, such the clerkships, the development of a more critical view of the educational environment, the increase in responsibilities in the care of patient and the proximity of the exams of selection for Residency.

**Conclusion:** There is an important decline of QoL among medical students during the medical program.

**Take Home Messages:** It is necessary to develop well-being strategies during the medical program to avoid the decrease and/or promote increase in QoL of medical students.



#91107 (133790)

**Mindfulness: an appreciative enquiry of GP participants' reflections on attending an eight week course**

*Duncan Platt\*, GP Education Unit, Southampton, UK  
Samantha Scallan (GP Education Unit, Southampton, UK)*

**Background:** Mindfulness as a means of addressing and managing the stresses of medical practice has, in recent years, become very topical in medical education. It has become well-established across the continuum of medical education in different forms, and there is a burgeoning field of research to evaluate its effectiveness, using a variety of approaches. This presentation describes an evaluation of an eight week mindfulness course to support GPs by fostering awareness to stress and strategies for resilience.

**Summary of Work:** This study evaluates the experience of the course participants (n.3 cohorts) and explores their understanding of mindfulness and their experience of engaging with mindfulness in their lives. We have used the approach to research 'appreciative enquiry' (AE), and conducted interviews to develop an understanding of each participant's personal journey on the programme. AE has allowed us to focus our 'researcher' gaze on what worked/s for them and possibilities.

**Summary of Results:** Participants interviewed (to date 5) and the MBSR facilitators (n.2) valued the programme in terms of support and strategies to manage daily stressors. They came to the programme with different understandings of mindfulness and different levels of engagement with the concept. Our presentation will outline the findings of the evaluation and contextualise them in the literature.

**Discussion:** The 8 week programme allowed participants to develop their understanding of mindfulness, its potential relevance to them and to embed its practices in their lives. It provides a new perspective on the nature of this type of intervention. Our presentation will explore this.

**Conclusion:** Participants reported continuing to use the principles and practices, those these were often modified.

#91108 (135958)

**Quality of life of students from two medical schools: a transversal study**

*Edmea Fontes Oliva Costa\*, Universidade Federal de Sergipe, Aracaju, Brazil  
Vanessa Araújo Argôlo  
Louise Lorena Araújo São Mateus  
Leila Pereira Tenório  
Helena Pinho de Sá  
Enaldo Vieira Melo*

**Background:** Several studies have shown how medical school can be distressful and many harmful factors for students' quality of life were highlighted: a lot to learn, sleep deprivation, competition and contact with suffering and death

**Summary of Work:** To investigate the quality of life of 3<sup>rd</sup> semesters medical students from 2 different schools of a University in Brazil and compare them. The first has a traditional method of teaching (school A) and, the other, a problem based learning-PBL one (school B). Descriptive study, performed on 2014, using WHOQOL-bref questionnaire.

**Summary of Results:** Only 38 from A and 40 from B, out of 45, completed the questionnaire. The students from school B are 45% women. 30% are satisfied with their school method. In school A, 39.5% are women. Only 18.4% are satisfied with their school method. On quality of life, the results of all four domains were better in school A comparing with B. The numbers in A and B, respectively, were 62.3±13.2 e 70.5±15.1, for physical domain, 63.2±14.7 e 71.3±16.3, for psychological domain, 67.9±20.7 e 76.9±19.5, for social domain, and 53.3±12.1 e 64.3±15.7 for ambient domain.

**Discussion:** The scores from school B domains were lower both when compared to school A, as to the literature in studies performed in Rio de Janeiro, Brasília e Sorocaba. The differences were statistical significant. The results may be based on the differences among the teaching method and their sociodemographic profile.

**Conclusion:** The results suggest association between the traditional method and better quality of life than the PBL one, but this found must be seen in a critical way, since school B has only 2 years of existence, while A has 52 years.

**Take Home Messages:** It is important to take actions to improve medical students' quality of life because their work influence directly on people's life. An efficient psycho-pedagogical support service can make a difference on it.

#91109 (134296)

**“4H-Walk Rally” to Promote the Life Skill of Medical Students**

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Phumin Phromrattanakul (Buddhachinaraj medical education center, Phitsanulok,Thailand)  
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**Background:** Life skill is essential for medical students beyond their medical knowledge.The principal guiding of life skill is identified to the acronym “4H” comprises of head(general knowledge)-hand(skill)-heart(attitude)-health.The “4H-walk rally” was an extracurricular activity offered by Buddhachinnaraj medical education center,Naresuan University,Thailand for their medical students in the clinical years(4th – 6th year of the curriculum).Along the walking trail consists of several stations allow them to perform learning activities.The aim of this activity is to promote their life skill in the enjoyable way of learning methods also to enhance good collegial relationship among the students.

**Summary of Work:** Total 180 medical students participated this 4H-walk rally.They were grouped into 30 teams. Each group consisted of 5-8 students and randomly included students in all clinical years(4th- 6th year). The scoring system was created as following;10 points were given for each activity station(totally 9 stations) and 10 points were given from answering to questions during the rally.The total scores(max. 100) were calculated at the end of rally.Each station consisted of life skill activities(Hand-Head-Heart-Health skill; 4H).All participants became awards proportionally,fulfilled reflection and a 5-level Likert scale questionnaire to evaluate their activity performances.

**Summary of Results:** The average points were given from medical students as following;4.40 for satisfaction of joining the activity,4.38 for improvement of collegial relationship,4.20 for the medical students thought that this walk rally could improve their hand-head-heart-health skill.

**Discussion:** The student attitude towards 4H-walk rally was excellent.The walk rally could improve a good collegial relationship among medical students and it promoted relationship,teamwork and proper team administration.This survey suggesting that the medical students should be able to develop their life skill through the 4H-walk rally activity.

**Conclusion:** The 4H-walk rally could improve life skill of medical students especially relationship.

**Take Home Messages:** The walk rally can be applied for any medical learning activity.

#91110 (134947)

**To Explore the Relationships Established Through the Barts and the London Mentoring Scheme from the Perspectives of Clinical Year Students**

*Leanna Ruprai\*, Barts and the London SMD, Queen Mary University of London, London, UK  
Maria Hayfron-Benjamin (Barts and the London SMD, Queen Mary University of London)  
Siobhan Cooke (Barts and the London SMD, Queen Mary University of London)*

**Background:** Medical education literature demonstrates many documented benefits of mentoring for the mentee, which include career trajectory support, provision of a role model and encouragement of continuing professional development [1]. The mentoring relationship requires active participation from mentor and mentee, and the roles in this relationship need to be clearly defined. However, there is much confusion over the definition of these roles, and the majority of literature focuses on the mentor role [2].

**Summary of Work:** In this study I hope to understand from the students perspective the nature of the mentoring relationships established through the Barts and the London Mentoring Scheme with clinical year MBBS students. questionnaire was designed to ascertain students' perceptions of their roles in the mentoring relationship, how students engage in the Scheme and their expectations. Qualitative and quantitative data from the questionnaires was analysed, themes identified and expanded upon in three year-specific focus groups. The focus groups were recorded, transcribed and thematically analysed using standard coding software.

**Summary of Results:** Data shows how students engage in the scheme i.e. number and nature of meetings and communication, how the mentees understand their responsibilities and mentor responsibilities, and to what extent reflective practice and portfolio development are encouraged.

**Discussion:** By assessing the utilisation of the mentoring scheme by students, the advantages and disadvantages of the scheme were determined. Student suggestions for improvements were proposed, including the option to select a mentor, and to opt-out of the mentoring scheme.

**Conclusion:** Students value having a mentor; however a minority find their mentor unhelpful. This raises questions about student choice with mentor allocation in mentoring schemes. 1. Frei E, Stamm M, Buddeberg-Fischer B. Mentoring programs for medical students - a review of the PubMed literature 2000 - 2008. BMC Medical Education. 2010;10:32. doi:10.1186/1472-6920-10-32. 2. Zerzan J, Hess R, Schur E, Phillips R, Rigotti N: Making the most of mentors: A guide for mentees. Acad Med 2009,84(1):140–144

**Take Home Messages:** Evaluation of mentoring schemes are necessary to ensure that both mentors and mentees can achieve the benefits of mentoring. The mentoring relationship requires an understanding of the roles of mentee and mentor.

#9111 (133849)

**A study of awareness levels of Korean medical students on their mentoring programs**

*Soyoun Park\*, Kyunghee University, Seoul, South Korea*

*Yedam Ho*

*Ohyoung Kwon*

*Taiyoung Yoon*

**Background:** The purpose of this study is to investigate the awareness levels of medical students regarding the characteristics of each function within mentoring programs conducted within Kyung Hee University and to ultimately suggest points of reform. Medical students' awareness levels will be determined using 29-item questionnaires. Furthermore, this study intends to analyze areas of improvement and possible development by conducting student interviews for a better and improved mentoring program.

**Summary of Work:** This study was conducted using questionnaires and interviews. The questionnaire was conducted with 347 medical students with the exception of 25 students who either marked multiple answers or did not reply. Assessment of the program was evaluated using a questionnaire administered on a 5-point Likert scale using SPSS version 21.0. Multiple regression was also incorporated to examine the relationship between the awareness level regarding functions of mentoring programs and awareness level regarding characteristics of mentoring programs. Interviews were used to satisfy areas difficult to determine by questionnaire. For statistics, T-tests, ANOVA, and multiple regression was used.

**Summary of Results:** It was determined that students' top three awareness levels regarding the function of mentoring programs were as follows: Psychosocial function (4.16), friendship (3.96), career development (3.74). Results in terms of demographic and functional characteristics revealed that there was no difference in awareness levels across gender, whereas there were significant differences across grade levels. There also was a significant difference depending on frequency of meetings and topics of conversation while length of meetings and meeting place did not demonstrate differences worth noting. Particularly, it was revealed that the higher the frequency of meetings, the higher the awareness level of the students.

**Discussion:** First of all, the mentoring program is uniquely run by the college of medicine at Kyunghee University so programs run by other universities may be different. Secondly, the survey and the interview were only conducted by mentee students so further studies should be done with mentors in the future.

**Conclusion:** For improved mentoring programs for medical students, the program should focus on the frequency of meetings and the topics of conversation. Furthermore, high quality mentoring programs could be expected if professors took interview results into consideration.

**Take Home Messages:** While conducting mentoring program, students' awareness levels could be

different in accordance with the frequency of meetings and the topics thereof. Also, students want to be provided with psychosocial advice from mentors in various ways such as learning from role models or getting counsels.

#9112 (133493)

**Using mentoring as an educational complement for low achievement students**

*Montserrat Urban\*, Universidad Anahuac Mexico, Huixquilucan, Mexico*

*Carmina Flores Dominguez*

*Fernando Azcoitia Moraila*

*Maria Jose Diaz Huizar*

*Jose Luis Arellano Nava*

**Background:** Mentoring is considered a key to successful and satisfying careers in medical teaching, some authors describe it as an important career advancement tool for medical students.

**Summary of Work:** The UCP (University Complement Program) focuses on rescuing students that have the potential to become medical doctors, but for some reason have a poor outcome due to several reasons. It covers five areas: medical knowledge problem based class, psychological orientation, educational orientation, personal mentoring and an arts or sports class. Mentoring is conducted by trained medical doctors who volunteer to the program, and it focuses on setting goals, organization skills, self esteem, studying techniques once a week during a 15 week period.

**Summary of Results:** Students like and appreciate mentoring, they think it is useful and their favorite part of the UCP program. They believe the trust relationship between the mentor and them is vital for their recovery, they feel they're not alone and someone believes in them and actually supports them and helps them endure all the pressure and tasks they need to cover.

**Discussion:** Mentoring is a great student development tool, especially for low achievement students. Some of them are having health issues, family problems, economic difficulties and psychological or learning impairments that don't allow students to reach their peak in medical education.

**Conclusion:** Mentoring is a successful effort to help students that have the potential to become good doctors but for several reasons, they fail and in normal circumstances they would be dropouts, we should take a good look at our students.

**Take Home Messages:** Mentoring programs should be implemented in all medical schools to help students cope with the stress and challenges studying implies.

## 9JJ Posters: Understanding Learning

Location:

#9JJ01 (135503)

**Learning to Recover and Recovery for Learning – effects of teaching “Take a day off !”**

**Diethard Tauschel\***, Witten/Herdecke University,  
Faculty of Health, Department of Medicine, Integrated  
Curriculum for Anthroposophic Medicine (ICURAM),  
Witten, Germany  
Friedrich Edelhäuser  
Christian Scheffer  
Miriam Thye

**Background:** Besides learning activities, learning depends on physiological and psychological resources - in a narrower sense on recovery (adaptive normalisation, Heckmann and Gutenbrunner 2013, effort-recovery-theory, Meijman and Mulder, 1998).

**Summary of Work:** Effects and relevance of recovery for learning and how to individualize and self-regulate it were taught in a guided training in “Learning to Learn” to medical and other students. Effects were studied after approx. 8 weeks with a mixed-method approach.

**Summary of Results:** From 2011 to 2015, N=134 students returned a questionnaire. On average, students self-evaluated their competence in taking a day off per week on a 6-point scale (1 – excellent, 6 – very poor) with mean scores pre = 4.0, post = 2.6 (median pre = 4.0, post 2.0). More than 33% stated this competence being unsatisfactory or very poor before the training. Qualitative analysis showed obstacles in taking at least half a day per week of (e.g. feeling guilty, too many projects, being unstructured or ineffective, need to earn money). Those being capable in taking a (half) day off described positive learning effects by changes in mood and emotion, motivation, cognition, awareness and recovery itself. Few stated increase in stress.

**Discussion:** Despite the limitations (e.g. only self-evaluation perspective, no follow-up) considerable effects and increase in competence were stated at the end of the training. Guidance in recovery for students might be important for prevention of burnout, which should be studied in depths.

**Conclusion:** Medical students - most of them at the beginning of their studies - experienced the guided training as being beneficial to develop a competence in taking a (half) day off and thus enabling recovery with perceptible positive impact on learning.

**Take Home Messages:** A guided training of students competency in taking a day per week off showed beneficial for recovery and learning in students' self-evaluation.

#9JJ02 (135815)

**Improving Information Retention in the Medical Classroom by the Innovative Application of the Cognitive Load Theory**

**David Talford\***, Idaho State University, Boise, USA  
Melanie Domenech Rodríguez, Utah State University,  
Department of Psychology, Utah, USA

**Background:** PowerPoint, created in 1987, is now ubiquitous in medical classrooms around the world. PowerPoint is typically utilized with students reading large amounts of written information, and simultaneously hearing verbalization of the same information. The theory of cognitive load, pioneered in the 1980s by Professor John Sweller, indicates that the human brain processes and retains more information if it is digested in either its verbal or written form, but not both at the same time. Yet; simultaneous presentation of verbal and written information is the pedagogical strategy often utilized in today's medical classroom.

**Summary of Work:** An innovative pedagogical strategy is implemented and studied. Students spend the first 15 minutes of a typical 50 minute lecture, studying a uniquely prepared written study guide that covers all of the information for the particular objectives. In the next 20 minutes, a PowerPoint verbal presentation minimizes written bullet points, maximizes images and employs Socratic interaction with the students. During the remaining 15 minutes, the students reinforce long term retention of the objectives by re-studying the study guide.

**Summary of Results:** The examination performance of 252 students over 4 years compare the results of the traditional PowerPoint lecture versus this novel pedagogical strategy. Preliminary results show a roughly 2.5% increase in student examination performance with the novel method.

**Discussion:** The raw data will be further analyzed to determine the statistical significance of these results.

**Conclusion:** Medical educators must maximize the use of increasingly efficient pedagogical strategies to impart the ever enlarging body of medical knowledge. Traditional PowerPoint lectures run contrary to current and emerging research. This novel pedagogical strategy capitalizes on this research to improve the delivery of medical knowledge.

**Take Home Messages:** Continual advances in medical knowledge, require enhancement in the pedagogy utilized by medical educators. This innovative instructional strategy may prove to be an effective implement in the medical educator's repertoire.



#9JJ03 (133785)

**Experts as novices: clinical educators' reflections on learning an unfamiliar skill**

*Tim Fawns\*, University of Edinburgh, Edinburgh, UK*  
*Derek Jones (University of Edinburgh, Edinburgh, UK)*  
*Gill Aitken (University of Edinburgh, Edinburgh, UK)*

**Background:** As students of the MSc Clinical Education at the University of Edinburgh, 55 clinical educators learned a practical skill with which they had no prior experience. Examples included drawing, juggling and rock climbing. The aim was to position them as novice learners and facilitate reflection on their assumptions and beliefs around performance, learning and knowledge.

**Summary of Work:** Blog posts reflecting on this task were thematically analysed in relation to the following questions: what were the barriers to learning a novel task; what approaches were taken to negotiating these barriers and when were they effective; and what lessons can be learned for teaching clinical skills?

**Summary of Results:** The key themes relating to the ability of these clinical educators to learn an unfamiliar skill included: assumptions about learning and knowledge; negotiating conceptual blockages; translating theory into embodied practice; goal setting and monitoring; appropriate conditions and external resources; and social processes and pressures.

**Discussion:** Unfamiliar tasks involved multiple concepts that had to be deconstructed, understood, and then integrated. At each step, there were a number of ways students could get "stuck". Progress could resume only once problematic attitudes and beliefs were identified and resolved, and an appropriate, alternative approach was found. Social guidance, tools and resources were often critical in this process, yet mastery of the task was seen as the ability to perform in isolation of these elements.

**Conclusion:** Learning unfamiliar skills requires identifying and confronting limiting assumptions, unlearning problematic habits, making effective use of resources, and developing a range of approaches to negotiating obstacles.

**Take Home Messages:** When teaching unfamiliar skills, it is important to pay attention to the full range of themes identified above.

#9JJ04 (134993)

**Comprehensive approach to assessing perceived and unperceived learning needs**

*Richard Cherry\*, Schulich School of Medicine & Dentistry, Western University, London, Canada*  
*David Dixon (Schulich School of Medicine & Dentistry, Western University, London, Canada)*  
*Jason Eadie (Schulich School of Medicine & Dentistry, Western University, London, Canada)*  
*Larissa Husarewych (Schulich School of Medicine & Dentistry, Western University, London, Canada)*

**Background:** Understanding learning needs are important for medical educators to develop and implement impactful educational programs. Needs can be described as being perceived or unperceived from the perspective of the learner or educator. Illuminating those perceptions and any gaps between the groups can enhance alignment of learning objectives and enable impactful education.

**Summary of Work:** After a preliminary list of needs is identified through an environmental scan, it is vetted by an expert panel using a 3-round Delphi process. In the initial round, identified expert members are asked to rate each topic using a web-based platform. Relevance (to the target learner group) and Knowledge (expected of the target learners) are rated on a visual analog scale. Initially, the experts can suggest adjustments to the needs list. After the third round, a prioritized list of needs is prepared to present to the target learners using the similar measures (personal relevance and current self-perceived knowledge).

**Summary of Results:** Knowledge and Relevance scores from the expert and target groups are compared to identify areas of consensus (perceived high or low needs) and areas of discord (unperceived needs or over-perceived needs). Participants have the option of receiving individualized feedback which includes peer-group and expert comparisons producing suggestions for creating a learning plan.

**Discussion:** This approach efficiently maximized participation of a meaningful cohort of experts and identifies learning needs to allow participants to individualize their educational development.

**Conclusion:** Developers can focus on needed topics, while allowing targeted implementation, ensuring that the right learners are receiving the right programming in the right format at the right time. Currently, data is perceptual, but as objective performance measures become available, they can be incorporated into the process.

**Take Home Messages:** This novel needs assessment process is an effective approach to aligning educational activities with individual learning needs, allowing the provision of educational programming that is able to affect provider behaviours.

#9JJ05 (136253)

**Mastery Learning model for pharmacological approach for Asthma**

**Jessica Galarza Guerrero\***, UEES, Samborondon, Ecuador

Fanny Solorzano-Torres, UEES, Samborondon, Ecuador  
Christian Cifuentes De la Portilla, UEES, Samborondon, Ecuador

Lorena Segovia-Daza, UEES, Samborondon, Ecuador  
Alicia Zambrano-Balda, UEES, Samborondon, Ecuador  
Gregorio Ortiz-Bermudez, UEES, Samborondon, Ecuador  
Juan Guerrero-Solorzano, UEES, Samborondon, Ecuador

**Background:** The introduction of new teaching methods and teaching models based medical simulation The aim of this study was to introduce the activity of Mastery learning in the process of feedback and debriefing conducted in a normal class defined by the curriculum.

**Summary of Work:** There is no documentation about the process of Mastery Learning for the activity of drug delivery in the treatment of bronchial asthma. Although the time domain can vary from learner to another, you must establish a level of performance, thoughtful approach and feedback to form part of the configuration of learning to reach the domain that allows patient safety. Traditional psychometric indices generally do not reflect the measurement of mastery learning or professional achievement learner in a real situation. all learners in the class of Pharmacology of the respiratory system and include the following model applies: -For Multiple choice written exams Likert scale, using the method of performance of pupils were successful reference for the later stages of the plan. -The Checklists or scale multiple help redefine the minimally competent students until they are ready for the next step. - Identify through a scenario the result of safety or process, considering the difficulty in items always those involving patient safety.

**Summary of Results:** Preliminary results of the pilot showed that those who reached the expert level showed a Pearson correlation 0.028 compared to the initial control group receiving the kind of curricular way with a Pearson correlation of 0.224.

**Discussion:** Deliberate practice improves performance. But repeated feedback and debriefing sessions on different objectives to be progressively developed allow to reach the expert level.

**Conclusion:** The introduction of new teaching methods and learning models evaluated not only knowledge, also skills and attitudes.

#9JJ06 (135205)

**Evaluation of Reading Speed and Comprehension in First Year University Students of Health Sciences**

**Maria Elisa Bazan Orjikh\***, Universidad Mayor, Santiago, Chile

Amelia Hurtado  
Maria Elisa Giaconi  
Hector Alvaro Rojas

**Background:** A study was done to determine the reading comprehension of first year students of health sciences and to determine if there are significant statistical differences by career and to correlate the data with results obtained by students in their career entrance exams (PSU), and academic performance achieved during their first year in university

**Summary of Work:** This was a descriptive, cross-sectional study, in a convenience sample of 391 university students (74% females) from the schools of Medicine, Nursing, Psychology, Kinesiology, Obstetrics, Nutrition, Medical Technology and Occupational Therapy. To determine the reading speed, all students in the classroom were asked to read a text used in previous university entrance exams. They had to mark the word they were reading at the end of the 1st, 2nd and 3rd minute of the test. Later, the number of words read per minute were counted to obtain an average value. Reading comprehension was measured with the Cloze Test.

**Summary of Results:** The preliminary results obtained show values of reading speed in the ranges similar to those published, finding average values of 247 wpm, with ranges going from 185 to 313 wpm. In reading comprehension, the results obtained are very low across the sample and are catalogued in the level defined as Frustration, where students accomplish less than 50% of the omissions in the text, showing a low comprehension of the document read.

**Discussion:** Literature shows that reading speed and comprehension are skills that can be improved with a systematic reading training. Therefore, with this data, we can inform the students of their levels achieved in both tests.

**Conclusion:** Given the importance of reading in the health field, it is beneficial to give feedback to the students regarding their skills for reading speed and comprehension, to help them overcome any limitations and achieve a good academic accomplishment in the future.

**Take Home Messages:** Help students to improve their reading comprehension skills.

#9JJ07 (135229)

**Informal Learning in Healthcare - An exploratory evaluation approach**

**Christina Sarigianni\***, University of Innsbruck, Innsbruck, Austria

Stefan Thalmann (University of Innsbruck, Innsbruck, Austria)

Micky Kerr (Leeds Institute of Medical Education, Leeds, UK)

Tamsin Treasure-Jones (Leeds Institute of Medical Education, Leeds, UK)

Ronald Maier (University of Innsbruck, Innsbruck, Austria)

Markus Manhart (University of Innsbruck, Innsbruck, Austria)

**Background:** A high proportion of learning within the healthcare sector is informal and happens in an ad-hoc basis. Even though such informal learning is effective, it does not scale well beyond immediate context. Through an EU funded project (Learning Layers), we developed tools that can support informal learning at the workplace and its scaling in networks of organisations.

**Summary of Work:** We performed an evaluation to investigate the phenomena and changes in learning and working practices that the Layers tools are associated with in workplace settings. We do not only evaluate single tools or tool features rather than the contextualized solutions for problems that have been instantiated in integrated learning arrangements which are combinations of Layers tools deployed in real-world workplace settings. We conducted focus-group interviews, telephone interviews and we analysed log data of our tools. We analysed our collected material during the evaluation and discussed our intermediate findings with our 35 evaluation participants.

**Summary of Results:** The results provide rich insights on how the tools reflect on the end users' needs in real-world settings. Such needs include improved learning, integration into work practices and change behaviour in terms of learning processes. We have stories showing how our tools changed work and learning practices and we reflect on the potential influence on the quality of care as well as the employees work satisfaction. We furthermore identified challenges and opportunities for scaling and sustainability.

**Discussion:** We collected some evidence that sharing learning experiences within and even among practices, facilitates learning, collective sense making and potentially the quality of care.

**Conclusion:** Even if informal learning is learner-driven and ad-hoc, tools can provide support to individuals.

**Take Home Messages:** Our study suggested that informal learning at the workplace is an important learning metaphor in healthcare and that tools can help staff to manage the raising learning demands.

#9JJ08 (133590)

**Assessment ability of pre-medical students in the application of the undergraduate framework learning standard and Appraisal Competency for Basic Education students and medical graduates' outcome**

**Worapon Wilaem\***, Faculty of Medicine Thammasat University Thailand, Phatumthani, Thailand  
Wachiraporn Krudprathum

**Background:** There are three projects for admission to study medicine in the Faculty of Medicine Thammasat University; 1) national admission via Consortium of Thai Medical Schools (COTMES), 2) the Collaborative Project to Increase Production of Rural Doctor (CPIRD) and 3) the distributed medical program; One District One Doctor (ODOD). Even the first year medical students came from different projects and different background; they have to study in pre-medical science together in the same class.

**Summary of Work:** Descriptive Research the sample populations were 255 students from 2-3 year students of Faculty of Medicine. Thammasat University Rangsit campus. The Independent variable was the ability of preclinical medical students and dependent variables were COTMES, CIPIRD and ODOD students. The data were analyzed by using SPSS for Window V 11.5.

**Summary of Results:** The results showed that themselves ability assessment of students on six areas was the ability to communicate, thinking, problems solving, life skills, knowledge and ethics. The overall abilities were at high level. In comparison, the differences among themselves ability assessment of the students from the Consortium of Thai Medical Schools (COTMES), the Collaborative Project Increase Production of Rural Doctor (CIPIRD) and the One District One Doctor (ODOD) are not statistically different.

**Discussion:** Medical students ability assessment themselves had knowledge scores of less than all areas. Therefore, faculty should focus on learning process about the content of knowledge or link to the new content and apply technology to learning effectively reason

**Conclusion:** Medical students ability assessment themselves had knowledge scores of less than all areas. Therefore, faculty should focus on learning process about the content of knowledge or link to the new content and apply technology to learning effectively reason.

**Take Home Messages:** Instructors should review the previous lesson before the next lesson then; students can link the content of the lesson and applicability.

#9JJ09 (133856)

### Teaching methods for complex medical topics

**Charoen Jaiwong\***, Medical Education Center Chiangrai  
Prachanukroh Hospital, Chiangrai, Thailand  
Yaowalak Jariyapongpaiboon  
Pradthana Ounchanum

**Background:** Medical students have to study a wide range of the medical topics. Teaching a complex medical topic in a limited of time is challenging for the educators. This study aimed to compare different teaching methods that are suitable for the medical students in learning the complex medical topics.

**Summary of Work:** The 4th year medical students were assigned to study pediatric diarrhea as a complex medical topic. The students were divided into three groups. The first group used self-directed learning (SDL) and small group teaching (n=11). The second group used SDL and bedside teaching (n=8). The third group used SDL and lecture (n=10). Multiple-choice questions post-test were used to evaluate the students' knowledge, and the 10-point rating scale was used to assess the students' satisfaction.

**Summary of Results:** There was no difference in age, sex and grade point average(GPA) between three groups. The highest score was observed in the third group (6.8) following by the first group (4.5) and the second group (4.8) ( $p=0.005$ ). The part of knowledge that first group had significant higher score than the other groups was correlation between pathophysiology and treatment. The average satisfaction score was highest in the third group however it was not significantly different comparing to the other groups ( $p>0.05$ ).

**Discussion:** Even though active learning has been promoted in Thai medical education, this study showed that the conventional lecture-based teaching still needed. However, the short term evaluation cannot be affirmed that which teaching methods are superior.

**Conclusion:** Lecture-based teaching still has had a role in some part of learning complex medical topics for Thai medical students.

**Take Home Messages:** Although active learning is important for medical education, educators should select the proper methods for certain medical topics to enhance the learning of medical students.

#9JJ10 (135105)

### Investigating the Effect of Quantum Learning Method on Improving Students Courses Learning

**Ideh Dadgaran\***, Medical Education Research Center, Rasht, Iran  
Nafiseh Dadgaran, Guilan University of Medical Sciences, Rasht, Iran  
Ali Khalkhali, Department of Educational Sciences, Islamic Azad University of Tonekabon, Tonekabon, Iran  
Monireh Aghajanasab, Biochemistry Department, Medical School Guilan University of Medical Sciences, Rasht, Iran

**Background:** Learning is an active process, whose recognition helps the instructor to present a more effective education. Quantum learning is an educational model that contains both educational theories and immediate implementation in class. The present study aims to examine the effect of quantum learning on the educational improvement and learning motivation of learning biochemistry in medicine students

**Summary of Work:** This study was quasi-experimental method. The study population included all the students of Basic Sciences in Medical Sciences field at Guilan University in 2015 in Rasht, Iran. After the screening second semester students of medicine in Biochemistry course simple randomly selected and they were divided into two experimental groups (N=26) and control group (N=20). In the experimental group, quantum learning method was applied and the control group were taught under normal (lecture) conditions. Independent T test and Software spss were used to analyze data.

**Summary of Results:** The results showed that quantum learning methods have a positive impact on improving academic achievement and student learning motivation. Given the significant level of result in two independent samples t-test and post-test two experimental and control groups is less than 05/0 intervention was done in the way of improved learning and given that the upper bound and lower bound are both positive, the mean is higher than the control group and experimental groups. Suggests that the level of awareness and motivation to learn in the experimental group were improved with the intervention of the learning method.

**Discussion:** The conclusions demonstrate that this method can increase the students' satisfaction and the students will study and pursue their courses more assiduously.

**Conclusion:** Applying this method by the instructors can lead to creating interest, improving learning motivation and improving educational performance of the students. This method can be used by the students as a modern method.

**Take Home Messages:** The main feature of this method of learning is transfer speed and As well as other special feature of this method compared to other methods is that in this method is used to teach all learning styles simultaneously. This research, according to field of study offered at other universities



can be applicable and appropriate for student learning in the 21st century.

#9JJ11 (131746)

**Practice and evaluation of “Instructional Design Basics” course for first year medical students**

**Yoshikazu Asada\***, Jichi Medical University, Tochigi, Japan

Yoshihiko Suzuki (Jichi Medical University, Tochigi, Japan)

**Background:** Instructional design is the educational theory for analysis, design, development, implementation and evaluation. Instructional design theory is important for physicians because there are a lot of “teaching” scene for them: to teach colleague or their juniors, and of course to educate patients.

**Summary of Work:** The course started in 2013 and the capacity of the course was 20. In the classroom (70 minutes), the short lecture about the instructional design such as “ADDIE model” and “Kirkpatrick’s evaluation” and discussion about the topic was done. Students did the task after the class in Moodle.

**Summary of Results:** Reaction (Kirkpatrick’s Level 1): The online survey of students satisfaction was conducted. Most of the students answered that the course was interesting and they found the importance of the instructional design. Learning (Level 2): The assignment theme was about analysis of their compulsory course based on instructional design.

**Discussion:** Every learner passed the assessment criterion and they achieved the objectives of the course. However, there was no objectives about “applying instructional design to learning”. Although instructional design is important for teaching, the application to their learning medicine would also be important and relevant for them.

**Conclusion:** “Instructional Design Basic” course was interesting for first year students. To make the course more relevant and effective for them, some application to their learning such as peer teaching and experimental learning theory for simulation-based learning should be added.

**Take Home Messages:** “Instructional Design Basic” course is interesting for medical students. To make their learning experience more effective, not only for application to teaching, but also to learning is important for them.

#9JJ12 (131794)

**A Project-based learning: A powerful tool to draw the students’ potentials towards 21st century skill**

**Benjamas Wongsatayanon\***, Srinakharinwirot University, Bangkok, Thailand

Anirut Limtrakul

Supinya Pongsunk

Srisombat Puttikamonkul

Umnarj Paeratkul

**Background:** The project based learning was launched to the course: Infection for the second year-medical students under the topic ‘Microbial control’. The learning objectives are stimulation of critical thinking, problem solving, collaboration and communication skill.

**Summary of Work:** Four projects were introduced to 180 students with the authentic VDO clip, problem-based or application challenges. The students discussed, designed, did the experiments with the limited materials provided and summarized data, on their own under teachers’ guidance. The project presentations were evaluated according to microbiological theory, applications and communication skill.

**Summary of Results:** The activity reached the goal of the learning objectives on knowledge, critical thinking, applicability, group skill, attention, performance and communication skill (average evaluation score 4.36 from 5). The student enjoyed the activity, could design the experiments, summarized the outcome and showed high ability in communication skill.

**Discussion:** The student demonstrated their enthusiasm on the activity and could criticize the weak point of their own works. The activity stimulated the awareness of social media perception. The peer assessment led the evaluation of each student’s on knowledge management, teamwork and critical thinking more accurately.

**Conclusion:** The project based learning was carried out and could draw the students’ potentials toward 21st century skill on knowledge management from theory to experimental design, the criticism of the data result, collaboration teamwork and communication skill.

**Take Home Messages:** The project based learning increased students engagement, understanding and skills. This activity on topic ‘Microbial control’ enhances the students to learn the microbiological skill, how to adapt for daily use and judgement on the reliability of information from social media by critical thinking.

#9JJ13 (132945)

**Attitude and learning behaviors towards active learning in critical appraisal for the third year medical students, Phramongkutklao College of Medicine: an online questionnaire-based study**

**Phunlerd Piyaraj\*, Phramongkutklao College of Medicine, Bangkok, Thailand**

Paanjit Taamsri

Saovanee Leelayoowa

Picha Suwannahitatorn

Mathirut Mungthin

**Background:** Evaluating students' attitudes and learning behaviors towards active learning in critical appraisal after completing a course is one way to assess a curriculum effectiveness. However, previous studies shown different results. The present study aims to assess the student's attitude and learning behaviors on an elective course - critical appraisal for the third year medical students.

**Summary of Work:** Twenty-three third year medical students at Phramongkutklao College of Medicine were enrolled into the study after their attending an elective course for three years consecutively during 2013-2015. They were administered an online questionnaire. Suggestions were also asked regarding the attitude and perception on the elective course. Descriptive statistics were used and results were displayed as percentage.

**Summary of Results:** To address the Kirkpatrick theory with students' reaction, we assessed whether students liked the learning process of this course. 78.3% reported most satisfaction. For the students' behavior, we assessed which performance changes resulted from the learning process. 96% of them agreed that their potential to critique medical journals have increased and it was all worth it to had spent more time for self-study. All students reported that this course was helpful to develop their learning skills. About 50% used the internet as the information resource during the course and 83% of them studied in English reading textbooks and articles.

**Discussion:** The present study found that students who experienced active learning approach had positive attitudes and positive changes in their learning behaviors towards critical appraisal.

**Conclusion:** The active learning approach shows promise as an educational approach for medical students and can transform students through the process of learning.

**Take Home Messages:** The active learning method is one of the essential tools for professional transformation of medical student.

#9JJ14 (135081)

**Evaluation of concept mapping training on influencing attitude of concept mapping and critical thinking in nursing preceptors**

**Shu-Jung Wu\*, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan, Kaohsiung, Taiwan**

Shu-Yuan Lin (Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan)

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Hui-Jung Chuang (Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan)

Su-Yueh Chen (Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan)

Yu-Hsien Chuang (Kaohsiung Municipal Ta-Tung Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan)

**Background:** Concept mapping can train nurses to develop the ability of critical thinking and problem solving. The study purpose was to explore the effect of concept mapping training on changing attitude of concept mapping and critical thinking in nursing preceptors.

**Summary of Work:** The study was quasi-experimental study with a pre-and-post design. Participants of this study consisted of 64 nursing preceptors. All participants received a six-hour concept mapping training program, that included lecture and seminar. Outcomes was measured by Chinese version of critical thinking disposition inventory and the attitude of concept mapping scale.

**Summary of Results:** Means were 4.09 and 4.19 for attitude at pre-test and post-test; means were 3.48 and 3.25 for critical thinking at pre-test and post-test. Participants had demonstrated no significant change on attitude ( $p = .19$ ), but they had shown significant difference on critical thinking between pre-test and post-test ( $p < .01$ ).

**Discussion:** The results had not supported study hypothesis. The training course had slightly influenced preceptors' attitude of concept mapping and critical thinking that might be due to inadequate training hours and the design of training program.

**Conclusion:** The effect of concept mapping training on improving attitude of concept mapping and critical thinking for nursing preceptors is not determined. Further study to test the impact of concept mapping training on preceptors is suggested.

**Take Home Messages:** The positive influence of concept mapping training, especially for attitude of concept mapping and critical thinking, need for further exploration.

## Session 10: Simultaneous Sessions

Wednesday 31 August 2016: 0830-1015 hrs

### #10A Symposium: Creating Safe Spaces for Academic Innovation: Pushing the Boundaries of Medical Education Research and Scholarship

Location: Auditorium



**Jennifer Cleland** \* (University of Aberdeen, UK)

**Rona Patey** \* (University of Aberdeen, UK)

**Ayelet Kuper** \* (The Wilson Centre, University of Toronto, Canada)

**Jerry Maniate** \* (The Wilson Centre, University of Toronto, Canada)

**Cynthia Whitehead** \* (The Wilson Centre, University of Toronto, Canada)

As medical education becomes an increasingly diverse and scholarly field, academic findings will sometimes call into question accepted ways of thinking and practicing. This can open exciting and creative possibilities for innovation; however this may also pose challenges for scholars who need to constructively engage colleagues about the implications of their controversial innovations for educational practice. In this symposium, we will explore strategies and solutions to support and encourage important, potentially dissenting voices in our field in order to create safe environments for transformative innovation. We will highlight four complementary perspectives:

- An individual researcher doing potentially “risky” research;
- A Centre Director supporting and nurturing innovative researchers within local political and financial realities;
- A national leader encouraging safe spaces for innovation within funding and regulatory frameworks;
- A researcher doing work in support of culture change, safe working and learning environments; and draw on various examples from medical/healthcare education and other areas.

### #10B Symposium: Competencies, Outcomes and EPAs: A virtue or a plague for our learners?

Location: 211 – P2

**Erik Driessen**\* (Maastricht University, Netherlands)

**Cees van der Vleuten**\* (Maastricht University, Netherlands)

**Eric Holmboe**\* (Accreditation Council for Graduate Medical Education, USA)

**Larry Gruppen**\* (University of Michigan, USA)

**Linda Snell**\* (McGill University, Canada)

**Pim Teunissen**\* (Maastricht University, Netherlands)

Competency-based education (CBE) dominates health care education. All over the globe outcomes are defined in the form of competencies, entrustable professional activities, milestones and rubrics. Curricula are vertically integrated; early practical experience and continuous formative feedback are implemented. From the start CBE has been surrounded by an intense debate. The CBE protagonists claim that it promotes relevant skills, better health care and better curriculum governance. The CBE antagonists claim that CBE’s stress on control diverts from learning. In this highly interactive symposium we will debate the challenges and address questions that surround CBE with the panel and the audience. Questions like for example is CBE more effective for patients, systems and learners? Or is CBE driving a wedge between practice and learning? We invite all learners, teachers, educators, administrators and researchers to join this conversation on the merits and future of competency-based education for health care education.

### #10C Symposium: Creating (Global) Citizenship: Introducing students to community and the global playing field

Location: MR 112 – P1

**Organised by Medical Students**

**Stijntje Dijk**\* (Netherlands) (Moderator)

**Charles Boelen**\* (Tunisia)

**Björg Pálsdóttir**\* (USA)

**Omar Cherkaoui**\* (IFMSA, Morocco)

**Other speakers representing international organisations**

The symposium aims to bring together people from all over the world, from global experts to those working in education in the local community, from experienced medical educators to medical students starting their journey, but all have in common a shared vision of education and (future) health workers to impact positively the communities that they serve. Questions that will be addressed during this symposium are what are the roles of medical students and of faculties to serve the community, how do we motivate our students and faculties to take on these leadership roles. The symposium will invite the speakers to give short introductions from their perspective and role, and are invited to do so interactively using multimedia to show global examples through videos, pictures and storytelling. Participants will be invited to share their success stories and challenges to overcome and will be encouraged to discuss these questions around tables.

## 10D Research Papers: Feedback and learning

Location: MR117 – P1

#10D1 (127977)

**Enhancing feedback through the “educational alliance”; extending the model, reflecting the diversity of learners’ perceptions**

**Deborah Murdoch-Eaton\***, University of Sheffield, Sheffield, UK

Lucy Bowen

Michelle Marshall

Deborah Murdoch-Eaton

**Introduction:** Feedback is vital to learning, serving crucially to develop a learners’ capacity for performance self-regulation against recognised standards. Despite numerous efforts to address the ‘feedback gap’, learners repeatedly report dissatisfaction with feedback. Current literature supports a focus on the learner as an active agent partaking in a dialogic conversation and the greater need to understand student perceptions on learning influences as opposed to teacher ‘best practice’. The ‘educational alliance’ provides a conceptual framework, in which the learner’s perception of the educational relationship is key, upon which to understand how learners recognise, use and seek feedback (1).

**Methods:** A comprehensive map of feedback opportunities within the curriculum was used as a tool to understand learner perceptions of feedback. 25 medical students volunteered to participate in 5 focus groups (1 per academic year). Key feedback literature, research aims and an introduction to the feedback map were given during a briefing session. Non-directive style focus groups were conducted using a discussion guide. Audio-recordings were transcribed verbatim and entered into NVivo 10 software. The primary researcher analysed the data using a constant comparative approach with refinements through discussion with the research team.

**Results:** Six main themes emerged: ‘Learner Behaviours’; ‘Learner Beliefs, Attitudes and Perceptions’; ‘Learning Culture’; ‘Mode of Feedback’; ‘Teacher Attributes’ and ‘Relationships’. Three conceptual models depict the highly complex network of contextual, interpersonal and intrapersonal factors, which impact on how students recognise, seek and use feedback. ‘Learner Beliefs, Attitudes and Perceptions’; ‘Learning Culture’; ‘Mode Of Feedback’; ‘Teacher Attributes’ and ‘Relationships’ all impacted ‘Learner Behaviours’ which influence learner recognition, use and seeking of feedback. Whilst ‘Teacher Attribute’ and ‘Relationships’ with educators was deemed important to students, learners exhibited striking deficits in their understanding of what feedback was, how to use it and what their role should be in seeking it.

**Discussion:** : The results support the importance of a successful educational relationship and present a

wider network of contextual factors that impact learner behaviours towards feedback. The study challenges the focus on addressing teacher best practice and supports a shift towards curriculum clarity and understanding the learner (2). The models illustrate the context of a feedback exchange from the perspective of the student; in order to address the ‘feedback gap’ educators must adopt a wider lens to consider and address the multitude of factors that can impact on feedback’s success. The reality of the medical learning culture dictates the variability of educators and the difficulty in establishing longitudinal relationships as beyond the learner’s control; however the learner’s response to these challenges is under their control.

**Conclusion:** Medical educators require enhanced understanding about student learning and feedback perception. The conceptual models illustrating interrelationships of factors affecting student recognition, use and seeking of feedback support, and their role within the learning process evidence the need for further research into priming the learner as an active participant within the ‘educational alliance’. Investing efforts towards preparing learners may result in a more equal educational partnership where learners are empowered to take charge of their own learning.

**References:** 1. Telio S, Ajjawi R, Regehr G. The “Educational Alliance” As A Framework For Reconceptualising Feedback In Medical Education. *Academic Medicine* 2015; 90: 609-614  
2. Boud D, Molloy E. Rethinking Models Of Feedback For Learning: The Challenge Of Design. *Assessment & Evaluation in Higher Education* 2013; 38: 698-712

#10D2 (128069)

**Maximising Feedback with Self-Reflection and Peer Discussion in Formative Assessment to Enhance Student Learning in Medical Education**

**Dilshani Hunukumbure\***, Imperial College London, London, UK

Kate Ippolito (Imperial College London, London, UK)

Saroj Das (Hillingdon Hospital NHS Foundation Trust, London, UK)

**Introduction:** Feedback plays a crucial role in shaping a competent clinical practitioner. During the past few years, the failures in providing effective feedback across medical schools have been highlighted particularly in the national student survey. We introduced a novel feedback session in Hillingdon Hospital to the third year medical students of Imperial College London in an attempt to maximise the feedback outcome. This feedback session provides opportunities for self-reflection and peer discussion on video recorded performances of OSCEs (Objective Structured Clinical Examination) in formative assessment. We explored the students’ perspectives on this feedback tool concentrating on the improvements in learning from this approach.



**Methods:** Building on studies that have highlighted the multiple benefits and challenges of video based self and peer feedback, we wanted to specifically explore the learning gains and what impact they thought it had on their subsequent learning and practice. To achieve this, social constructionist view was adopted in designing the study. We used Illeris' three dimensions of learning model (1) and Vygotsky's zone of proximal development and scaffolding (2) to develop our conceptual framework. In order to investigate individual students' views on the process and the outcome of self-reflection and peer feedback semi-structured interviews were conducted. The data was analysed using a thematic analytical approach.

**Results:** We have combined results and discussion in this qualitative research. The findings revealed that the students valued the experience of authentic self-reflection through videos and the unique self-feedback. Initial anxiety of watching their videos was a main concern for many students. But they changed their views to a great extent after the realisation that mistakes were not exclusive to each individual, and this improved their self-confidence. The students explained how they learnt from peers' model behaviour and also from each other's mistakes. During the discussion the students engaged in both giving and receiving feedback. Many valued the feedback they received from the peers.

**Discussion:** Some students found difficulty in giving honest feedback, particularly constructive criticism. The main cause identified was students' empathetic feelings for their peers' mistakes. Some found hard to get the correct balance. This prevented the dialogue from flourishing into a vibrant discussion. The findings also revealed that the word 'feedback' might be misleading in this context as it may have different implied meanings. Furthermore, they had poor insight into each other's expectations of feedback. The unfamiliarity of the session and lack of experience in giving feedback to each other, especially in group settings was also an issue. Repeated exposure to similar sessions with short debriefs may address some of these problems.

**Conclusion:** This qualitative study demonstrated genuine opportunity for deeper learning with the use video based self-reflection and peer discussion under a teacher's guidance. Understanding some of the challenges has helped our team in formulating recommendations to maximise learning. These recommendations will be elaborated in this presentation for the benefit of the wider audience.

**References:** Illeris K. Contemporary theories of learning: learning theorists... in their own words. First ed. Oxon: Routledge; 2009.  
Woolfolk A, Hughes M, Walkup V. Psychology in education. 2nd ed. Harlow: Longman; 2013.

#10D3 (128167)

**With a little HELP from my friends – The Hallmarks of Education and Learning Progress Project**

**Allison Turnock\*, University of Tasmania, Hobart, Australia**

*Rebecca Stewart (Medical Education Experts, Townsville, Australia)*

*Parker Magin (Newcastle University, Newcastle, Australia)*

*Nick Cooling (University of Tasmania, Hobart, Tasmania)*

*Amanda Tapley (Newcastle University, Newcastle, Australia)*

**Introduction:** Remediation of doctors undertaking postgraduate General Practice training is a costly exercise, both in terms of time and funding. (Cooling, 2012) There is minimal evidence as to the effectiveness of remediation, nor is there specific information about GP Registrar demographic or training activities that may be useful to predict training progress. (Humphrey, 2010) The experiences of GP Registrars involved in remediation processes is undocumented. This project aimed to correlate training activities and GP Registrar demographics that may be predictive of future remediation, and explored the perceptions of program participants (including GP Supervisors and the GP Registrars) with regards to education and remediation processes.

**Methods:** This project utilised quantitative and qualitative methods as follows: i) a quantitative retrospective cohort study employing multivariable regression analysis of demographic information and performance in education assessments, with the outcome factor 'required assistance or intervention', ii) de-identified case studies of GP Registrars identified as requiring training assistance and who were subsequently withdrawn, or withdrew, from training, iii) semi-structured interviews with GP Registrars who have been provided with additional training assistance, and iv) an online survey of GP Registrars, GP Supervisors, Practice Managers and Medical Education staff exploring perceptions of education activities as predictive of training progress.

**Results:** Statistical analysis revealed that concerns identified during direct observation of clinical practice (within the first six months of training), unsatisfactory 360-degree feedback, having a primary medical degree from outside of Australia and taking leave (>10 days) within the first six months of training were predictive of the future need for remediation. Direct observation of clinical practice was highly valued as predictive of progress by program participants. GP Registrars involved in remediation revealed multiple contributory factors and had reasonable insight. GP Registrars who were withdrawn or withdrew from training uniformly were uncertain about their commitment to General Practice and medicine as a career pathway.

**Discussion:** In-vivo activities such as direct observation of clinical practice, and to an extent, 360-degree feedback, have been shown by this study as being the most useful predictors of the future need for GP

Registrar remediation. Their acceptability has been useful in indicating training progress has also been demonstrated. This information will enable training organisations to appropriately resource and time those training activities shown to be most benefit. The qualitative aspects of the study highlighted the multifactorial nature of contributors to remediation, and importance of career commitment (and counselling) in addressing training progression.

**Conclusion:** Utilising existing training data to increase awareness of the predictive value of education activities will enable postgraduate GP training organisations to appropriately select, resource and time, those training activities shown to be of most benefit. Increased emphasis should be placed on addressing the multifactorial nature of remediation, and ensuring the provision of early pastoral support and career guidance. By identifying training issues early, interventions can be commenced in a timely fashion in order to minimize financial and psychological impacts, improve educational effectiveness and ultimately to ensure patient safety.

**References:** Cooling, N. (2012). How do Australian Regional Training Providers address the learning needs of underperforming GP registrars within a GP training setting? An identification of current perceptions and approaches. Education Integration Project: GPET. Humphrey, C. (2010). Assessment and Remediation for Physicians With Suspected Performance Problems: An International Survey. *Journal of Continuing Education in the Health Professions*, 30(1), 26-36.

#### #10D4 (127277)

**Medical students acting as Interpreters during clinical encounters: cause for concern?**

**Anna Ryan\***, *University of Melbourne, Melbourne, Australia*

*Caleb Fisher (Royal Melbourne Hospital, Parkville, Australia)*

*Neville Chiavaroli (University of Melbourne, Parkville, Australia)*

*Robyn Woodward-Kron (University of Melbourne, Parkville, Australia)*

**Introduction:** Mediated communication by accredited interpreters is associated with improved patient access, satisfaction and comprehension, and may result in improved patient outcomes (1,2). Anecdotal experiences in migrant destination countries such as Australia suggest that multilingual medical students may be asked to act as ad-hoc interpreters during encounters between clinicians and patients. Little is known however about the extent, setting, experiences, and perceptions of medical students acting as interpreters in hospital settings.

**Methods:** Final year students in an Australian graduate-entry medical program were invited to participate in an anonymous online survey regarding their experiences acting as interpreters. The survey questions were based on the limited existing literature in the field and were designed to examine the extent

and student experience of interpreting. The survey included Likert and free text and was delivered during students' final semester of training. Descriptive statistics and content analysis of data was used to interpret results.

**Results:** 45.7% of the student cohort (146/319) successfully completed the online survey and 73% of these (n = 106) reported they spoke a language other than English. No students had any formal interpreting qualifications, yet 34% reported acting as an interpreter for a patient in their role as a medical student. Most requests for interpreting came from medical staff, within business hours and at inner metropolitan hospital sites. 20% of students had felt pressured to act as an interpreter. 83% of students reported they had not been advised of any policies or procedures relating to student interpreting at their allocated health service.

**Discussion:** This study suggests that bilingual medical students are frequently acting as interpreters during their training. This raises questions about medical staff access to, or use of, professional interpreting services within Australian health services. The fact that many students felt under pressure to act as interpreters and that many felt unqualified raises concerns about students' ability to refuse staff requests. The findings also have implications for quality and safety.

**Conclusion:** Anecdotal evidence suggests there are few University policies relating to medical students acting as interpreters. Our findings that that medical students act as ad-hoc interpreters suggest that this is an important area for future research in Australian and other migrant destination countries; there may also be significant ethical, legal and professional implications. In addition, the fact that most students reported that the experience was generally positive also suggests that students may gain some benefit from interpreting for patients, and this warrants further investigation.

**References:** Flores, G., Abre, M., Pizzo Barone, C., Bachur, R. & Lin, H. Errors of Medical Interpretation and Their Potential Clinical Consequences: A Comparison of Professional Versus Ad Hoc Versus No Interpreters. *Ann Emerg Med*. 2012; 60:545-553  
Karliner, L., Jacobs, E., Chen, A., & Mutha, S.. Do Professional Interpreters Improve Clinical Care for Patients with Limited English Proficiency? A Systematic Review of the Literature. *Health Services Research*. 2007; 42(2): 727-754

#### #10D5 (126067)

**Longitudinal Qualitative Analysis of Study Strategies Adopted by First-Year Medical Students: The Learning Environment Counts!**

**Beth Bierer\***, *Cleveland Clinic Lerner College of Medicine of CWRU, Cleveland, USA*

*Elaine F. Dannefer (Cleveland Clinic Lerner College of Medicine of CWRU, Cleveland, USA)*

**Introduction:** Growing awareness of the importance of educational learning environments is reflected in accreditation mandates. Yet, most published reports

provide only snapshots of learners' perceptions of educational environments and have not explored how different curricular contexts and goal orientations shape students' learning strategies longitudinally. This qualitative study addresses this gap in the literature by exploring how beginning medical students construct and adapt their self-directed study strategies over a year's time while enrolled in a curriculum that emphasizes reflection on performance and competence rather than relying on high-stakes examinations or grades to motivate students to learn and excel (1).

**Methods:** After obtaining ethical approval, we invited first-year medical students to participate in three, 45-minute interviews purposefully scheduled throughout the 2013-14 academic year. Two medical educators with qualitative research experience used structured interview guides to solicit students' previous assessment experiences, preferred learning strategies, and performance monitoring processes. All interviews were digitally recorded and transcribed verbatim. Participating students confirmed the accuracy of transcripts prior to analysis with Atlas-ti. Both researchers independently read transcripts and then met regularly to discuss and agree upon the inductive coding of transcripts and judge when saturation occurred and no new themes emerged from data.

**Results:** Fourteen first-year students were interviewed three times (42 interviews overall). Longitudinal analysis revealed students adapted study strategies in relation to environmental task demands. During earlier college experiences, most students reported using memorization-based study strategies and test-taking gamesmanship when college learning environments emphasized norm-based assessment, faculty-directed lectures, and low learner autonomy. Students adopted different strategies when medical school required them to participate in collaborative learning groups and take ownership for independent study. Students who experimented with strategies that matched task demands reported less stress in contrast to students who relied on the same study strategies used during their earlier college years.

**Discussion:** Self-regulated learners require a toolbox of strategies in order to reflect upon, monitor, and regulate their behavior effectively. We observed a competency-based curriculum that includes the three components emphasized in self-determination theory (i.e., promotes autonomy, encourages relatedness with others, and emphasizes competence) encouraged students to develop and adopt new self-regulation strategies (2). Without the immediacy of exams, students reported shifting their goals from short-term to long-term where learning became an ongoing, "low boil" process rather than a "roller coaster" ride. Implications exist on how to structure competency-based assessment systems that encourage learners to adopt mastery-oriented performance goals and learning strategies.

**Conclusion:** This study provides evidence that first-year medical students can develop and implement study strategies that meet the task demands of different learning environments. This study also

demonstrates that beginning medical students can take ownership for their learning, with appropriate environmental supports, and implement specific strategies required for mastery in a competency-based assessment system. Our findings may generalize to educational programs seeking strategies on how to design educational environments that promote learner autonomy and foster self-directed learning. Future research on self-regulation should include the interaction between the task/situation and the learner within the context of the learning environment.

**References:** Dannefer EF, Henson LC. (2007). The portfolio approach to competency-based assessment at the Cleveland Clinic Lerner College of Medicine. *Academic Medicine*, 82(5):493-502.

ten Cate TJ, Kusurkar RA, Williams GC. (2011). How self-determination theory can guide our understanding of the teaching and learning processes in medical education. *AMEE guide No. 59. Medical Teacher*, 33(12):961-973.

**#10E Symposium: XIV Iberoamerican  
Session: 2016 Significant Changes in the  
Americas and Spain: A Purpose and  
Impact Leadership Discussion on  
Medical Education and Accreditation**

Location: 212 – P2

**Panel**

**Liliana Arias\*** (PAFAMS, Colombia)

**Emmanuel Cassimatis\*** (Consultant ECFMG, USA)

**Ricardo Leon\*** (AMFEM/PAFAMS, Mexico)

**Jordi Pales\*** (SEDEM, Spain)

**Pablo Pulido\*** (PAFAMS, Venezuela)

**Ada Vedilei\*** (PAFAMS/IAI, Venezuela)

**John Prescott\*** (PAFAMS/AAMC, USA - Moderator)

This session, with input from academic leaders from diverse national and international experiences, will highlight the similarities and difference in approaches to critical issues in medical education and accreditation. The long-standing Iberoamerican relationship in medical education is crucial to academic medicine and it has benefited the global community. The depth and breadth of this relationship is demonstrated through an appreciation of the scope and diversity that exists among and between its members. For over fifty years, the Pan American Federation of Associations of Medical Schools (PAFAMS) has provided an organizational framework supporting this relationship. With new challenges present, there is a renewed interest in enhancing the quality of medical education systems through more comprehensive accreditation processes. The International Accreditation Institute (IAI) was developed in 2015-2016 after the results from a survey of twenty PAFAMS member associations. It has emerged as a critical accreditation organization designed to highlight successes, challenges, resources, and leadership needed to ensure quality medical education programs. While still new, IAI has already made an impact and its anticipated future will be outlined during the session. There will be an opportunity to learn from select case studies from multiple countries. Leaders in academic medicine must make decisive decisions, based on the critical analysis of facts and application of resources, when creating optimum learning environments. This session will provide both a historical context and practical understanding that will enable leaders to enhance their decision-making in medical education, ultimately leading to the improvement of healthcare locally, regionally, and globally.



## 10G Short Communication: Simulation 2

Location: MR 113 – P1

#10G1 (134161)

### Occupational Therapy Students' Experiences of Simulation

**Derek Jones\***, University of Edinburgh, Edinburgh, UK  
Gemma Bradley (Northumbria University, Newcastle Upon Tyne, UK)  
Stephanie Whittington (Northumbria University, Newcastle Upon Tyne, UK)  
Jill Kings (Neural Pathways UK Ltd, Gateshead, UK)

**Background:** The evidence for the use of simulation as a learning and teaching tool is dominated by medicine and nursing with less published in relation to allied health professions (AHPs). It is recognised that caution is needed when attempting to generalise research findings between disciplines and varying types of activities. There is therefore a need to understand the use and potential benefits of simulation for AHPs.

**Summary of Work:** The aim of this qualitative study was to use focus groups (n=3) to explore student experiences of participating in simulation as part of an undergraduate Occupational Therapy (OT) programme. Participants were 13 final year OT students who had been involved in one or more simulated learning activities with standardised patients. The focus groups were audio recorded and transcribed; data were analysed using interpretive description.

**Summary of Results:** Students described simulation as a bridge between university and practice and strongly endorsed learning via simulation. They described heightened emotional states some days before as well as immediately after participation. A strategic approach to managing preparation for, and conduct of, the exercise was evident.

**Discussion:** To manage anxiety prior to the simulation some students described using superficial and strategic approaches to minimise error. This presents a challenge for facilitators of simulation as the method aims to promote a deeper, experiential approach to learning where learners should feel safe to learn from mistakes or challenges. The findings highlight the importance of pre-briefing as well as as debriefing in the construction of a 'safe' space for the activity.

**Conclusion:** Emotional responses to simulation influence the learning experience of undergraduate OTs.

**Take Home Messages:** This study adds to the literature on simulation in clinical education by adding the perceptions of OT students and, in particular, by emphasising the need to consider students' emotional responses to simulation and the impact this has on approaches to learning.

#10G2 (135694)

### TverrSim; Medical simulation as an interdisciplinary change space for medical and healthcare students - initiating community of practice

**Leif Martin Hokstad\***, Medical Simulation Centre, University Hospital in Trondheim, Norwegian University of Science and Technology. Trondheim, Norway

Stine Gundrosen (Medical Simulation Centre, University Hospital in Trondheim, Norwegian University of Science and Technology, Trondheim, Norway)  
Hilde Stuedahl Mohn (Medical Simulation Centre, University Hospital in Trondheim, Norwegian University of Science and Technology, Trondheim, Norway)  
Edith Johanne Olsen (Norwegian University of Science and Technology, Trondheim, Norway)  
Petter Aadahl (Medical Simulation Centre, University Hospital in Trondheim, Norwegian University of Science and Technology, Trondheim, Norway)

**Background:** There is an increasing understanding of the need for interprofessional training in health education. From a pedagogical perspective, Medical Simulation provides an arena for the development of a professional identity and an opportunity for the learners to be initiated to a community of practice; to develop shared skills, knowledge and values. It addresses the highly complex theory-practice relationship and also provides a space for individual experience, critical reflection and awareness of context. Employing the threshold concept framework as a lens for observation is increasingly seen to offer new perspectives but is yet rarely discussed in medical and healthcare education.

**Summary of Work:** We report a three-day pilot and a full scale project conducted from September 2015 to March 2016 involving 130 final year medical-, nursing- and radiography students. Interprofessional groups of 5-8 students were introduced to 4 scenarios; two basic and two advanced. Learning objectives; shared situation awareness, professional roles, team functioning and interprofessional communication. Scenarios and debriefing sessions were videotaped and analyzed.

**Summary of Results:** Preliminary video analysis outline the potential changes among students; the novice – expert dynamic, the individual – collaborative dynamic, the uncertainty – confidence to challenge dynamic, the mono – interdisciplinary dynamic, and the socialization of identity dynamic.

**Discussion:** This presentation reflects on student experiences where the medical simulation environment is their change space.

**Conclusion:** To the students, the simulation laboratory represents a temporary and many-faceted liminal space interfacing the educational system and the real world.

**Take Home Messages:** Interprofessional medical simulation training seems to represent a change space initiating students' to a community of practice, contributing to the development of students' professional identity.

#10G3 (130859)

**Simulation based medical education: Teaching normal delivery on medium fidelity simulator!**

*Nighat Shah\*, AIPH, JSMU, Karachi, Pakistan*

*Lubna Baig*

*Nusrat Shah*

*Syed Moyn Ali*

**Background:** Simulation is a virtual reality. Trial and error on human patients is morally and ethically unacceptable. Learning delivery is stressful in labor room and conflicts with maternal/neonatal safety. Simulation offers a suitable alternative. Pakistan has high maternal mortality during delivery. Therefore it is imperative that medical students learn the art and science of normal delivery to prevent mortality.

**Summary of Work:** To assess the effectiveness of Simulator in teaching normal labour/ delivery. A Quasi Experimental, quantitative study in which two groups of third year medical students were compared on their knowledge (pre/post test), skills (OSCE) and perceptions with regards to the traditional (PowerPoint) and new teaching method (Simulator).

**Summary of Results:** 76 third year students participated, 36 in control and 41 in intervention group. The data was entered and analyzed on SPSS. The Pretest and posttest scores were comparable and p value was not statistically significant. This also persisted for perception scores as both groups rated the workshops highly. However, checklist/OSCE scores were statistically significant with p-value of less than 0.01.

**Discussion:** Medical literature highlights the importance of simulation in high risk situation but little is documented on normal procedures like deliveries. Normal procedures like delivery can become high risk, as two lives are at stake that of mother and neonate. maternal morbidities and mortalities are unpredictable and do occur in low risk women. Maternal mortality is very high during labour and delivery

**Conclusion:** This study demonstrated that simulation based medical education is better learning modality for skills like labour and delivery.

**Take Home Messages:** Low cost Simulator based labour delivery teaching/learning methodology should be incorporated in undergraduate curriculum.

#10G4 (132143)

**A Qualitative Enquiry into Medical Students' Attitudes Towards Simulation Training**

*Matthew Bridge\*, University of Liverpool School of Medicine, Liverpool, UK*

*Vidhi Taylor-Jones*

*Anna Soppitt*

*Danyal Mehmood*

**Background:** Feedback from undergraduate medical students has highlighted how apprehensive they are prior to simulation training. But they also claim it to be enjoyable, interesting and often would prefer greater amounts of simulation based work in the curriculum. In order to better understand attitudes relating to simulation, in depth student views were sought.

**Summary of Work:** Six focus groups were conducted with 3rd year students' before and after simulation training in the care of the acutely ill patient. Following transcription, two researchers independently undertook an iterative analysis of the data. An open coding methodology was employed to identify emergent themes and sub-themes, followed by comparison and consensus.

**Summary of Results:** Two overriding themes emerged; 1- The stated theme of apprehension Students were concerned about 'embarrassing' themselves in front of peers. 2- The latent theme of professionalism sub themes - Integrity - Personal Reflection - Altruism. The students were expecting it to be a 'scary' and 'embarrassing' experience but in spite of that they were keen to participate, as they perceived the simulation training would bring potential benefit to them and their future patients. 'it's going to be scary and stuff but... to just think that we're learning from it'

**Discussion:** The professionalism and dedication shown by the students was very encouraging. Their commitment to the learning experience and willingness to put their anxiety aside, for what they perceived to be the benefit of their patients was clearly demonstrated in the data.

**Conclusion:** Medical students in our study act as dedicated professionals when faced with a simulation programme. We must make efforts to ensure we can build curricula that tap into the desire of students to become 'good doctors'.

**Take Home Messages:** Professionalism amongst students allows them to engage with and learn from simulation overcoming their initial apprehension.

#10G5 (132545)

**Pilot testing a national multidisciplinary operating room simulation intervention to improve patient outcomes**

*Jennifer Weller\*, University of Auckland, Auckland, New Zealand*

*Alan Merry*

*Ian Civil*

*Arden Corter*

**Background:** The complex environment of the operating room (OR) requires excellent teamwork and communication, but opportunities to develop resilient teams may be limited by the way work is organized, individualistic clinician attitudes and entrenched hierarchies. The Multidisciplinary Operating Room Simulation intervention (MORSim) integrates surgical and anaesthesia simulators in realistic clinical cases to improve teamwork.

**Summary of Work:** We ran MORSim with 20 full OR teams from two major teaching hospitals. We undertook semi-structured interviews with a random sample of participants three months later, to explore their experiences when attempting to introduce changes in attitudes and behaviours learnt from MORSim in clinical practice, and their recommendations for a successful national implementation strategy. Interviews continued to the point of data saturation. Transcribed interviews were analysed using a general inductive approach.

**Summary of Results:** We conducted 48 interviews (11 anaesthetists, 7 surgeons, 20 nurses, 10 OR technicians). Interviewees reported positive experiences of change in communication, culture and collaboration. They described sharing MORSim concepts with colleagues and using them in the WHO Surgical Safety Checklist administration, teaching and new staff orientation. Reported barriers included lack of awareness of the importance of good teamwork in patient safety, professional hierarchies, insufficient numbers of staff exposed to MORSim and failure at an individual and organisational level to prioritise time for sharing information between team members.

**Discussion:** MORSim had lasting effects on attitudes and behaviours in clinical practice. Factors for successful implementation will include linking the intervention with existing initiatives such as the Surgical Safety Checklist and exposing sufficient staff numbers.

**Conclusion:** MORSim will be the first program its kind to be introduced at a national level. The potential impact on patient outcomes is considerable.

**Take Home Messages:** A change in attitude is needed in healthcare to acknowledge the critical importance of teamwork in patient safety. Interventions such as MORSim may facilitate this change.

#10G6 (132781)

**Expecting the Unexpected: to what extent does simulation help healthcare professionals prepare for rare, critical events in childbearing?**

*Angela Hewett\*, University of Leeds, Leeds, UK*

*Trudie Roberts (University of Leeds, UK)*

*Janet Hirst (University of Leeds, UK)*

**Background:** Pregnancy and childbirth presents both rare and critical events (RCE) for which healthcare professionals are required to acquire and maintain competent clinical skills. Simulation is an accepted approach to facilitate habitual development of such skills; in theory, a skill simulated will transfer into practice competently and confidently; its strength appears to lie in its validity with clinical context. However, evidence shows that some professionals have difficulty responding appropriately to unexpected critical events.

**Summary of Work:** Questions: 1. How do healthcare practitioners develop skills in order to prepare for and respond to (RCE) during childbearing? 2. What are healthcare practitioners' experiences of simulated practice? An explanatory sequential mixed methods approach, examined preparation for rare/critical events. A quantitative systematic review was combined using framework analysis of curricula documentation. A conceptual framework of simulation was explored in phase two with qualitative interviews; analysis adopted attribution theory.

**Summary of Results:** Fidelity was important when feedback was received during cardiac arrest scenarios. With obstetric focus fidelity was less important. Realism of scenarios affected engagement; not associated with 'real life' and related to play this negatively influenced the value placed on simulation. Practising safely; useful due to limited clinical exposure, paradoxically, confidence was linked to clinical exposure and not simulation. Confidence increased initially following training, decayed over time, although the timeframe for diminution was unclear. Overwhelmingly, simulation was perceived as anxiety provoking.

**Discussion:** Simulation is positioned in the ability to 'practise' within 'safe' parameters and there is contradiction between this theory and observed reality. There were many perspectives on simulation and preparedness, yet evidence relating to what works, for whom and in what circumstances remains unclear. Data highlights a lexical ambiguity between the theoretical principles of simulation and the practical application.

**Conclusion:** There is an evolving conceptualisation of 'preparedness' which merges simulation (incorporating multiple-learning strategies) with deliberate practice.

**Take Home Messages:** The focus should now be on simulation choreography to reduce anxiety and varied approaches to training dependent on differing roles.

#10G7 (133271)

**Using interprofessional simulation to understand how clinical judgment, leadership and collaboration develop in new nurse graduates working in critical care**

**Louise Boyer\*, University of Montreal (Faculty of Nursing), Montreal, Canada**

*Ann Tourangeau (University of Toronto, Toronto, Canada)*

*Sylvie Dubois (University of Montreal, Montreal, Canada)*

*Jacinthe Pepin (University of Montreal, Montreal, Canada)*

*Johanne Goudreau (University of Montreal, Montreal, Canada)*

**Background:** Recently, critical care units hire newly graduated nurses (NGN). Integrating with the critical care team is a challenge for NGN. Clinical simulations contribute to improved clinical team efficacy for patient safety and quality of care. Simulation also allows for observations about how NGN practice interprofessional collaboration (IC), nursing clinical judgment (NCJ) and leadership (NCL).

**Summary of Work:** A research pilot project was conducted to create, with the use of clinical simulation, an assessment tool that describes NGN's competency development during the first year of practice in emergency (ED) and intensive care units (ICU). Ten simulation scenarios were elaborated with an interdisciplinary critical care team. NGN (N=20) in their first year of practice in ED or ICU participated within these intra and interprofessional clinical simulations.

**Summary of Results:** The competencies' assessment tool describes the development of IC, NCJ and NCL during the first year of nursing practice in critical care. Three developmental stages were identified. The NGN reach their first level of development after 2 to 3 months of clinical practice in critical care, the second level after 6 months and the third level after one year.

**Discussion:** The assessment tool clarifies NGN expectations in critical care. In an environment where continuous professional development is crucial to quality care, the tool can be used for auto-evaluation and feedback by the unit's team. The tool can also be used by critical care nursing educators to plan and realize activities to respond to education and support needs of the NGN.

**Conclusion:** This instrument can be useful to understand and guide NGN's competencies development when starting to practice in critical care. Using this instrument to ensure follow-up contributes to their integration in care teams and restrict turnover.

**Take Home Messages:** Critical care interprofessional clinical simulation is a teaching and learning activity that facilitates the integration of NGN in critical care environments.



## 10H Short Communication: Ethics

Location: MR 114 – P1

#10H1 (135060)

**Ethics education pedagogy: lessons from a clinical ethics consultation service**

*Clare Delany\*, The University of Melbourne, Melbourne, Australia*

**Background:** Key goals of ethics education are to equip students who later become health practitioners to not only know what their ethical obligations are (in theory) but to be able to use them to guide their ethical decision-making and enhance their ability to care for patients and families. Ethics education should therefore act to empower students to become consciously engaged in constructing moral commitments rather than being provided with rules which either detail or forbid particular actions.

**Summary of Work:** In this discussion I analyse 184 clinical ethics case referrals over a ten year period, in a large public hospital. For each type of ethical problem, discussion-based strategies used to clarify ethics concepts and facilitate clinicians to think through ethical issues and dilemmas are identified.

**Summary of Results:** Five types of ethical issues and concepts for addressing these types of challenges are identified, including: 1. Parents disagreeing with medical recommendations 2. Adolescent disagreeing with recommendations 3. Child resisting treatment. 4 Parents disagreeing with one another 5. Clinician uncertainty about treatment.

**Discussion:** Clinical ethics case consultations encourage debate and discussion about ethical dimensions of clinical practice grounded in real clinical questions. Such discussions are examples of ethics education pedagogy. They assist clinicians to bridge the gap between the ethical ideals guiding practice and the realities of ethical decision-making in practice.

**Conclusion:** Clinical ethics consultation services provide a model of ethics case analysis grounded in current clinical practice challenges. Such services (in both adult and paediatric clinical settings) have significant educational potential as a pedagogical model to encourage clinicians (and students) to construct their own understanding and knowledge about clinical ethics

**Take Home Messages:** Ethics tools developed within real rather than hypothetical clinical ethics consultations can assist educators to deepen students' and clinicians' self-understanding, build their professional ethical identity and reflect on common-sense assumptions that typically frame daily decisions in practice

#10H2 (136153)

**Self-perceived comfort level dealing with clinical communication ethics' issues: a cross-sectional study in a Portuguese University Hospital**

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*Ines Leal*

*David Cordeiro Sousa*

*Ana Coelho Silva*

*Helena Prior Filipe*

*Carlos Marques-Neves*

*Miguel Oliveira da Silva*

**Background:** Since a few decades, increased interest in medical ethics led to widespread teaching of ethics in medical undergraduate years. However, literature suggests that junior doctors feel they had received inadequate preparation in medical schools for handling daily ethical conflicts. We intended to discuss residents' self-perceived comfort level when encountering clinical ethics' issues in a university hospital.

**Summary of Work:** Cross-sectional study. Data collected from an online survey available from Jan-Feb/2016: a Portuguese version of the questionnaire created by Silverman and colleagues. It consisted of a demographic section, general perspectives and questions focusing communication issues. All residents (600) from Lisbon Academic Medical Center were invited to participate. Statistical analysis was performed with STATA considering significant  $p < 0.05$ .

**Summary of Results:** Survey respondents included 55 residents (35 women). Of note, 21 (38.2%) participants declared not feeling prepared to handle ethical dilemmas. More than 50% agreed that Ethics training in undergraduate years was insufficient for their daily practice. Also, 42 (76.4%) considered important to have more training in Ethics in medical school curriculum. Compared to younger residents, older ones (3 or more years of residency) felt more capable of dealing with bad news breaking ( $p = 0.03$ ) and discuss life-prolonging measures ( $p = 0.04$ ). However, no differences were identified regarding debating advanced directives and talking to a family after a patient dies ( $p > 0.05$ ).

**Discussion:** Our data provides a snapshot of the level of comfort perceived by residents in a tertiary center in Lisbon. Most reported feeling uncomfortable when acting in the ethical framework. Significant differences on residents' perceptions were remarked when considering their year of training.

**Conclusion:** Key findings suggest that junior doctors feel ill-prepared to deal with common ethical dilemmas. Efforts must be directed towards improving the teaching of medical ethics, therefore equipping physicians with knowledge and skills to engage ethical reasoning.

**Take Home Messages:** Ethics post-graduate education is essential and must address challenges such as clinical communication issues.

#10H3 (132427)

**Comparisons of novices and experts in ethical reasoning in withdrawing life support from prolonged mechanical ventilation-dependent patients**

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Chien-Yu Chen (Taipei Medical University, Taipei, Taiwan)

Huang, Chao-Ching (Taipei Medical University, Taipei, Taiwan)

Kang Yi-No (Taipei Medical University, Taipei, Taiwan)

**Background:** Apart from moral sensitivity and moral reasoning, self-awareness of belief-bias is also essential for ethical deliberation. In the context of Do-Not-Resuscitate issues, we initiated small group discussions among 123 Year-4 students in a pre-clinical program on one revised vignette. This vignette embodied an ethical dilemma from the patients' families' perspective.

**Summary of Work:** Participants wrote as many moral considerations or factors that interested parties could have as possible. Then, they classified their statements using a 4-box-framework. Nine experts (1 chief physician in respiratory care center, 2 respiratory therapists, 2 senior nurses in RCC, 1 medical law jurist, 1 expert in elderly care, 1 sociologist, and 1 clergy for dying care) were invited to conduct group discussions following the same procedure. The experts determine which students' commands are verifiable, unprovable, or just fantasies.

**Summary of Results:** Unlike the students, the experts clarified their statements to explain their considerations of the stakeholder's perspective. Considering life quality, the experts tended to accept DNR; but didn't sign it based on the medical indication and the patient's preference. However, the students did not have such clear tendencies.

**Discussion:** Only five students' statements are considered verifiable by all experts. An average of 7.5 experts considered students' statements for signing DNR as verifiable, an average of 1.5 experts regarded them as unprovable in the categories of medical indication and life quality. 63.8% of students' statements in terms of patient preference were regarded as unprovable.

**Conclusion:** Medical teachers must help students identify verifiable considerations and how to convey them so that students could understand patients' and other interested parties' concerns and get rid of their personal bias. To achieve consistency among experts, we will conduct Delphi Method in a follow-up study.

**Take Home Messages:** A deliberative ethical reasoning requires divergent thinking to detect all possible concerns that patients might have. Programs in clinical ethic should provide novices approach options in identifying patient's main concerns by information gathering.

#10H4 (134083)

**People think differently on dealing with ethical dilemmas**

**Tsuen-Chiuan Tsai\***, Kaohsiung Medical University College of Medicine, Kaohsiung City, Taiwan

Shen Ching Ju

Nan-chieh Chen

William Fu-Hsiung Su

**Background:** Medical ethical dilemmas of complexity, uncertainty, and ambiguity may cause difficulty in gathering a single decision of ethical behaviors even among experts. Understanding how people think differently on ethics decision would enhance teaching effectiveness on medical ethics.

**Summary of Work:** Ethics Script Concordance Test (eSCT) was used to collect participants' thoughts of decisions and the shifts of prior decision by adding new information (influencing factors). There were 15 cases with 44 items on ethics dilemmas. The participants were three groups: ethics experts, physicians, and laypersons. The experts' responses served as key answers for judging participants' performance. There were six options of responses: the initial response of agree/disagree combined with the subsequent pick of "change my opinion"/"doesn't change"/"strengthen my opinion". Comparisons of eSCT scores and response proportion were made between physicians and laypersons.

**Summary of Results:** There were 11 ethics experts, 29 physicians, and 138 laypersons. Their ages were mainly 50-69 years in ethics experts, 30-49 years in physicians, and 20-39 years in laypersons. Compared to physicians and laypersons, less experts changed their original ethics decision when added with new information. Gaps of responses existed between the experts and physicians/laypersons. In 22 (50%) items, physicians performed better with higher scores than the laypersons, while only 2 items about the exceptional conditions of informed consent were significantly different. Cronbach alpha of the test was 0.82.

**Discussion:** By using anonymous written test, this study extracted people's thoughts on ethics decision making. People responded differently due to the diversified knowledge, reasoning skills, and the value/beliefs.

**Conclusion:** To understand the interaction of "justification factors" and the "intuition of decision" among people with different background can enhance the teaching effectiveness on ethics.

**Take Home Messages:** The use of eSCT to measure ethical reasoning ability appears to be both viable and desirable on ethics education.

#10H5 (135186)

**Personal reflection and moral reasoning of medical student**

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*Yoga Pamungkas Susani (Faculty of Medicine University of Mataram, Lombok, Indonesia)*  
*Yayi Suryo Prabandari (Faculty of Medicine Universitas Gadjah Mada, Yogyakarta, Indonesia)*  
*Gandes Retno Rahayu (Faculty of Medicine Universitas Gadjah Mada, Yogyakarta, Indonesia)*

**Background:** Reflection ability is a predictor for change moral reasoning. However, it is unknown whether the personal reflection ability of medical students correlated with their moral reasoning ability.

**Summary of Work:** This study was conducted to determine the correlation between the personal reflection ability and the moral reasoning ability of medical students at the Faculty of Medicine Universitas Gadjah Mada (UGM), after the protocol was approved by the ethics committee. Personal reflection ability was measured by the Groningen Reflective Ability Scale (GRAS), moral reasoning ability was measured by the Defining Issues Test (DIT), and the correlation between the two was determined by regression analysis.

**Summary of Results:** All medical students showed a high personal reflection ability (GRAS score of  $89.59 \pm 6.80$ ) and a moderate level (P DIT scores of 28-41) of moral reasoning ability.

**Discussion:** It appears that the education of students of the Faculty of Medicine was considerable with respect to their ability for self-reflection, empathy and communication reflection. Among all students, both male and female and in both regular and international classes, there was no difference in mean P DIT score, and the P DIT scores ranged between 28-41, which indicates a moderate level.

**Conclusion:** Student's personal reflection ability showed a positive correlation with their moral reasoning ability however, there was no significant differences.

**Take Home Messages:** The moral reasoning ability of medical students of the Faculty of Medicine Universitas Gadjah Mada still needs to be improved.

#10H6 (132423)

**An ethical discourse on sex determination and orientation in the classroom**

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*Zubaida Zain*

**Background:** Sex determination and orientation form an important part of the curriculum in the subject of Forensic Medicine. As part of the integrated curriculum we wanted to cover this topic in relation to the ethical issues that occur in our local context. This was the first time that this subject was discussed in a large class format within the longitudinal theme of bioethics.

**Summary of Work:** We utilized the learning outcomes of the Medico-legal Module of 3rd year undergraduate medical students and identified the ethical issues that our graduates are likely to come across outside the classroom related to this topic. Integrated learning objectives of Forensic Medicine and Bioethics were developed for this session and we chose case studies as a teaching methodology.

**Summary of Results:** Real life case studies within Pakistan were discussed with the 3rd year medical students and the ethical dilemmas that would occur with each case were highlighted. The case studies selected covered the topics of gender identity, gender expression, transgender and sexual orientation. Case studies related to Khwaja Sarra or third gender which is unique to the Indo-Pak subcontinent was also a point of discussion. Legal and religious issues related to the theme were also discussed within the Pakistani context.

**Discussion:** The session proved to be highly interactive that generated a lot of debate. It was rated well in students' feedback as we felt it generated and maintained their interest.

**Conclusion:** Using case studies within the Pakistani context prove to be effective teaching tools for discussing ethical issues related to sex determination and orientation. They enhance students' critical thinking skills as well as generate interest and debate.

**Take Home Messages:** Case studies derived from local context is effective in enhancing students' learning and understanding of ethical issues.

## 101 Short Communication: Transitions 2

Location: MR 115 – P1

#1011 (133919)

The MATCHD Survey – Making the Transition from Clinical apprentice to Hospital Doctor

**Kavithkumar Dasari\***, University Hospital Coventry and Warwickshire NHS Trust, Coventry, UK  
Hannah Blakey (UHCW, Coventry, UK)  
Sarah Grieve (UHCW, Coventry, UK)  
Hayder Hussein (UHCW, Coventry, UK)  
Christina Tourville (UHCW, Coventry, UK)

**Background:** Evidence suggests that UK medical graduates feel under-prepared to enter clinical practice (Goldacre et al, 2003 & 2010). Since our institution is refreshing their undergraduate medical curriculum, we saw an opportunity to address this issue. We sought to identify specific outstanding learning needs perceived by both medical students and Foundation Year 1 (FY1) doctors.

**Summary of Work:** A paper survey was designed to assess current perceived training needs of ten domains extrapolated from the General Medical Council's 'Promoting Excellence' document (2015). Final year medical students and FY1s at a UK university teaching hospital rated their level of training need on a four point scale ranging from 'no need' to 'high need'.

**Summary of Results:** We received 51 responses from medical students, 10 from FY1s graduating from our institution and 17 from FY1s who graduated elsewhere. Results are summarised below:

Domains most frequently rated as high or moderate need of further training (MS: Medical student, LG: Local graduate and NG: Non-graduate responses):

	MS	LG	NG
Death certification and verification:	98%;	90%;	76%
Prescribing & drug calculation:	92%;	60%;	82%
Cardiac arrest:	78%;	70%;	82%
Escalation:	86%;	80%;	71%

Median scores of "preparedness" of FY1s for foundation training following medical school were similar: 7/10 for local graduates and 6.5/10 for non-local graduates. Free text comments frequently indicated a desire for more training on practical aspects of being an FY1.

**Discussion:** Our survey highlights an ongoing struggle for UK medical schools to prepare students for working as FY1 doctors. We have identified particular unmet learning needs, common to both final year medical students and FY1 doctors.

**Conclusion:** The results of this survey will assist medical schools in addressing these perceived gaps in medical training. At our institution, we intend to develop a specific teaching block within the "Assistantship" phase of the new curriculum addressing practical aspects of FY1 work.

**Take Home Messages:** The transition from medical student to F1 has significant challenges. Providing

specific teaching on preparation for working could ease this transition.

#1012 (133645)

How nurses support medical student transition to junior doctor and ensure their safe clinical practice

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Ray Samuriwo (Cardiff University, Cardiff, UK)  
Alison Bullock (Cardiff University, Cardiff, UK)  
Katie Webb (Cardiff University, Cardiff, UK)

**Background:** Nurses make a direct contribution to the quality and safety of patient care in clinical practice. However, little is known about the role they play in supporting the transition of medical student to junior doctor and the impact of this dyadic relationship on the quality and safety of patient care. This study examined how the relationship between doctors and nurses facilitates (or inhibits) medical students' transition to doctor and its impact on the quality of patient care.

**Summary of Work:** A scoping review of the literature was undertaken to identify key theoretical and conceptual insights about the relationship between nurses and newly qualified junior doctors. Qualitative data were gathered via semi-structured, narrative individual interviews with a purposive sample of nurses (n=20) of ward based nurses, Nurse Practitioners, Advanced Nurse Practitioners, Lead Nurses and Consultant Nurses from six hospitals. We identified personal incident narratives (PIN)(2) and conducted thematic analysis.

**Summary of Results:** Nurses were reported to play a key role in the maturation of junior doctors: facilitating the development of functional, cognitive, ethical and personal (behavioural) competence and capability in most aspects of clinical practice. We present the different ways in which nurses support the transition from medical student to doctor as a model and relate these facilitative actions to nurses of different professional standing.

**Discussion:** Nurses ensure patient safety in clinical practice and support newly qualified doctors' growth in various aspects of professional practice. The role that nurses were reported to play in the maturation of junior doctors as they progress through different professional transitions in clinical practice is a novel finding that is not reported in contemporary literature

**Conclusion:** We have developed a model which summarises the ways in which nurses facilitate the medical student transition to junior doctor in relation to functional, cognitive, ethical and personal (behavioural) competence and capability. Further research is needed to build on this explorative study

**Take Home Messages:** Nurses play a key role in facilitating the transitions of medical students into junior doctors in relation to key domains of competence and clinical practice. Nurses also play a key role in ensuring that medical students and junior



doctors consistently deliver safe high quality skin care as they undergo different professional transitions

#1013 (133613)

**Evaluating the relationship between Motivation, Self-Efficacy, and Competence in a Pediatric Residency Mastery Simulation Course**

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Laurence Lacroix, Geneva University Hospitals, Geneva, Switzerland

Dominique Belli, Geneva University Hospitals, Geneva, Switzerland

Sergio Manzano, Geneva University Hospitals, Geneva, Switzerland

Yoon Soo Park, University of Illinois at Chicago, Chicago, USA

**Background:** The University of Geneva Children's Hospital developed a mastery simulation course to support first-year residents in the transition to residency. We investigated whether the inter-relationship of motivation, self-efficacy, competence, and mastery learning moderated performance.

**Summary of Work:** The needs assessment identified five tasks: lumbar puncture (LP), urinary catheterization (UC), case presentation (CP), respiratory arrest (RA), and management of dehydration (MD). -Residents repeated training of tasks until the Mastery standard (excellent performance) was achieved for the task-specific checklist. -Self-efficacy, motivational beliefs in self-regulated learning theory, and progression of competence in entrustable professional activities framed outcomes. Resident self-efficacy (10-point Likert scale) and competence (5-point categorical scale) were assessed. Motivation domains (intrinsic goal, extrinsic goal, task value, control of learning beliefs, self-efficacy, and test anxiety) were measured with the Motivated Strategies for Learning Questionnaire (MSLQ). Descriptive statistics, comparisons of means, and correlations between pre-test self-efficacy, competence, MSLQ scores, and attempts to mastery were conducted.

**Summary of Results:** In year one, 17 residents participated. -Mean attempts to mastery, M(SD), varied by task: LP 1.4 (0.64), UC 1.67 (0.72), CP 1.68 (0.92), RA 1.43 (0.50), MD 2.07 (1.09). -Mean self-efficacy scores improved for all tasks: LP ( $P < .001$ ), UC ( $P = .048$ ), CP ( $P = .002$ ), RA ( $P < .001$ ), and MD ( $P < .001$ ). Mean competence scores improved for LP ( $P = .035$ ) and RA ( $P = .008$ ). MSLQ scores remained constant. There were no significant correlations between pre-test self-efficacy, competence, MSLQ scores and attempts to achieve Mastery.

**Discussion:** Resident self-efficacy and competence scores improved while MSLQ scores remained stable for each task. Additional analyses using larger sample sizes are underway to determine which factors moderate performance.

**Conclusion:** A mastery simulation course facilitates the transition to residency. Further study will determine if motivation and self-efficacy impact task-specific performance.

**Take Home Messages:** Measuring motivation, self-efficacy, and competence is necessary to adapt instructional methods in simulation to the task.

#1014 (136058)

**Easing the transition from undergraduate medical education to postgraduate medical education: Opinions of key stakeholders for a national learner education handover**

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Mariela Ruetalo

Leslie Nickell

**Background:** The sharing of information about learners during training can be referred to as forward feeding. Forward feeding can take place about topics that range from accommodations to unprofessional behavior. The objective of this study was to determine the views of key stakeholders on what could constitute a national forward feeding process termed the learner education handover (LEH).

**Summary of Work:** Tele-conference focus groups with key Canadian stakeholder groups including medical students, resident physicians, residency program directors, medical regulatory authority representatives, undergraduate medical education deans, student affairs leaders, postgraduate medical education deans were conducted. Focus group data was transcribed and coded independently by two coders. Thematic analysis was used to analyze the data.

**Summary of Results:** Sixty participants across the key stakeholder groups participated. Key stakeholder groups reported value in a national LEH that would help the learner transition from medical school to residency. There were several risks and benefits of the LEH. Major themes that emerged were learner-centeredness, professionalism, patient safety and the transparency of content, format and process of the LEH.

**Discussion:** Caveats of a learner education handover process would require it to be learner-centered while ensuring patient safety and professionalism. Both the learner and undergraduate medical education representatives would require completing documentation for the process. Disclosure of issues related to learner disabilities, accommodations, mental health and wellbeing by the learner were also seen as necessary for the process.

**Conclusion:** A new key stakeholder-informed forward feeding process called the learner education handover should be designed and pilot tested to ensure feasibility, utility and benefits to all key stakeholders.

**Take Home Messages:** Given that clinical educators are entrusted to handover important information

about their patients, they could also do so for their learners to help ease the learner's transition from medical school to residency.

#1015 (134589)

**Project managing the bridge between pre-clinical – clinical years**

*Ilse O'Ferrall\*, School of Medicine University of Notre Dame Australia, Fremantle, Australia*

*Brian Power*

**Background:** The four-year graduate medical course at UNDA has a teaching methodology and culture gap between the pre-clinical and clinical years. The two pre-clinical years are taught in a problem based learning (PBL) mode with the two clinical years being discipline based. Students can find the transition into the clinical years to be challenging and sometimes overwhelming. They also find that the 2nd year of study is very long and PBL becomes inadequate for maintaining motivation and interest.

**Summary of Work:** In 2016 the last four weeks of second year have been transformed in order to provide students with the opportunity to transition more smoothly with the following objectives: Consolidate students' learning Provide 'real world' opportunities Underline the focus from the School/teacher to student activation/responsibility for recognising their own learning needs prior to moving into clinical years in the context of the challenges they will face in self-directed learning on the wards. Support, activate and consolidate students' appreciation for their learning gaps prior to moving into their clinical placements.

**Summary of Results:** This paper describes the process of implementing the curriculum change where multiple disciplines, organisations, staff and patients have been included in the planning, training and development of new and innovative learning opportunities.

**Discussion:** The mis-match between the pre-clinical PBL teaching framework and a discipline based transition into clinical years for some students can be difficult to manage. The more opportunity the School can provide for them to learn in real-world situations the more quickly they will adapt to the new learning environment.

**Conclusion:** Using project management tools, it is possible to adapt a PBL course to consolidate knowledge, incorporate new learning and transition students to be 'clinically ready'. Implementing change can be difficult without identifying stakeholders who provide the appropriate 'buy-in'

**Take Home Messages:** Reviewing and updating a syllabus is essential in order to provide students with the appropriate tools to develop confidence in their clinical practice.

#1016 (133011)

**Transitions in Health Professions Education: A Phenomenological Analysis of Acclimatisation to the First Year of Study**

*Martina Crehan\*, Royal College of Surgeons in Ireland, Dublin, Ireland*

**Background:** Within the medical education journey, students encounter multiple transitions; entry to medical school; the transition to the clinical setting, and the transition to intern. However, qualitative research focusing on the student perspective of the process of transition and adjustment into higher education requires some development. The research is an Interpretative Phenomenological Analysis (IPA) of what it means to be a student undergoing transition into medical education, and reflecting on the decision-making process to study medicine

**Summary of Work:** A phenomenological approach was applied to the study of the transition experiences of students, specifically Interpretative Phenomenological Analysis (Smith et al., 2009). Semi-structured interviews were conducted with students in their first year of study in a medical education curriculum (n=20). Smith et al (2009) set of stages of IPA analysis were utilised.

**Summary of Results:** Interviews conducted with first year students focused on factors perceived by the students as influencing their educational decision – making process; the students' perception and experiences of the transition process to higher education, and the development of the students' perceptions of medical education and their own learning over the course of the first year of study

**Discussion:** Amongst other findings, the research reveals that students experienced a disjuncture between expectations of medical education and lived reality

**Conclusion:** This research focusing on the student voice over the course of the first year of medical education helps to identify the key features of effective practice to support and enhance the student first year learning experience.

**Take Home Messages:** The student voice can bring valid and valuable perspectives to learning and teaching practice in relation to transition.

## 10J Short Communication: Behavioural & Social Sciences

Location: MR 116 – P1

#10J1 (135048)

First year medical students' thoughts on the relationships of LGBT individuals with health care system: The power of students' stereotypes versus new knowledge at FMUL

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 Madalena Patrício (Faculty of Medicine of the University of Lisbon, Portugal)

Miguel Barbosa (Faculty of Medicine of the University of Lisbon, Portugal)

António Barbosa (Faculty of Medicine of the University of Lisbon, Portugal)

**Background:** Several difficulties are experienced by doctors in dealing with people from minority social groups. At FMUL a first year module, 'Clinical Medicine: the doctor, the patient and the person', was introduced to discuss health issues of LGBT (lesbian/gay/bisexual/transgender) individuals namely their exclusion by society, attitudes and vulnerability when contacting the health care system.

**Summary of Work:** The head of ILGA Portugal (an association working towards equality and human rights for LGBT) was invited to present his experiences at one of the nine three- hour seminars offered by this module. The aim was to discuss LGBT main health problems when contacting the health-care system namely 'greater contact avoidance and difficulty to reveal their sexual orientation when medically relevant'. The objective of this study was to identify students' knowledge on those LGBT issues during their final written exam. Content analysis was applied to 324 answers.

**Summary of Results:** Students reported the LGBT group as having higher number of sexual partners with consequent larger number of sexually transmitted diseases (58%); Abuse of tobacco, alcohol and other drugs (44%); Tendency to anxiety-depressive disorders (19%); Difficulty for revealing sexual orientation when pertinent (29%); Avoidance of health care contacts (12%).

**Discussion:** Despite the free debate on the two main health problems of the LGBT community when compared with the heterosexual population the majority of students couldn't identify them.

**Conclusion:** Students repeated the stereotypes widespread in family/society which are (usually) hazardous, tending to stigmatize LGBT people.

**Take Home Messages:** We recognize the importance of teaching health issues of different social sub-groups to avoid future problems in doctors' contact with all individuals regardless their life-style choices. Therefore the programme of this specific seminar needs to be revisited assuring that students become aware of the main differentiating LGBT issues facing the health care system.

#10J2 (133228)

Designing Social Medicine for Year 1 Medical Students: New Medicine?

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 Javeed Sukhera

**Background:** Social Medicine owes a great debt to German physician Rudolf Virchow (1848). He postulated that there exist many correlates to disease: disease is related to the biological, behavioral and social characteristics of the patient as well the surrounding habitat in which both disease and patient exist. Despite a long tradition, social medicine is not well integrated into existing undergraduate curricula.

**Summary of Work:** For the past eight years, Western University's undergraduate medical curriculum has offered individual courses focusing on the social determinants of health: Ethics, Population Health and Epidemiology. Student feedback has consistently indicated that they fail to see the inter-relatedness or relevance of content in any meaningful way.

**Summary of Results:** Based upon this consistent feedback, we have designed a new integrative course built upon a structural competency framework that includes components of these individual courses but will be presented as one integrative course of study.

**Discussion:** This course will focus on culture and social roots of disease; social inequalities such as gender, class, environment and ethnicity; factors affecting treatment outcomes; ethical challenges such as new political, legal, social and economic realities; and synthesizing coherent narratives which may illuminate the care provided to future patients.

**Conclusion:** The planning for this integrative social medicine course began two years ago; the basis for this course will be to provide an exploration of structural competency so that students can begin to develop a language around interventions which may reduce health inequality at the level of neighborhoods, institutions and policies.

**Take Home Messages:** The notion of social medicine is not new; but, in some cases, the invisible structural level determinants of health are inadequately covered within the undergraduate curriculum. We are taking a well- established theory and designing an interactive course to bring these sometimes invisible structural determinants to the forefront for our medical students.

#10J3 (129609)

**Translating curriculum materials from stage to screen: impact of learning medium and environment on learner engagement**

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*Gerri Frager*

*Wendy Stewart*

**Background:** Translation of curriculum material onto digital recording can generate learner disengagement. Medical humanities represent a unique means by which to study this phenomenon. Our aim was to better understand the factors that contribute to learner engagement when translating curriculum from stage to screen. Our model employed, "Ed's Story: the Dragon Chronicles," a verbatim play, based on the journal of a 16 year-old with cancer, and posthumous interviews conducted with his family and health care team.

**Summary of Work:** Concepts of autonomy, interprofessionalism, end-of-life, and moral distress were introduced to second year medical students using the play, with objectives mapped onto existing curricula. Live viewing in curricular and extra-curricular settings generated positive feedback. Subsequent annual sessions used a DVD, both in lecture theatre viewings and small group viewings. Post-viewing feedback was collected for five years (n=262, response rate 57.0%).

**Summary of Results:** A majority agreed the play was a good learning experience and imparted useful lessons. Trainees reported new insights into patient experiences. Fewer trainees agreed it should be shown universally or as part of core curriculum when seen on DVD ( $p < 0.05$ ), citing "poor video and sound quality."

**Discussion:** The majority (75-80%) of trainees felt safe/comfortable during the DVD sessions regardless of learning environment, however only trainees in the large lecture theatre viewings reported unexpected "embarrassing" emotional reactions among themselves and peers. Changing the learning environment to less familiar settings (smaller groups, outside the classroom) mitigated negative, "embarrassing" emotional reactions amongst trainees in front of peers.

**Conclusion:** Trainees reported less positive reactions to the session when shown on DVD, regardless of group size or learning environment.

**Take Home Messages:** Feedback from our five-year medical humanities curriculum initiative suggests that using recordings of prior live sessions may generate disengagement, findings which have larger implications for efforts to transition live curricular sessions into digitized content.

#10J4 (128075)

**Development and Evaluation of a Program to Introduce Medical Humanities to Teachers of Clinical Medicine**

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*Douglas Archibald, Bruyère Research Institute, Department of Family Medicine, University of Ottawa, Ottawa, Ontario, Canada*

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*Mary Arseneau, Department of English, Faculty of Arts, University of Ottawa, Ottawa, Ontario, Canada*

**Background:** Within the Faculty of Medicine, University of Ottawa, as well as elsewhere in North America and internationally, the medical humanities has been identified as an area of curriculum enrichment in medical education. Despite the purported value of introducing the humanities, reports in the literature evaluating faculty development sessions for instructors who wish to engage with this material are scarce.

**Summary of Work:** The present workshop series was designed to infuse more medical humanities content into our medical education by enabling the abilities and skills of our medical teachers. Faculty development workshops were provided on four key areas within the medical humanities – Narrative Medicine, History of Medicine, Visual Thinking Strategies, and Theatre and Medicine. In a mixed methods evaluation, 3-6 month brief surveys and semi-structured interviews were conducted to determine the impact of the workshops on the teaching practices of participants.

**Summary of Results:** Findings included a positive response to the four workshops as well as newly inspired teaching goals. Participants valued an interprofessional approach to teaching and the opportunity to reflect on humanities material with their colleagues. Some participants expressed difficulty recalling specific teaching tools and described a lack of space for such teaching within the current curriculum.

**Discussion:** Workshop feedback showed a receptiveness to medical humanities among participants and a related interest in incorporating humanities-based techniques into medical teaching. More focused follow-up faculty development sessions might improve educators' ability to effectively incorporate this material.

**Conclusion:** These four faculty development sessions inspired participants to use humanities material in their teaching. Further sessions should engage greater numbers of faculty, reinforce the value of humanities in medical education, and promote its inclusion by strengthening related teaching tools.



**Take Home Messages:** Faculty development sessions in the medical humanities can inspire participants, enrich their teaching, and promote a broader view of medicine. Practice is required by faculty who wish to incorporate related ideas and skills.

#10J5 (134862)

**What adds Clinical Practice to Palliative Care Teaching? Students' Reflections**

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Rocío Rojí

Fernando Pikabea

José Miguel Carrasco

Carlos Centeno

**Background:** Palliative Care teaching is necessary to acquire skills and attitudes for caring patients at the end of life; it also seems to improve future physicians' professionalism.

**Summary of Work:** Palliative Care (PC) is a mandatory subject at the University of Navarra as a theoretical and practical three credits course: consists of twenty four, forty five minutes lectures; four two hours workshops, and a writing reflection (WR) after one morning internship with a PC team. The student can choose to go to a PC inpatient unit, homecare or a PC Supportive Team. The aim of this study is to analyze the content of those WR. We conducted a qualitative study of content analysis with phenomenological approach of the WR done by the medical students that attended Palliative Care 2014/15 course.

**Summary of Results:** Response rate was 85%, 167/197 students sent WR. Six major themes emerged: All the students of this study identified central aspects of PC work dynamics; 86% of the students reported to acquire specific knowledge about PC; 68% of the students expressed the personal influence of the experience gained; 68% of the students described how patients and their caregivers deal with the patient's illness; 42% of the students reflect on the essence of PC and fundamental aspects of medicine; Spontaneously, 15% of the students reported having completely changed their assumptions of palliative care.

**Discussion:** PC clinical practice for medical students showed to finish their learning process of end of life care. They perceived this approach as positive and they also realize that the way of PC work dynamics is relevant for every clinical practice.

**Conclusion:** To finish PC learning cycle is necessary to go to the bedside and made the student reflect about it.

**Take Home Messages:** Exposing medical students to clinical practice of a PC team, even for a short period, it provides additional values related to medical professionalism.

#10J6 (134124)

**Narrative methods and medical education: a systematic approach in Oncology**

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Paolo De Paoli (IRCCS Centro di Riferimento Oncologico, Aviano, Italy)

Ivana Truccolo (IRCCS Centro di Riferimento Oncologico, Aviano, Italy)

Lucia Cadorin (IRCCS Centro di Riferimento Oncologico, Aviano, Italy)

Tiziana Furlan (IRCCS Centro di Riferimento Oncologico, Aviano, Italy)

**Background:** The educational model of our Oncology Research Hospital is founded upon a narrative approach involving health caregivers and patients and aiming to cope with dehumanization in medicine.

Since giving and receiving accounts in healthcare is a cornerstone, health caregivers' educational trainings are promoted to cultivate narrative competences "to recognize, absorb, metabolize, interpret and be moved by the stories of illness" (Charon, 2001, JAMA).

**Summary of Work:** A particular training focused on Columbia University Narrative Medicine methodology has been promoted for health caregivers since 2011. It occurs through the three movements of the narrative method: attention, representation, affiliation (Charon, 2015, Ac Med). Medical Humanities (literature, fairy tales, arts, movies) are used in interactive workshops to develop skills such as listening, close reading, reflective writing, collaborative learning. As for patients, we started an educational program focused on therapeutic writing, considered a rehabilitation tool in oncology. Writing about the self is a way towards self-consciousness: inner resources are elicited to cope with distress and suffering (Carlick, Biley, 2004)

**Summary of Results:** Two qualitative research projects are underway to assess learning outcomes and study the connection between narrative practices and self-awareness, self-care, resilience. Data have been collected through focus groups and prompted written texts, which will undergo a narrative thematic analysis (Riessman, 2008).

**Discussion:** The integration of narrative into medical education reinforces clinical practice on multiple levels: it supports team-building and trust amongst colleagues; it sharpens one's perception of patients' condition through the representation of patients themselves in narrative; it nurtures human capacities of empathy, humility and imagination and helps to prevent burn-out.

**Conclusion:** The integration of Narrative Methods into Health Education requires a systematic approach.

**Take Home Messages:** Our program ultimate goal is to improve healthcare outcomes by bridging the gap between biology and biography, disease and illness, science and stories.

## 10K Short Communication: Diversity 2

Location: MR 118 – P1

#10K1 (133214)

**Continuing diversity. Designing, piloting and evaluating a diversity training for teachers in medical education**

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Siema Ramdas

Lina Issa

Petra Verdonk

**Background:** Literature suggests that educators frequently experience difficulties incorporating diversity issues in their teaching, and that they experience challenges managing classroom diversity. We therefore designed, piloted and evaluated a two-session diversity training for medical teachers.

**Summary of Work:** Training session 1 addressed the relevance of diversity issues in health, healthcare and medical education. Session 2 centered on managing classroom diversity and included students sharing narratives about critical diversity-related classroom incidents. The training was evaluated by means of pre- and post-training questionnaires, a group evaluation directly after the training, and evaluation among the training's developers.

**Summary of Results:** Participants agreed that the training was relevant for their teaching ( $M=4.6$ ) as well as their personal lives ( $M=4.8$ ). They reported feeling more prepared to address diversity in their field and to teach students from diverse backgrounds, and that the student narratives gave them valuable insight in the way in which their own decisions influenced students' experiences regarding diversity and classroom safety.

**Discussion:** Topics addressed in a diversity training should go beyond biomedical knowledge about group differences. Impact of student narratives on diversity competencies may depend on training participants' ability to critically reflect on their own background and classroom experiences

**Conclusion:** After the training, participants indicated that they felt more prepared to deal with diversity in their field and classrooms. Including the student perspective in diversity training can provide them with the opportunity to further develop competencies essential to managing diverse classrooms and establishing safer learning environments.

**Take Home Messages:** The student perspective deserves more attention in medical education

#10K2 (133269)

**Ethnic Bias and Clinical Decision-Making in Medicine: a study of New Zealand medical students**

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Donna Cormack, University of Auckland, Auckland, New Zealand

James Stanley, University of Otago, Wellington, New Zealand

Elana Curtis, University of Auckland, Auckland, New Zealand

Rhys Jones, University of Auckland, Auckland, New Zealand

Cameron Lacey, University of Otago, Christchurch, New Zealand

**Background:** Racial/ethnic bias among health professionals may negatively impact on healthcare and racial/ethnic health inequities. However, little is known about racial/ethnic bias among medical students. This study sought to examine ethnic bias and associations with clinical decision-making among New Zealand (NZ) medical students.

**Summary of Work:** All final year medical students in NZ across two years (2014, 2015) were invited to participate in a cross-sectional online study ( $n=888$ ). 302 students participated. Ethnic bias focused on bias towards Māori (indigenous population) or NZ European. Key components included: two vignettes (cardiovascular disease (CVD) and depression) with randomised patient ethnicity; two implicit association tests; and explicit ethnic bias questions. Associations between ethnic bias and clinical decision-making were tested using linear regression.

**Summary of Results:** Ethnic bias favouring NZ Europeans (compared to Māori) was evident among medical students. Few differential associations between measures of ethnic bias and clinical decision-making by patient ethnicity were observed. For CVD, pro-European implicit preference was associated with increased thrombolysis recommendation for NZ European patients but not for Māori (slope difference 0.79, 95% CI 0.17-1.42). For depression, explicit preference for NZ Europeans was associated with increased assessment of benefiting from treatment for NZ European patients but not for Māori (slope difference 0.32, 95% CI 0.07-0.58).

**Discussion:** While NZ medical students demonstrated ethnic bias, associations with clinical decision-making were inconsistent. Other studies suggest that racial/ethnic bias may be more consistently associated with patient-provider interactions.

**Conclusion:** Understanding medical student racial/ethnic bias may provide opportunities to improve learning environments for both students and teachers, and reduce impacts of racial/ethnic bias on ethnic health inequities in the future.

**Take Home Messages:** • Racial ethnic bias among medical students is not always conscious and reflects wider societal beliefs and attitudes. • Further research is needed to understand the healthcare implications of racial/ethnic bias. • Medical education can play an

important role in reducing and mitigating effects of racial/ethnic bias.

#### #10K3 (134572)

**Integration of diversity aspects into the clinical modules of the new modular medical curriculum at Charité Berlin**

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Sabine Oertelt-Prigione, Charité - Universitätsmedizin Berlin, Germany

Ute Seeland, Charité - Universitätsmedizin Berlin, Germany

Vera Regitz-Zagrosek, Charité - Universitätsmedizin Berlin, Germany

Harm Peters, Charité - Universitätsmedizin Berlin, Germany

**Background:** In 2010 Charité - Universitätsmedizin Berlin started a new outcome-based undergraduate medical curriculum. Diversity, especially sex and gender aspects, could be integrated longitudinally into the modules of the 1-8th semester. Here, the aim was the development of a compulsory module on “Sex and Gender-Specific Diseases” (9th semester) as well as the longitudinal integration of those issues into the clinical modules of the 9th and 10th semester.

**Summary of Work:** The integration of sex and gender aspects was paralleled with the faculty-wide curricular development process. A gender change agent was assigned who participated regularly in the module planning sessions and cooperated closely with faculty members. Integration was further facilitated by institutional support from the faculty board and the equal opportunities officer.

**Summary of Results:** A three week compulsory module on sex- and gender-specific diseases was developed with one week focusing on gender differences in disease development and manifestation, determinants of gender differences in diseases and gender-specific pharmacotherapy. The second and third week cover subjects like infertility, STDs and domestic violence. Furthermore, diversity issues could also be integrated into the other module themes of the 9th and 10th semester.

**Discussion:** There are several barriers to the integration like resistances from faculty members and limited curricular teaching time. Furthermore, the integration was paralleled with the introduction of a completely new curriculum, this might limit its transferability to other institutions.

**Conclusion:** A compulsory module focusing on sex and gender-specific diseases pinpoints the relevance of those issues to students and teachers and functions as central point for the integration of sex and gender medicine into a medical curriculum.

**Take Home Messages:** The integration of a compulsory module with focus on sex and gender aspects adds extra value to an undergraduate medical program that has already achieved a good longitudinal integration of those issues throughout its curriculum.

#### #10K4 (135515)

**Does socio-cultural background influence prospective medical students' perception on prestige of the different medical specialties?**

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Karen Stegers-Jager (iMERR, Rotterdam, the Netherlands)

Jacqueline de Graaf (Radboud UMC health academy, Nijmegen, the Netherlands)

Matthijs de Hoog (iMERR, Rotterdam, the Netherlands)

**Background:** Our increasingly diverse society requires a diverse population of physicians, i.e. physicians from different ethnic and socio-economic backgrounds. Therefore, it is essential to gain a better understanding of the medical specialty choice of students with a different ethnic or social background. As “prestige” plays an important role in medical specialty choice, this paired comparison study aimed to examine whether sociocultural background of prospective medical students influences their prestige perception of the different medical specialties. We hypothesized that non-traditional students, i.e. students from a Non-Western ethnic background or first-generation university students, perceive person-oriented specialties as more prestigious than traditional students do.

**Summary of Work:** Secondary school students interested in attending medical school were surveyed about demographics, factors important in their future job, medical specialty preferences, interpretation of the term prestige and importance attached to prestige. Subsequently, a selection of person and technique oriented specialties were linked in pairs and presented with the question: “which of these two is more prestigious in your opinion?”.

**Summary of Results:** 170 secondary school students were included, of which 14,7% Non-Western and 24,9% first-generation university student. Rank position of Public Health Care was significantly higher in Non-Western students than in Dutch students. Rank position of Ophthalmology was significantly lower in first-generation university students than in their traditional counterparts. Non-traditional students did not seem to put more emphasis on person or society related factors in the questions regarding important factors for a future job.

**Discussion:** Our results suggest that prestige perception of medical specialties is not related to the socio-cultural background of the rater. A possible explanation is that there is a solid societal prestige framework for the medical specialties, which is not or hardly influenced by individual characteristics of the rater.

**Conclusion:** These results suggest that socio-cultural background is not related to the perception of prestige of medical specialties at the start of medical school.

#10K5 (135976)

"It feels comfortable when I manage to show the patient that I find it positive that they do not live according to the norm." A mixed method study of general practitioners' preconceptions and experiences of meeting LGBT-patients in health care

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*Jenny Andersson*

**Background:** In Sweden, as well as internationally, the self-estimated health of people whom identify as LGBT is substantially lower than the general population. This population also tend to seek medical care to a lower extent than the population in general. The aim of this study was to investigate what factors make a successful encounter between doctors and LGBT-patients.

**Summary of Work:** A survey including closed and open questions concerning knowledge, attitudes and experiences in encounters with LGBT-patients, was used to collect quantitative and qualitative data in the area around Gothenburg in west Sweden. A total of 85 general practitioners participated in the study.

**Summary of Results:** This study showed three main factors which contributes to a successful encounter: the doctor's knowledge and experience, positive attitudes concerning LGBT-issues and reflexivity on the part of the doctor. Attributes of the patient and the patient's reason for seeking care were also of importance.

**Discussion:** The responsibility to create a successful encounter between doctor and patient is often put on the patient. In coming out, it seems as the patient has to perform a difficult balancing act between not coming out and to be discarded/judged and therefore create an uncomfortable encounter. Hierarkies, both concerning sexuality, and between patient and doctor exists. This is shown by who can offend whom, and who defines what is seen as relevant information.

**Conclusion:** There is a lack of knowledge about LGBT-specific health and living conditions. In order to improve the health quality of LGBT-patients, a deeper understanding of heteronormativity and its consequences is required, as well as improved practical communication skills to handle topics like gender identity, sexuality and sexual praxis in an adequate and including manner.

**Take Home Messages:** Medical education needs to address diversity in order to offer equality. Basic knowledge, theoretical orientation and communication skills among future medical staff are crucial for the creation of inclusive practices for LGBT-patients seeking health care.

#10K6 (136054)

"Nothing about us without us": Perspectives of people with disability about approaches to enrich health education curricula

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**Background:** People with disability are significantly more likely than non-disabled peers to find health professionals' skills and their quality of care inadequate. To address this, some educational curricula are increasingly using approaches to enhance students' interactions with people with disability. The perspectives of people with disability engaging in such initiatives are less clear and can serve as important triggers for reflection.

**Summary of Work:** We explored perspectives of people living with disability in Auckland on their experiences and views on engaging with health professional education and training initiatives. We conducted three focus groups facilitated by a community member. The 14 participants included people with disability, carers, and stakeholders engaged in community organisations with advocacy and/or training roles. A thematic analysis was undertaken of audiotaped and transcribed interviews.

**Summary of Results:** Overarching themes identified included (1) how their personal experiences and healthcare interactions influenced participants' perceptions of good, bad and ignorant practice; (2) the relevance of the wider New Zealand context, e.g., emerging disability rights movement, diverse cultures and languages; (3) influence of modes of communication and technologies employed; (4) risks of tokenism; (5) value of teachers for whom disability is a lived experience; and (6) conditions resulting in a disconnect between learning environments and what students perceived as pertinent to their professional careers.

**Discussion:** Trainers/facilitators with disability provide insightful reflections regarding the delivery of enrichment programs including strengths and likely pitfalls.

**Conclusion:** Strengthening the role of facilitators with disability in evaluation processes could help improve the design, content, processes and perceived relevance of educational interventions.

**Take Home Messages:** While educational enrichment programs relating to disability generally focus on shifts in knowledge and practice among students, engaging the input of people with disability and their support networks should be a vital component of the development, design, delivery AND evaluation of these initiatives.



#10K7 (136264)

**Health professions students' social distance towards Syrian refugees and willingness to provide health care to them**

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**Background:** Social distance towards “others” resulting from prejudices, and discrimination engendering from both is undesirable in healthcare. There are many studies on social distance of health professionals or students towards stigmatized illnesses, however social distance towards ethnic minorities or refugees has not been investigated comprehensively. Currently, over two million Syrian are seeking refuge in Turkey. This study aims to determine health professions students' social distance towards Syrian refugees and willingness to provide health care to them, and the factors influencing these attitudes.

**Summary of Work:** Study has a mixed-method design and first and last year students of dental, medical and midwifery schools of Ege University are included. Semi-structured in-depth and focus-group interviews have been done and a questionnaire is administered. The questionnaire involves 12 items on willingness to provide health care to Syrian refugees, and the seven-item Bogardus Social Distance Scale. The items on willingness to provide health care were extracted from the themes and typical quotes of participants emerged from qualitative interviews.

**Summary of Results:** Preliminary results of the in-depth and focus group interviews show that students seem to be influenced to a certain degree from the “otherization”, which is becoming more and more prevalent in Turkey. On the other hand in terms of healthcare many of them are expressing compassion and emphasizing the importance of non-discrimination, even an affirmative-action.

**Discussion:** Considering the limited space given to ethical and cultural competencies in health professions schools' curricula, whether the social distance of the general society towards “others” is influential on students or not, and the factors affecting their attitudes towards “others” should be analyzed thoroughly.

**Conclusion:** Health professions schools need to be aware of the influences of the prejudices and social distance prevalent in the society on students and should design well-structured educational initiatives.

**Take Home Messages:** Teaching non-discrimination principle and cultural competency is becoming more important during humanitarian crises.

## 10L Short Communication: Medical Education Scholarship

Location: MR 119 – P1

#10L1 (135044)

**Metrics, altmetrics, and developing a meaningful impact-tracking strategy for education scholarship**

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*Stella L. Ng*

*Lindsay Baker*

*Carolyn Ziegler*

*Amy Dionne*

**Background:** To acquire and maintain funding, medical education and education scholarship face increasing pressure to demonstrate impact. But what is impact? How we define impact dictates the indicators used to 'measure' impact; indicators shape and constrain our focus/endeavours. Traditionally, quantitative indicators (e.g. citation analysis) are measured. Yet, education is also interested in complex social impacts, challenging to represent through quantitative data. In an effort to represent educational impacts, we adapted measurements to the medical education context.

**Summary of Work:** A literature review identified three tools (Becker Model for Assessment of Research Impact, Research Impact Framework, Pluralist Conceptualization of Scholarly Impact). We applied and critically analyzed them in relation to the medical education context.

**Summary of Results:** We integrated relevant indicators from the tools, incorporating novel ideas such as grey metrics and impact stories to develop a meaningful approach to tracking impact in our context. Our 3-step approach involves: 1) broadening understanding of impact/indicators to include traditional, altmetrics and grey metrics, 2) identifying and developing appropriate indicators for specific contexts, and 3) using indicators to develop impact stories to capture the richness and nuance of education impacts.

**Discussion:** As medical education researchers and educators, we should align our thinking about what 'counts' as impact with our education goals. Impact measures from biomedicine/clinical sciences often do not translate to our context. It is important to work towards and advocate a broader (re)definition of educational impact, rather than pursue ill-suited metrics developed for other contexts and too limited for ours.

**Conclusion:** Our proposed 3-step approach to track meaningful impact uses alternative indicators (grey metrics and impact stories) to help (re)define educational impact more broadly and more adequately capture achievements in education.

**Take Home Messages:** The point is not to produce a recipe or set up new, burdensome ways for educators and researchers to 'prove their worth,' but to create alternative ways of thinking about impact.

#10L2 (135988)

**Is being a medical educator a lonely business? The essence and perceived effect of social support**

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*Kiki Lombarts (Academic Medical Center (AMC-UvA), Amsterdam, the Netherlands)*

**Background:** Social support helps prevent burnout and promotes its positive opposite, work engagement. With higher work engagement performance increases. Context-specific aspects of social support for medical educators, in their educator role, are unknown. Our study describes the essential elements of social support and the meaning of support to medical educators.

**Summary of Work:** We held interviews with medical educators purposefully sampled for diverse backgrounds and working circumstances and who spent a significant amount of time on education. Both clinicians and basic scientists participated. The Pictor-technique guided the interviews. Participants were invited to tell about the breadth of social support and elaborate on meaningful experiences. Template analysis was used for a descriptive phenomenological approach.

**Summary of Results:** Thirteen medical educators were interviewed. We identified four themes. 1) the materialization of support (e.g. through seeking support), 2) its manifestation (e.g. by providing protected time for courses), 3) sources and their intent (e.g. a superior stimulating personal growth). Sources were identified as available from within the educational department, other departments and outside of the hospital. 4) The overarching effect of social support both in terms of practical effects as well as the meaning of support. The meaning of social support for medical educators is threefold: it leads to feeling reassured and confident, to feeling encouraged and determined and to a sense of relatedness and justification of the educational work.

**Discussion:** The number of sources available is the result of social support being sought and found beyond the boundaries of the educational role. The different meanings may be attributed to basic psychological needs.

**Conclusion:** There are many ways for social support to occur, resulting in wide individual differences.

**Take Home Messages:** To accommodate for meaningful social support, consider the available sources, how support is provided and who takes the initiative.

#10L3 (135476)

**How can we enhance the transfer of learning into practice?**

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Paul Crampton  
Hannah Hesselgreaves  
Marina Sawdon  
John McLachlan*

**Background:** Organisations estimate the range of transfer from education into practice is only 10% to 34%. In healthcare, where generally practice responds to evidence, there is a need to ensure that training improves clinical effectiveness, patient safety and the patient experience. We aimed to identify a model to help explain how education links to patient benefit.

**Summary of Work:** Using a realist approach we conducted a synthesis of the literature to explain 'what works, for whom, in what circumstances, and in what respects' by identifying the links between context, mechanisms and outcomes for components of educational interventions. We identified a model by Kirwan(2009) that helped to explain the transfer of learning.

**Summary of Results:** We identified 17,954 papers and following review of title and abstract reviewed 1145 full papers which described educational interventions in a range of healthcare settings and reported positive, negative or neutral patient outcomes. Contextual factors in the design and delivery of educational interventions included stakeholder involvement, action planning, opportunities to practice, feedback, and supervision. The primary mechanism for change was individual agency enabled by good facilitation of learning, support by service managers and peers, and culture change driven by evidence-based objectives endorsed by senior managers. Consideration of learner's expectations, role, and their ability to meet service needs enhanced their motivation to learn and change practice.

**Discussion:** Authors mainly described interventions and outcomes. To identify key training components more description is needed of how change occurs. Evidence for long term impact is sparse. The model needs further refinement to incorporate the impact of patient's perspectives on outcomes.

**Conclusion:** The transfer of learning model identifies the support needed to enable staff to incorporate new behaviour into practice to impact on patients

**Take Home Messages:** Transfer of learning models should inform the design of healthcare education and training to maximise support for individuals to change practice for the benefit of patients.

#10L4 (136031)

**Incentives for Recruiting Trainee Participants in Medical Education Research**

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**Background:** The field of medical education research has grown substantially in recent years, making participant recruitment more difficult. Incentives may be offered to participants to encourage participation in a study. These incentives may be tangible such as money, gift cards or food, or intangible such as the desire to improve medical training, the opportunity to participate in a novel educational experience or the perception that one will gain favour with a supervisor.

**Summary of Work:** To better understand the range of incentives offered and explore the relationship between study quality and incentives in medical education research, we reviewed all research studies that used medical trainees as participants and were reported in any of five major medical education journals in 2008. The incentives used in recruitment, including if any intangible incentives were felt to be present, were extracted by two researchers. MERSQI score was calculated (for quantitative studies) and subsequent citation counts were tracked for each article.

**Summary of Results:** Approximately 90% of studies did not discuss if any incentives were offered or if intangible incentives may have played a role in the decision to participate. Tangible incentives (range \$15-\$60) were offered to participants in 6% of studies. The use of tangible incentives was correlated with a higher MERSQI score and with the number of times an article was cited.

**Discussion:** Most studies do not describe why participants may have elected to participate in a research study.

**Conclusion:** Information regarding incentives to participate should be reported to potentially improve future recruitment efforts and to better understand the context in which the study was conducted.

**Take Home Messages:** The tangible and intangible incentives used to recruit participants in medical education research should be explicitly reported in studies.

#10L5 (135485)

**Evidence matters, but how to assess evidence?**

*Eugene Custers\*, UMC Utrecht, Center for Research and Development of Education, Utrecht, Netherlands*

**Background:** Increasingly, it is recognized that good practice in medical education cannot be achieved by clinging to tradition or by implementing new ideas that just “feel good” and are acclaimed by students, teachers and educators. To make real headway we need to collect and critically judge evidence about effectiveness and efficiency of these practices.

**Summary of Work:** To develop and describe broadly applicable guidelines to assess the quality of research evidence.

**Summary of Results:** Assessing the quality of evidence is not easy in a domain as dynamic and complex as medical education. The gold standard, the Randomized Controlled Trial, is often not feasible and if it is, its outcomes are frequently trivial or can be challenged on other grounds. There are alternatives to the RCT, ranging from quasi-experiments to pure qualitative studies. We describe criteria that can be used to assess the validity of the evidence delivered by these study designs. Such criteria pertain to the theoretical foundation of the study, the extant evidence from similar studies, and different forms of validity (internal, external, and construct validity).

**Discussion:** Criteria against which to judge evidence all entail some form of argumentation. The harder it is to challenge a design or approach, the more defensible it is and the more valid the evidence it delivers. Some pitfalls in designing and interpreting research will be spotted and discussed how to avoid falling into such traps. Special attention will be paid to common and frequent flaws in theoretical reasoning as well as in conducting empirical studies.

**Conclusion:** No study can be judged by just looking at the research design; assessing validity is a much more encompassing endeavour.

**Take Home Messages:** Studies in medical education should be viewed as arguments and designed, reported, and assessed accordingly.

#10L6 (135902)

**Foucauldian discourse analysis in medical education**

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*Greta Rait*

*Caroline Pelletier*

*Sophie Park*

**Background:** Discourse analysis is particularly interested in how language is used to persuade and represent a particular view of understanding reality and determining human action. Foucauldian discourse analysis (FDA) considers knowledge and power connections in a historical perspective. History in FDA is essentially characterized by discontinuities. As Medical Education increasingly embodies a delimited field of medical knowledge, technique and research, FDA can provide a critical perspective of its historical power struggles.

**Summary of Work:** To understand the use of FDA in medical education research, a literature review was conducted. Medical and education databases were included.

**Summary of Results:** Different terms designated FDA. The concepts of archaeology and genealogy were defined as fundamental to research. A historical perspective of the object of research was not a consensus. The Archive (body of data analysed) gained dissimilar arrangements according to specific objectives (curricula documents, policies, interviews and focus groups). The essential elements of analysis were the characterization of the object of discourse and the power relationship between discursive statements.

**Discussion:** FDA in medical education research offers a range of approaches that are coherent to Foucault’s work, but not covering all dimensions of analysis. Different authors from the social, education and psychology fields of knowledge have described step by step approaches to FDA stressing diverse aspects of the analytical process.

**Conclusion:** Researchers have inaugurated a new front in medical education, which comes in good time with its gradual historical development. Investigators willing to join this effort can draw on the different fields of knowledge using FDA (including medical education) keeping in mind Foucault’s production.

**Take Home Messages:** FDA can be used as a method to critically analyse medical education historical power struggles. FDA presents a range analytical focus, which should be accurate about Foucault’s ideas and concepts



#10L7 (133475)

**Elevating the Possibilities – Education Scholarship in Family Medicine Teaching Sites**

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Morag Paton (*University of Toronto, Toronto, Canada*)  
Fiona Webster (*University of Toronto, Toronto, Canada*)  
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Cynthia Whitehead (*University of Toronto, Toronto, Canada*)

**Background:** The importance of Education Scholarship (ES) is increasingly being recognized across health professions. The Office of Education Scholarship (OES) in the University of Toronto's Department of Family & Community Medicine (DFCM) was created to address concerns with declining scholarship and to build capacity in ES.

**Summary of Work:** To understand how to better support teaching sites in ES engagement, we conducted qualitative semi-structured interviews with 13 FM Chiefs – from a mix of fully affiliated and community affiliated sites. Interviews were transcribed and analysed thematically using a constant comparative approach. Analysis was guided by Bourdieu's concept of social capital.

**Summary of Results:** We identified four themes that help to explain differences in receptivity to ES: Diverse definitions and understandings of ES; Identification with a scholarly role affects engagement Chiefs have perceptions, and make assumptions, about the availability and distribution of resources; Resistance to perceived inequities is sometimes expressed as disinterest in scholarship.

**Discussion:** A strong sense of inequity was present. Chiefs of community sites perceived they had fewer resources than fully affiliated sites. Missing the social capital that fully affiliated sites apparently possessed, they resisted the perceived imposition of this form of social capital. Site leaders also spoke about ES in colonial terms.

**Conclusion:** Our findings suggest that uptake of Education Scholarship can vary depending on context and be affected by real or perceived inequities of funding, geographical location, personal understanding of ES, and identity. We need to be mindful of context when developing capacity building ES experiences for faculty.

**Take Home Messages:** Programs should encourage health professionals to participate in Education Scholarship activities in order to continue building academic medicine, but must consider that there could be perceptions of imposition. Site specific differences must be considered in building ES faculty development programs.

## 10M Short Communication: Patient Safety

Location: MR 120 – P1

#10M1 (135538)

**Critical Student Insights on Patient Safety and Quality Improvement Curriculum at The Telluride Experience**

**Anne Gunderson\***, Georgetown University, District of Columbia, USA

Omar Rahman

Chase Corvin

Jack Steele

Alexander Butler

**Background:** In 2015, medical students and nurses attended a five day safety and quality training program.

**Summary of Work:** At the end of The Telluride Experience (TTE) immersion in patient safety, N-57 health students (nursing and medical) provided qualitative and quantitative feedback for the program improvement. From the qualitative data, three investigators independently utilized phrase counting to generate broad categories. Through discussion, categories were narrowed to three specific themes, 1) Content Delivery of Patient Safety Topics 2) Understanding of Quality Improvement (QI) 3) Interprofessionalism and Team Building Exercises.

**Summary of Results:** 42% of interprofessional participants benefited from lengthier small group discussion on patient safety. Of the 18 students who commented on QI training, 56% noted that the fundamental knowledge acquisition served to identify areas of educational inefficiencies at their home institutions. Conversely, 44% of the sub-group stressed the need for more Requested emphasis on QI implementation rather than problem identification. 33% of all participants highlighted the increased need for networking opportunities through interprofessional and team building activities during the training.

**Discussion:** Findings suggest a divide amongst participants in fundamental knowledge and awareness of QI projects. It was evident that some students desired a deeper dive into formulating QI plans at their home institutions. Education in implementation science is critical for overcoming organizational barriers, professional hierarchies, and cultural norms, which ultimately reduce healthcare efficiency.

**Conclusion:** Overall, participants desired fundamental understanding, advanced discussion, and critical evaluation of patient safety and QI. Alumni networking, story sharing, and deliberate development practice may better develop students perceptions allowing them to act on the lessons learned after TTE. The QI and interprofessional aspects of TTE emphasized the reality of the hospital setting for the health students. Collaborative and team-based efforts between health professionals have been correlated with safe and effective health care.

**Take Home Messages:** Interprofessional learning and QI training is highly valuable for learners.

#10M2 (136010)

**Learning in the Clinic: A Model for Learning, Improvement and Safety**

**Gabrielle Kane\***, University of Washington, Seattle, USA

Avery Novak (University of Washington, Seattle, USA)

**Background:** Near-miss incident learning systems (NM-ILS) can improve patient safety. However, they are often perceived more as systems for reporting than learning; little research has been done to understand the types of learning, change and improvement that they can support. Our radiotherapy clinic has an established NM-ILS and good safety culture metrics. The study aimed to explore factors influencing NM-ILS engagement and to understand how incident learning occurs in one multiprofessional practice.

**Summary of Work:** Following IRB approval, 21 departmental volunteers participated in a series of focus groups and interviews about perceptions of NM-ILS reporting and learning, until theoretical saturation. Participants were resident and attending physicians, technologists, nurses, physicists and administrators, and included both those regularly engaged in event reporting, and those less active. Data analysis used Grounded Theory Methodology.

**Summary of Results:** Patient safety was the common motivator, even for those who did not use the system much; most recognized the many positive changes that resulted from NM-ILS. Many participants felt that more feedback, both individual and collective, would improve engagement and learning. A few expressed fear of retribution if documenting an incident, especially involving someone in power. Many saw only traditional classroom teaching as learning, but not practice improvement or process change, and those least involved perceived learning as individual rather than collaborative. A model emerged that ILS learning and change occurs on individual, team, and organizational levels.

**Discussion:** Patient safety is an important driver of participation in NM-ILS, but process and cultural changes are needed for full engagement in the NM-ILS, and optimized safety culture. A model has been generated that may facilitate understanding of not just incident reporting, but also of the learning that occurs with it.

**Conclusion:** Understanding the different types of learning that occur may enhance patient safety.

**Take Home Messages:** NM-ILS is a rich source of workplace learning, with patient safety as its outcome.

#10M3 (132626)

**A multidisciplinary training program of intrahospital transport of critically ill patients: Model build-up and assessment**

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Lan-Ti Chou (Division of Respiratory Therapist, Chang Gung Memorial Hospital, Taoyuan, Taiwan)

Hui-Ling Lin (Department of Nursing, Chang Gung Memorial Hospital, Taoyuan, Taiwan)

Mao-Chang Wu (Department of Medical Imaging and Intervention, Chang Gung Memorial Hospital, Taoyuan, Taiwan)

Chiao-Lin Wu (Department of Emergency Medicine; Chang Gung Medical Education Research Center, Chang Gung Memorial Hospital, Taoyuan, Taiwan)  
Pin-Tarng Chen (Department of Anesthesiology, Taipei Veterans General Hospital, Taipei, Taiwan)

**Background:** Intrahospital transport of critically ill patients for diagnostic or therapeutic procedures is at risk due to patient instability, inexperienced team or equipment problems. The project aims to explore threat-factors for patient safety during transport and the effectiveness of a multidisciplinary simulation training model.

**Summary of Work:** The effectiveness of a multidisciplinary simulation-training model was evaluated by mixed methods; including quantitative competence measurements (for teams and members) and qualitative analysis (group discussion in training sessions). One team is comprised of three newly registered medical staff, including a physician, a nurse, and a respiratory therapist. In total, twelve teams participated. Threat and positive factors were identified from patient safety data and group discussions.

**Summary of Results:** Participants undertaking training achieved higher level of skills. Most common threat-factors from patient safety data included inadequate securing of airway, and vascular access, and communication/liaison problems. Other threat-factors identified from group discussions were: loosely composed transport team, staff who work temporarily, or are inexperienced and less confident, and improper emergency elevator access. Increase awareness of critical situation, identity formation, trust construction and transformation into clinical practice were considered to enhance patient transfer and can be achieved by the simulation training. Newly registered trainees lack insight into their non-technical skills, in terms of task management, team working, situation awareness and decision-making.

**Discussion:** Scheduling and setting of multidisciplinary simulation training model are challenging, time-consuming and laborious. However, threat-factors on patient safety could be avoided by implementing an in-situ multidisciplinary simulation-training model whereby the amendment could also be achieved.

**Conclusion:** Newly registered multidisciplinary staff comprise loose teams, lack experience and confidence

during practicing patient transport in both simulation and realistic daily practice. In-situ multidisciplinary team-based simulation training model uncovered factors which negatively affect patient safety during intrahospital transport and provided amendment.

**Take Home Messages:** Multidisciplinary team-based simulation training model brings positive impact on patient safety during intrahospital transport.

#10M4 (133603)

**Diagnostic error and/or diagnosis related patient harm in the diagnostic reasoning process are related to residents' subjective workload and work experience**

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Abel Thijs (VU University medical center, Amsterdam, The Netherlands)

Cordula Wagner (NIVEL, Utrecht and EMGO Institute/VU University medical center, Amsterdam, The Netherlands)

Dirk Knol (VU University medical center, Amsterdam, The Netherlands)

Gerrit van der Wal (VU University medical center, Amsterdam, The Netherlands)

Danielle Timmermans (VU University medical center, Amsterdam, The Netherlands)

**Background:** Physicians are often subject to high workload. Most research on workload in medicine focuses on objective workload, such as the number of patients seen. However, the subjectively experienced workload may be the more important factor, particularly for physicians with little work experience who diagnose patients. The aim of this study was to determine the relationship between subjective workload, work experience and the occurrence of diagnostic error and/or diagnosis related patient harm. Furthermore, the objective workload factors that may influence subjective workload were explored.

**Summary of Work:** Residents with different levels of expertise, indicated the level of subjective workload that they experienced during the examination of dyspnea patients. Furthermore, they were asked about their work experience. After discharge, the patient records were reviewed to identify diagnostic errors and diagnosis related harm. Additionally, residents were observed during their work and objective work-related factors were scored and related to subjective workload measures.

**Summary of Results:** A higher subjective workload was associated with the occurrence of diagnostic error and/or patient harm ( $p < 0.01$ ). Less experienced residents encountered more subjective workload ( $p < 0.01$ ) and were more often involved in cases with adverse outcomes than more experienced residents ( $p < 0.05$ ). There was no significant interaction between subjective workload and work experience on adverse outcomes. The factor that most strongly influenced subjective workload involved the presence of a co-worker.

**Discussion:** Subjective workload was related to performance irrespective of work experience. Reducing subjective workload could therefore reduce adverse outcomes in the diagnostic process, and does not necessarily require reduction of objective workload. Specifically, subjective workload was mostly related to the availability of co-workers, suggesting that having the possibility to get assistance may be helpful.

**Conclusion:** Ways to reduce physicians' subjective workload should be further explored to reduce the occurrence of adverse outcomes in the diagnostic process.

**Take Home Messages:** Reducing subjective workload could reduce adverse outcomes in the diagnostic process.

#### #10M5 (133250)

##### **Patient Safety and Quality of Care through Adherence to Clinical Guidelines**

**Samantha Ismaile\***, Princess Nourah Bint Abdulrahman University, Riyadh, Saudi Arabia  
Marina Sawdon

**Background:** Clinical practice guidelines (CPGs) are designed to improve the care and safety of patients. This research explores the promoters and barriers for CPG adherence among nurses. The importance of CPGs stems from their capacity, through evidence-based practice, to enhance the quality of care delivery and to promote patient safety.

**Summary of Work:** A qualitative study including one-to-one and focus groups interviews were chosen as the initial research methodology because this study seeks to understand and explore nurses' behaviour, attitudes and feelings about their adherence to clinical practice guidelines. There were 12 nurses (9 females and 3 males) interviewed individually, and 24 (15 females and 11 males), took part in focus groups. A quantitative method using a questionnaire was also conducted at the end of the study to triangulate the analysed results of the qualitative study. A total of 61 nurses from different specialties took part in the study.

**Summary of Results:** Three principal themes emerged from the qualitative studies; namely, nurses' attitudes, knowledge and external environmental factors that influence CPG adherence. The most prominent promoters of CPG adherence were nurses' sense of their accountability, professional values and self-efficacy. While, the main barriers to CPG adherence were lack of knowledge about CPGs.

**Discussion:** A previous framework for CPG adherence by doctors has been produced by Cabana (1999) based on a literature review. This research extends that framework to nurses, and adapts it on the basis of the original research findings.

**Conclusion:** The revised framework could help health care organisations, medical educators and policy makers to develop better models for CPG development, awareness and to have a greater insight

into the factors that promote or inhibit CPG adherence. Based on the framework, recommendations are made to help decision makers to improve nurses' adherence to CPGs and thus improve the quality of patient care and patient safety.  
**Take Home Messages:** Implementing CPGs is not easy. It might consume a lot of time and effort and it can be challenging. However, the full implementation of a CPG can be very rewarding and it will be reflected in the quality of the patient's care and safety.

#### #10M6 (127793)

##### **Why do anaesthetists sometimes not follow the rules?**

**Craig Webster\***, Centre for Medical and Health Sciences Education, University of Auckland, Auckland, New Zealand

Jennifer M. Weller (University of Auckland, Auckland, New Zealand)

**Background:** Protocols and guidelines are often central to medical education and their introduction is a common strategy in attempts to improve patient safety. However, clinicians sometimes choose not to follow guidelines and reasons for this are poorly understood. Therefore, we studied anaesthetic teams during highly-realistic simulated cases.

**Summary of Work:** To better understand the intentions underlying deviation from accepted guidelines we observed anaesthesia in 20 simulated cases, recording events that may increase the risk of patient harm. In semi-structured interviews, details of observed events were confirmed with participating anaesthetic teams, and intentions and reasoning underlying the confirmed deviations were discussed.

**Summary of Results:** Twenty-four observed events (69% of 35 recorded) were judged by participants to carry potential for patient harm, and 12 (34%) were judged to be deviations from accepted guidelines (including one drug administration error). Only two events were identified as potentially attributable to simulation.

**Discussion:** Underlying reasons for deviations included a strong sense of clinical autonomy, poor clinical relevance and a lack of evidence for guidelines, ingrained habits learnt in early training, and the influence of peers. Knowing when a guideline was not appropriate for a particular patient was seen as an important clinical skill.

**Conclusion:** Guidelines are important in clinical practice, yet self-identified deviation from accepted guidelines was common in our results. Anaesthetists often had good reason not to follow a particular guideline, and evidence was often seen as lacking.

**Take Home Messages:** While guidelines can yield benefits for patient safety, a strong evidence base is needed to achieve good compliance, and even in these cases important exceptions may remain to their applicability. Our results have implications for the development of better guidelines and medical education activities making use of them.



#10M7 (135509)

**Training Against Medical Error (TAME), a curriculum transformation**

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*Terry Poulton (St George's University of London, London, UK)*

*Luke Woodham (St George's University of London, London, UK)*

*Ella Poulton (Karaganda State Medical University, Karaganda, Kazakhstan)*

*Jonathan Round (St George's University of London, London, UK)*

**Background:** Medical education in Eastern Europe and beyond is mostly still taught in a traditional setting, using lectures and face-to-face sessions. Past EC projects (ePBLnet and CROESUS) have successfully modernised the curriculum of partner institutions by introducing interactive Problem-based Learning (PBL) using Virtual Patients (VPs). Medical error is an increasingly significant cause of harm to patients. Using the benefits of VPs, the TAME project looks to 'Train Against Medical Error' to avoid preventable adverse events caused by a lack of training.

**Summary of Work:** The project aims to train medical students to avoid making errors in real life situations. Using online VPs in a PBL setting, students will discuss management options and steps they should take. Students can practice clinical management, make errors safely, and see the outcomes of their errors. Institutions in Kazakhstan, Ukraine and Malaysia will create cases focusing on medical error, to be trialled with students, whose performance will be assessed.

**Summary of Results:** Paediatric cases provided by St George's, University of London, will be repurposed by participating institutions to their local healthcare settings and implemented within their medical curricula. Training has been provided in the design and use of online VPs to teach medical error in PBL sessions.

**Discussion:** The effects of the error VP cases on student performance has yet to be determined, although the impact of modernising medical education using these methods has been successfully proven in past projects. The effectiveness of using error VP cases for avoidance of error will be discussed.

**Conclusion:** Allowing students to make mistakes early on in their career using VPs can provide opportunities to see the real-life consequences of those errors, therefore reducing the incidence of error in practice.

**Take Home Messages:** Using VPs, medical curricula can be modernised to provide training against medical error.

## 10N Short Communication: Cultural Competency

Location: MR 121 – P1

#10N1 (135094)

**Evolution of an Indigenous Cultural Immersion Program in an Australian postgraduate Medical Course**

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Wendy Anders

Candice McKenzie

Laura Tagell

Colin Bell

Scott McCoombe

**Background:** Intolerable gaps remain in delivering culturally appropriate medical care. Indigenous Cultural Immersion Programs (ICIPs) are targeted towards teaching cultural sensitivity in medical curricula. For ICIPs to be successful, they require Indigenous expert input, evidence-based content and clear learning outcomes. Ideally, these are linked to prevailing student backgrounds, knowledge, cultural beliefs and perceptions.

**Summary of Work:** This student-led project assessed student perceptions and knowledge of Australian Indigenous culture and health during a 2-day ICIP. Anonymous surveys captured data from four first year cohorts (n=130 per year) pre- and post-ICIP. Survey questions were refined during the study to reflect prevailing knowledge gaps and cultural themes.

**Summary of Results:** Pre-surveys reveal most students have limited background knowledge of Indigenous health and culture prior to ICIP. Furthermore, responses raised significant cultural safety apprehensions, and uncovered some concerning pre-conceived opinions. Post-survey results report students consider the content and delivery as valuable, challenging and at times confronting. However, ICIP participation increased student confidence to provide culturally competent care. Student highlights included engaging with local Indigenous Elders and young adults. Future medical practice strategies were gained via clinical advice from Indigenous and non-Indigenous health professionals practicing in Aboriginal Community Controlled Health Organisations.

**Discussion:** Students embraced the importance of ICIP, gaining important knowledge, cultural understanding and skills to better address current health gaps experienced by Indigenous Australians. Student driven refinement of ICIPs can enhance learning outcomes and student engagement.

**Conclusion:** Dedicating resources and time for ICIPs early in the medical curriculum highlights the importance of, and commitment to, culturally appropriate medical care. This sets strong foundations for students to grow from during their pre-clinical and clinical training.

**Take Home Messages:** ICIPs can be successfully embedded as components of well-rounded Indigenous medical curricula to enhance student cultural knowledge, skills and confidence in providing culturally sensitive care. Capturing student cohort understanding and perceptions enables a more meaningful and targeted ICIP learning experience.

#10N2 (134882) **(Postgraduate Travel Award Winner)**  
**The Need Assessment of Cultural Competency among General Physician in West Java Province, Indonesia**

**Sari Dewi\***, Universitas Padjadjaran, Bandung, Indonesia

Nita Arisanti (Universitas Padjadjaran, Bandung, Indonesia)

Insi Arya (Universitas Padjadjaran, Bandung, Indonesia)

Elsa Pudjisetiati (Universitas Padjadjaran, Bandung, Indonesia)

**Background:** Indonesia is known as diversity cultural country, which consists of more than 100 tribes. The West Java Province has the most population with variety of cultures. The general physician (GP) who serve this province need to understand the diversity of culture of the community including language barrier, belief, value and attitude to be able to provide high quality health service. How these GP understand this competency need to be evaluated.

**Summary of Work:** This is a qualitative study to assess how general practitioners see the cultural competency and how they can use it for their practice. The subjects were 5 doctors who worked for more than 5 years in primary health care in West Java. Using in-depth interview the data then analyzed to find common themes.

**Summary of Results:** All subjects were agreed that the understanding of patients' culture are important and help them to treat them. The cultural competency is one of the primary competencies for general physician. However, all were never educated how to understand this culture. There is a need to evaluate and improve the curriculum of medical doctor to include this aspect.

**Discussion:** The cultural competency is ability of GP to provide health care to patients with diverse values, beliefs and behaviors, including tailoring delivery to meet patients' social, cultural, and linguistic needs. This requires an understanding of the communities being served as well as the cultural influences on individual health beliefs and behaviors. To master it, it devises strategies to identify and address cultural barriers to accessing primary health care

**Conclusion:** The 5-6 year medical curriculum implemented in Indonesia has not included the cultural competency. Major emphasizes are in basic and clinical competency which are overburden the students.

**Take Home Messages:** The new plan to implement new training for Primary Care Physician is expected to elaborate it deeper.

#10N3 (133687)

**Emotional learning and identity development in medicine: A cross-cultural study comparing Taiwanese and Dutch medical undergraduates**

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*Huei-Ming Yeh, National Taiwan University Hospital, Taipei, Taiwan*

*Joy de Vries, Center for Evidence-Based Education, Academic Medical Center, Amsterdam, the Netherlands*

*Chi-Chuan Yeh, National Taiwan University Hospital, Taipei, Taiwan*

*Tim Dornan, Queens University, Belfast, Ireland*

**Background:** Emotions are increasingly recognized as having a central role in learning and healthcare. We aimed to broaden current understandings of their role by exploring the interplay between emotional experiences and professional identity formation cross-culturally; in a European and an Asian cultural context.

**Summary of Work:** We purposively sampled twenty clinical medical students from Taiwan and the Netherlands and asked them to keep an audio diary, narrating emotional experiences during clerkships using the following prompts: What happened? What did you feel/think/do? How does this interplay with your development as a doctor? Informed by Figured Worlds theory, we analyzed their narratives using a 'mesolinguistic' type of critical discourse analysis.

**Summary of Results:** Students in both countries talked vividly about their emotional experiences, but in different ways. Narratives from Taiwan tended to have richer language and content, reflecting about what it means to be a good doctor. Dutch narratives tended to have a more limited focus, on achievement and competence. The types of autonomy to which students aspired were different. Dutch students aspired to participate autonomously in 'hands-on' practice whilst Taiwanese students found their autonomy more in their reflective narratives.

**Discussion:** Our findings reveal different cultural constructs of both student and patient autonomy. They suggest that medical educators should consider the affordances of reflective observation versus active participation as characteristics of different cultures.

**Conclusion:** Depending on culture, students imagine different worlds and different future identities. In some cultures (e.g. Taiwan) professional identity development could be enhanced with use of creativity, e.g. literature, humanities, whereas in other cultures (e.g. the Netherlands), students may express themselves in a less introspective and practical way.

**Take Home Messages:** Cross-cultural research may help advance the medical education field by broadening our insight into how professional identity formation works and how it is influenced by context.

#10N4 (133681)

**Shedding Light on the Hidden Curriculum: a Tool to Raise Faculty Awareness of Their Contributions to Culture in the Clinical Workplace**

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*Edith ter Braak (University Medical Center Utrecht, Utrecht, Netherlands)*

*H. Carrie Chen (University of California San Francisco, San Francisco, USA & University Medical Center Utrecht, Utrecht, Netherlands)*

*Olle ten Cate (University Medical Center Utrecht, Utrecht, Netherlands)*

**Background:** 'Hidden curriculum' refers to the implicit and mostly unconscious transfer of norms, values and attitudes – briefly: culture – by individual role models as well as group dynamics. Although its strong effects on education have been described, interventions focusing on faculty contribution to culture and their perception of the hidden curriculum in the clinical workplace have received limited attention.

**Summary of Work:** We developed a tool to illuminate departmental culture as perceived by faculty staff and learners: REVIEW (Reflecting & Evaluating Values Implicit in Education in the Workplace). It consists of a Q-sort grid and 50 literature-based descriptions of culture-determining desirable behaviors (e.g. "we always treat each patient respectfully under all circumstances", "we live a healthy life and take care of ourselves").

**Summary of Results:** We piloted an online prototype of the tool in four clinical departments. Faculty and learners used REVIEW to rank the descriptions into a forced normal distribution as being more or less characteristic of their department culture.

Anonymized aggregated results were provided.

Feedback from educational leaders and participants suggests that REVIEW serves as an eye-opening mirror for a group's culture and one's contributions to it.

**Discussion:** REVIEW encourages reflection and provides a springboard for open and positive dialogue about the perceived versus desired group culture. The forced prioritization method provokes deliberate valuations and acknowledges the choices clinicians must make given the constraints of daily practice and their need to prioritize among different values.

**Conclusion:** Instead of measuring or judging the group's culture, REVIEW allows an appreciative inquiry approach to raising awareness, facilitating discussion and explicating dilemma.

**Take Home Messages:** The REVIEW tool may be valuable for groups/teams who wish to reflect on the 'hidden curriculum' by reviewing their behaviors and related values, especially in the interest of their educational responsibilities.

#10N5 (133743)

**Building up a multi national multi cultural standardized patient bank Experiences from the United Arab Emirates**

*Meghana Sudhir\*, Mohammed Bin Rashid University for Medicine and Health Sciences, Dubai, United Arab Emirates*

**Background:** A standardized patient/ simulated patient [SP] is an individual who is trained to act as a real patient in order to simulate a set of symptoms/problems. Standardized patients have been successfully used in Medical Education, Nursing Education, Evaluation & Research. The standardized patients are extensively used in Medical Education to allow learners to practice and improve their clinical & conversational skills for an actual patient encounter  
**Summary of Work:** UAE is the home of multinational healthcare professionals as well as medical students. The same applies to the diverse population. Effective training requires encounter with standardized patients from varied nationality and culture. With this view, a pool of 136 standardized patients were recruited and trained from 29 Nationalities who plays a vital role in training communication skills, clinical skills and in hybrid stations.

**Summary of Results:** Depending upon the context of the scenario, the most appropriate standardized patient who meets the cultural, race, nationality, language criteria is selected. Having such a multicultural, multinational bank of standardized patients, the whole patient encounter becomes as real as possible. The students and healthcare professionals benefit the experience of being with the diverse group of people

**Discussion:** As the expatriate community are not permanent residents of UAE, it becomes very essential to keep the standardized patient bank active all the time with regular recruitment and training so that enough standardized patients are available throughout the year.

**Conclusion:** Though it is difficult to maintain such a varied group of people, the benefit which brings to medical education is of immense significance

**Take Home Messages:** A nation with such diversified population needs the healthcare professionals to be efficient in dealing with them. Having a multi cultural and multi national bank of SPs play a vital role.

#10N6 (133054)

**Ain't nothing like the real thing": IPE and students learning about indigenous health**

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*E McKinlay*

*S Pullon*

*L Gray*

*M Tibble*

*P McHugh*

**Background:** In New Zealand all undergraduate health curricula that lead to professional registration are mandated to have components related to the health needs of Māori, the indigenous people of New Zealand (NZ). The emphasis and time allocated to those components have to be balanced with the competing demands of all other important aspects of the respective preregistration degrees.

**Summary of Work:** This paper reports on the feedback from a recurrent rotational five week long interprofessional immersion programme for undergraduate students comprising up to seven disciplines, based in a rural NZ community with a high percentage of Māori.

**Summary of Results:** Focus group data from 12 different cohorts over a three year period highlighted the power of experiential learning especially in relation to understanding the health context for indigenous people and the challenges for health care professionals caring for them.

**Discussion:** Most commonly the theoretical aspects of Māori culture are addressed in a classroom context and it cannot be assumed that all students are exposed to indigenous populations in clinical practice settings.

**Conclusion:** Theory in the absence of exposure to indigenous groups is largely ineffective.

**Take Home Messages:** In the absence of experiential learning how do we ensure that health professional students come to understand the health experiences of indigenous peoples?



#10N7 (133709)

**Exploring Swedish Doctors' Perceptions and Experience regarding Physician-Patient Communication Skill considering inter and cross cultural perspectives**

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Hamid Khankeh

Fred Stevens

Nazila Zarghi

Fatemeh Keshmiri

Sari Ponzer

**Background:** The present study aimed to explore perception and experience of Swedish physicians regarding physician- patient communication from Iranian context as well as encountering with Swedish and foreign patients.

**Summary of Work:** The present study is a nested qualitative mixed-method cross- cultural and inter-cultural study, for this purpose; firstly, a simulated video from physician-patient encounter was produced in Iranian context. Then, 20 units of experience, Swedish physicians, were interviewed following watching video in order to explore their experience

**Summary of Results:** According to the findings, three themes were emerged as patient-centeredness, doctor-centeredness and cultural diversity. The associated themes with first research question were doctor-centeredness and cultural diversity, while, the related themes to second research question were patient-centeredness, doctor-centeredness and cultural diversity. Themes, categories and sub-categories showed verification in some extents.

**Discussion:** Some themes from two parts of the study were convergent (theme verification). On the other hand, some divergent themes were also identified. It should be also appreciated not only the convergence, but also divergence between Swedish physicians' perceptions from Middle East and Iranian context (cross-cultural) and their own real live experience (inter-cultural and cross-cultural) of encountering with such patients.

**Conclusion:** As to the findings, the policy of health care organization in Sweden is patient center. Swedish doctors encounter with patient from Iran or other Middle East countries who are new comers; so, for making decision about the treatment plan, doctor should acknowledge the patient beliefs and give her/ his some information but consider the preferred approach which is acceptable by patient.

**Take Home Messages:** The policy of health care organization in Sweden is patient center. Swedish doctors encounter with patient from Iran or other Middle East countries who are new comers; so, for making decision about them these data are very important . It is recommended to include cultural competency in medical school curricula

## 10O Short Communication: Blended Learning/Virtual Patients

Location: MR 122 – P1

#10O1 (134245)

**The journey from face-to-face to online: A mixed-methods study of the transformation challenges in a Master's Program in Health Sciences Education**

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Tania Vives-Varela (UNAM Faculty of Medicine, Mexico City, Mexico)

Margarita Varela-Ruiz (UNAM Faculty of Medicine, Mexico City, Mexico)

Adrián Martínez-González (UNAM Faculty of Medicine, Mexico City, Mexico)

**Background:** Medical schools require leaders with formal training in health sciences education. There are several graduate medical education programs worldwide but few publications about their development, evaluation and transformation to online versions.

**Summary of Work:** The study goal was to explore the teaching and learning experiences of the Master in Health Sciences Education Program (MHSE) participants at UNAM in Mexico City, and to design an instrument to evaluate needs and implementation strategies for the online version. A mixed methods design was used (qualitative method to develop quantitative instrument). The qualitative phase had two stages and used focus groups and a semi-structured interview. Stage 3 was quantitative, developing a questionnaire which explored the viability and implementation aspects of the online modality. The instrument was applied online to Faculty of Medicine teachers.

**Summary of Results:** In Stage 1 three focus groups were implemented with 19 participants, and a semi-structured interview was done with the program former coordinator. Seven thematic categories were obtained, identifying positive elements and areas of opportunity. In Stage 2 three focus groups were performed, one with seven candidates to the program and two with 16 teachers from the clinical sites. The qualitative analysis was integrated to develop the questionnaire. The instrument has 26 Likert-scale type items. In Stage 3 the questionnaire was sent to 2,188 teachers. 1002 scholars (47.3%) responded, 843 (39.8%) of which fully completed the survey. Cronbach's alpha was 0.89. Four factors were identified with principal components analysis, that explain 57.4% of the instrument's variance, and comparisons were performed by age, gender, academic level and experience with online courses.

**Discussion:** Several factors were identified as relevant to be taken into account for the successful implementation of the online MHSE program in our setting, using Greenhalgh's dissemination of innovations model. Some of these elements have been identified in a few published papers, suggesting that

the obstacles and enabling factors occur in several contexts and cultures.

**Conclusion:** The mixed-methods research strategy identified valuable information about the strengths and areas of opportunity of the MHSE program, with evidence of validity and reliability. An educationally sound curriculum was designed for implementation with appropriate innovation adoption strategies.

**Take Home Messages:** Online postgraduate programs' design should be informed by rigorous research results. The change from face-to-face to online venues is full of challenges, which should be addressed proactively using an implementation sciences framework.

#10O2 (128691)

**Is the current generation of applicants for nursing education prepared for technology-enhanced care provision?**

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**Background:** Technological solutions in healthcare emerge at fast rate. New healthcare approaches, such as telehealth, may require new skills and new educational programs. Today's applicants for nursing education are part of a generation widely seen as 'digital natives' (born after 1992). How are the prepared for technology in health profession?

**Summary of Work:** In a survey among newly started undergraduate nursing students in 2015, 23 common nursing activities and 5 telehealth activities were presented with three questions: (a) do you consider this as a core activity, (b) do you like to get trained in this, (c) do you think you will do well in performing this activity in the future?

**Summary of Results:** Contrary to what was hypothesized, the 2015 enrolling nursing students generation (n = 1269) reported significantly lower values for telehealth activities, than for common nursing activities, compared on the three questions mentioned above. Median differences were 0.64, 0.56 and 0.41 (7-point scale), respectively, with a P < 0.001 and Cohen's r 'moderate' effect sizes, for all three comparisons.

**Discussion:** Several studies report considerable variation among the current generation with regard to the acceptance and use of specific technologies. Our results confirm that it is hard to make general statements about a generation as a whole. Healthcare technology might require different skills than the current generation feels familiar with.

**Conclusion:** Some argue that the digital natives are already adequately prepared for technology-enhanced care provision. Our study shows the opposite, and

empathizes the need for adequate telehealth technology education for all nurses, independent of age.

**Take Home Messages:** Our ageing population has stimulated the emergence of new ways of technology-enhanced healthcare provision. Educational institutes can play a key role in this transition of healthcare by integrating healthcare technology in their curricula. Suggestions how current and future professionals can be equipped with the right skills and competencies will be discussed.

#10O3 (132993)

**Reality check: validating virtual patients for interprofessional wound care education**

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*Niklas Karlsson*

*Samuel Edelbring*

**Background:** Interprofessional collaboration is important for successful healing of leg ulcers, but studies have demonstrated a lack of collaboration in practice. The education can contribute to establish conditions for interprofessional collaboration and an understanding for the other profession's perspective on patients. We intended to use web based virtual patients (VPs) to implement shared learning between nursing and medical students. These VPs need thus to reflect different aspects. The question guiding this research was: How should VP cases be designed to reflect authentic situations in wound care in order to improve interprofessional education (IPE)?

**Summary of Work:** Observations and interviews were conducted with physicians and nurses in both primary care and at a university hospital. Interview data underwent thematic analysis in relation to the research question and the VPs were then discussed regarding these.

**Summary of Results:** Two themes emerged; 1) organization of management, and 2) direct clinical care. The 1st theme indicated a lack of teamwork, competence and responsibility with ambiguous professional roles. The 2nd theme revealed the importance of initial handling, aspects of nursing and follow-up. Observation data supported the findings in the interviews. The themes exposed weaknesses in our VP cases in which the lack of nursing perspectives was particularly apparent.

**Discussion:** The interviews revealed the importance of increased knowledge of leg ulcer management, nursing and follow-up. The VP cases need to be enriched by reflecting these aspects to improve future interprofessional collaboration. Furthermore, VP activity should be followed-up by discussing the cases with students and facilitators from the "other" profession.

**Conclusion:** A thorough outlook at authentic clinical environments can enrich and improve educational settings using VPs.

**Take Home Messages:** Interviews with different clinical practitioners can visualize difficulties with collaboration and highlight areas which can improve virtual patients in IPE.

#10O4 (136076)

**The State of Virtual Patients 2016: A Global Who, What, Where, When and How**

**Gerald Stapleton\***, *University of Illinois at Chicago, Chicago, USA*

*Cindy LeDonne (University of Illinois at Chicago, Chicago IL, USA)*

*Margaret Czart (University of Illinois at Chicago, Chicago IL, USA)*

*Melissa Hernandez (University of Illinois at Chicago, Chicago IL, USA)*

**Background:** The use of screen-based virtual patients to teach procedural, communication, and diagnostic reasoning skills to medical students, practicing physicians, and other health professionals appears to be widespread and growing. In their previous report on the state of virtual patient use, the authors found that nearly half of the medical schools around the world that responded to their survey had integrated the use of virtual patient systems into their curriculum and many more planned to do so in the next few years.

**Summary of Work:** Benefiting from "lessons-learned" in conducting the previous survey, the authors contacted medical schools around the world and identified contacts who were knowledgeable and willing to provide information about their school's use of virtual patient systems. A revised version of the survey was then distributed

**Summary of Results:** In this 2016 update, the authors share the results of their latest survey and report on which schools are currently using virtual patients to teach medical students, what systems are being used, how they have been developed, where and at what point in the the curriculum such systems are deployed, and to what ends they are used.

**Discussion:** In addition, the authors describe an effort to develop "The Consumer's Guide to Virtual Patients". This new reference, a work-in-progress, takes a look at the top virtual patient systems currently in use as identified in the authors' annual survey and provides information on their design, purpose, function, system requirements, and user experience.

**Conclusion:** This session will be of interest to those involved in curriculum or course design, to those currently working with virtual patient systems, and to those who are exploring the use of such systems in their teaching.

**Take Home Messages:** By sharing data on the utilization of virtual patient systems, the authors seek to stimulate further discussion and collaboration

among both medical educators and virtual patient developers.

#1005 (127663)

Use of virtual reality to practice team communication

*Aslak Steinsbekk\*, Norwegian University of Science and Technology, Trondheim, Norway  
Ekaterina Prasolova-Førland*

**Background:** Medical students seldom get the chance to practice in hospital setting with students from other professions and they seldom see the whole patient trajectory during clinical rotation. Virtual reality can give students more time on task and prepare them for direct patient contact and clinical rotation.

**Summary of Work:** We have made a virtual part of a hospital in Second life (NTNU island) with patient room, meeting room, operating theatre etc. Medical and nursing students in groups of 4 to 6 practice roleplay both sitting apart with only a PC and sitting together using 3D/virtual googles.

**Summary of Results:** Students reported that they found the virtual reality to mirror real life and all agreed that they had learned about the necessity of clear and to the point communication. Several experienced nausea from using the googles over time.

**Discussion:** Some of the assets of virtual reality roleplay is the possibility for repetitions and that it can be used at any time, making it independent of scheduled teaching. The greatest challenge is to make realistic cases that mirrors what the student will meet e.g. on clinical rotation.

**Conclusion:** Using a geriatric case (spine fracture and confusion, long trajectory over weeks) and a gynecological case (extrauterine pregnancy, subacute trajectory over hours) made it possible to demonstrate the usefulness of virtual reality in practicing team communication along different stages of the whole patient trajectory.

**Take Home Messages:** Spending relative little resources on making the virtual reality set up in Second life, made it possible to give students experience of team communication through different patient trajectories. The challenge of introducing virtual reality is in making good cases.



## 10P Short Communication: Portfolios

Location: MR 123 – P1

#10P1 (127935)

Portfolio in Your Pocket

*Paul Duvall\*, University of Liverpool, Liverpool, UK*

**Background:** The Liverpool medical school introduced a new curriculum in 2014 and embedded an e-portfolio approach into the programme with the expectation that this would help to prepare undergraduate medical students for the lifelong requirement to gather evidence of reflective practice. The School also sought to use the system to monitor student progress more effectively and enhance the quality and quantity of feedback.

**Summary of Work:** Over the past two years the School has moved from a restrictive paper logbook approach to an e-portfolio model, accessible offline and online through mobile devices, allowing students to use the technology in their pocket to record their activities and experiences in any environment. This activity incorporates both the clinical and non-clinical elements of the course over four year cohorts containing approximately 1200 students and is supported by hundreds of internal and external staff, all using the e-portfolio system.

**Summary of Results:** Full scale evaluation of the e-portfolio and the new curriculum is currently underway but early indications show that the quality and quantity of student feedback has already improved across the programme. We have also seen an enhancement of many administrative processes and systems, such as academic advisor meetings and progression review.

**Discussion:** Each medical school attempts to educate in different ways but sharing our experiences could benefit national and international medical education. The key messages related to the implementation of an e-portfolio into a medical context will be presented in this short communication.

**Conclusion:** The introduction of an e-portfolio, as part of a wider Technology Enhanced Learning (TEL) strategy, into the undergraduate medical curriculum at Liverpool is significantly improving the student and staff experience.

**Take Home Messages:** The effective use of an e-portfolio can enhance medical education when the design and functionality of the system match the identified requirements.

#10P2 (134057)

Preparing students for lifelong reflective practice:  
designing an innovative digital portfolio

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Manchester, UK*

*Hilary Dexter (University of Manchester, Manchester,  
UK)*

**Background:** The personal and professional development (PPD) portfolio prepares undergraduate medical students for lifelong reflective practice. There is evidence that students are hampered by technical barriers surrounding digital portfolios and struggle to grasp their educational purpose and value. There is, therefore, a clear need to facilitate both the timely collection of evidence and reflection on learning in all the many forms and environments of medical education.

**Summary of Work:** The educational requirements for the portfolio were specified by the academic lead for PPD and coupled with feedback from experienced student users of a digital portfolio. A set of key features was identified which were developed, piloted and rolled out incrementally.

**Summary of Results:** The features identified as educationally sound and promoting student and tutor engagement relate to both structure and process: 1. Items in the portfolio are collections of evidence, reflection and student/tutor dialogue; 2. Tagging by multiple elements of the GMC's Good Medical Practice framework; and personal tags 3. Simple 'send to portfolio' from iPad apps 4. Easy authoring and editing environment 5. Bookmarking for further work and for discussion with tutor 6. Timeline to monitor engagement

**Discussion:** Preliminary analytics show a substantial increase in the volume of material in digital portfolios since the introduction of the new tool. Further evaluation is planned, including student and tutor perception of engagement and gathering further suggestions for improving the tool.

**Conclusion:** Collaborating with academic staff and students facilitated the identification of possible improvements to the digital portfolio. The features selected for development are reducing technical barriers and increasing staff and student engagement.

**Take Home Messages:** Student engagement with reflective learning can improve when supported by an innovative digital portfolio developed with an awareness of the problems and barriers they encounter.

#10P3 (134631)

**How do assessors evaluate students' performance based on a competency-based portfolio?**

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**Background:** Decisions concerning students' performance on different competence domains are increasingly based on evidence collected in the student's portfolio. However, no research has been done on assessors' interpretation of data collected in a portfolio. The present study aims to investigate the question: how do assessors arrive at judgments about a student's professional competence when reviewing complex assessment data in a competency-based portfolio?

**Summary of Work:** Eighteen experienced portfolio assessors were purposefully selected to assess a competency-based portfolio while taking part in a think-aloud method. Subsequently, assessors answered open-ended questions regarding the evaluation process. A thematic analysis of the think-aloud protocol and interview transcripts sought to explore how assessors construct a student evaluation based on evidence collected in a portfolio.

**Summary of Results:** Assessors' information processing involved cognitive operations of information acquisition, organization, and integration of information to form judgments. The length, sequence and content of these phases varied between assessors. Differences between assessment beliefs, assumptions and performance theories (e.g. information considered essential to have in order to develop an evaluation) resulted in discrepant evaluation processes and outcomes. Although assessors generally agreed on final decisions about students' performance, underpinnings (foundations) of their judgments and decisions differed widely.

**Discussion:** The results confirm the importance of narrative evaluations, to motivate assessors' judgments about students' competence. Furthermore, differences between assessors' justifications suggest that decisions about students' professional competence should not be made individually, but should be the result of group discussions.

**Conclusion:** The present study describes the differences and similarities between the decision making process of assessors based on data collected in a competency-based portfolio. Furthermore, key

factors that result in varying evaluations of a student's performance are identified.

**Take Home Messages:** Factors causing differences between assessors' evaluations of a student's competence must be taken into account when using competence-based portfolios to make decisions about a student's performance

#10P4 (134567)

**The undergraduate portfolio PULS: feedback driving self-reflection**

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Mirjam Schuler Barazzoni

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Raphael Bonvin

**Background:** Portfolios are increasingly used in medical education, in particular to stimulate and assess the students' reflection on their learning process. It is generally accepted that the pedagogical success of a portfolio depends on the precise definition of its objectives and on the quality of its curricular integration. The medical school of the University of Lausanne is currently integrating a learning portfolio into its undergraduate clinical skills education program.

**Summary of Work:** We have defined two main aims: to provide students the necessary tools to track their progress towards the learning objectives defined by the national catalogue for undergraduate studies, and to support their development towards becoming reflective practitioners. With a limited time dedicated to clinical skills education, our overall goal is to maximize its impact on students' progress by structuring their learning with a longitudinal portfolio extending throughout the 4 years of undergraduate skills training, accompanied by an appropriate mentoring program.

**Summary of Results:** To foster the process of reflective practice among both students and mentors, we base our approach on an extended model of the reflective learning cycle, which explicitly integrates feedback. This model requires students to actively participate in the reflective process by seeking external feedback, comparing it to their internal feedback (auto-evaluation) and subsequently applying the newly developed knowledge to related situations.

**Discussion:** The introduction of this model of reflective practice will require a substantial change in the local feedback culture at the level of both students and teachers, and imposes functional requirements on an e-portfolio tool that can efficiently support this process.

**Conclusion:** We will present our conceptual model and discuss the implications it has for the pedagogical and technical implementation of the portfolio within our clinical skills education program.

**Take Home Messages:** Taken together, we propose a pedagogical approach that focuses on internal and

external feedback to drive self-reflection within a learning portfolio.

#### #10P5 (132240)

##### Portfolio as assessment of the PhD (Doctoral) Program

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María Marcela Bottinelli, *Institute of Health Sciences H.*

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**Background:** Barcelo Medical School, Buenos Aires, Argentina, started its PhD Program in April 2008.

**Summary of Work:** It is about the portfolio as assessment of the PhD Program, implementation and results.

**Summary of Results:** Experience of seven years using portfolio as assessment of the PhD (Doctoral) Program. We assess the five subjects of the PhD Program using the portfolio technique. We think that portfolio is a quite innovation for both teachers and learners. The results of our work were encouraged as a method for assessment of academic information and reflected thinking of the students. Learners must enjoy a certain amount of freedom to be able to produce their portfolios. The role of the mentor/teacher is that of a kind of advisor and coach to the learners.

**Discussion:** We started the Program assessing students with the oral and written classical examination. After a couple of years of this experience we thought in the necessity of change of educational plan starting with the portfolio assessment. In this way we can evaluate the student's knowledge, curriculum and teachers. We prefer and adapt the portfolio as a technique.

**Conclusion:** After seven years with portfolio we think that it's an excellent method to assess knowledge and capacity of reflection of the learners and to show strengths and weaknesses of our teaching program. As a result, changes in the PhD Program become necessary sometimes.

**Take Home Messages:** We hope with this work the teachers will be enthusiastic to use portfolio as an outstanding assessment of their teaching.

#### #10P6 (134014)

##### "What if we remove the final exam?!" – Building collaborative knowledge artifacts and assessing portfolios for interprofessional learning

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Johanna Lindeberg, *Department of Medical and Health Sciences, Linköping University, Sweden*

Mattias Ekstedt, *Department of Medical and Health Sciences, Linköping University, Sweden*

**Background:** A three module interprofessional educational (IPE) setup using Problem Based Learning (PBL), has developed over the years at LiU, driven by changes in health care practice. Two master students investigated group supervisors perceptions on portfolio assessment and students perceptions on learning in a collaborative Wiki environment in the first IPE module, with the aim to further understand the creation and assessment of Wiki knowledge artifacts. Research indicates that Wiki enables collaborative learning and portfolio can be used both for formative and summative assessment.

**Summary of Work:** Students write individual briefs and learning reflections and create a Wiki together. These documents/artifacts form the portfolio. Students creation and gathering of portfolio artifacts is ongoing. The shift from a traditional written examination to portfolio assessment will be made later 2016. Semi structured interviews were conducted to capture perceptions about portfolio assessment and Wiki construction.

**Summary of Results:** Preliminary results indicate that students perceive the material to be well known before studying to the final exam. They also express a progression of learning through peer assessment seminars and group support. Teachers bring forth formative/summative assessment, the constructive alignment and the role of portfolio assessment in relation to having or not having a final exam.

**Discussion:** Both projects encountered the issue of today's final exam. As the focus of students learning and the tool for teachers' knowledge assessment, it is in conflict with the formative nature of portfolio assessment. Removing the final exam could bring release to this conflicting focuses for both students and group supervisors.

**Conclusion:** Our findings indicate that portfolio artifacts drives learning towards a relevant and deep understanding and serves as a basis for adequate assessment.

**Take Home Messages:** Collaborative Wiki construction and portfolio assessment releases the conflicting focuses of formative learning and assessment and learning towards the final exam.

#10P7 (134013)

**Embedding Diversity into Assessment - is it just too difficult?**

**Margot Turner\***, *St Georges University of London, London, UK*

**Background:** The GMC recommends the inclusion of diversity issues in assessment, but medical educators are still struggling to assess diversity in the undergraduate medical curriculum. Some literature suggests there is reluctance to develop assessment in this area because there is a belief that questions or scenarios are difficult to formulate and may be reductionist. In contrast, others suggest scenarios could be too complex and difficult to achieve in a short simulated consultation.

**Summary of Work:** This presentation will briefly outline how we have embedded diversity into our MBBS curriculum and particularly how we have assessed this subject. The importance of ensuring that diversity is considered at every stage of assessment will be highlighted. The use of two different types of assessment will be discussed: end of year summative OSCEs and formative, but compulsory, reflective portfolios.

**Summary of Results:** Both qualitative and quantitative data will be presented to show how these forms of assessment were implemented, how students coped with a range of scenarios and what issues arose examining students both in the UK and in international settings. Feedback from examiners and external examiners will also be considered, alongside examples of reflection.

**Discussion:** It is important to have both formative and summative assessment. OSCE assessment allows behaviours to be assessed, which could impact patient care. Portfolio assessment allows discussion in small groups about the diversity issues arising in practice. Some of the data suggests the importance of ongoing training for examiners and role players. Students clearly find the OSCE stations challenging, which highlights the need for further training.

**Conclusion:** Assessment of diversity issues is challenging and resource intensive. However it is important to use different types of assessment to gauge the influence training has on communication and to facilitate ongoing reflection in practice.

**Take Home Messages:** In order to evaluate the impact of diversity teaching we must assess our students.



## 10Q Short Communication: Professionalism

Location: MR 124 – P1

#10Q1 (135292)

**Are some doctors more complaint or discipline prone than others? A quantitative review of complaints received by the Medical Council (Ireland) 2008-2012**

*Simon O'Hare\*, Medical Council (Ireland), Dublin, Ireland*

**Background:** In 2015 the Irish Medical Council (the regulator of doctors in Ireland) systematically reviewed complaints it received about doctors' practices (from 2008 to 2012) to help inform its role of investigating concerns about doctors' fitness to practise and developing guidance on good professional practice for doctors.

**Summary of Work:** Basic information from each complaint was extracted from the Council's complaints handling database (e.g. whether the complaint was referred for a full investigation or not, if there was a finding made against the doctor, which sanction was recommended). This information was merged with registration data held about doctors to explore if doctor characteristics could be said to be associated with higher chances of being complained about, being referred for a full investigation, or, receiving a higher impact sanction.

**Summary of Results:** Male doctors, older doctors (aged 56-65), doctors who qualified in Ireland, and doctors with Specialist registration were significantly more likely than other doctors to be complained about. The odds of having a complaint being referred for a full investigation were significantly higher for male doctors, doctors aged between 20-45 and over 65, doctors who qualified outside Ireland, and doctors who held general or trainee registration. When a finding was made against a doctor, doctors in the 46-55 and 56-64 age ranges, doctors who qualified outside Ireland and those without specialist qualifications were significantly more likely than others to receive a high impact sanction on their registration. Complaints made by members of the public were more likely to involve specialists and doctors who qualified in Ireland than complaints made by employers and healthcare professionals.

**Discussion:** Although doctor characteristics being associated with different outcomes of fitness to practise investigations by medical regulators is a not new phenomena, with data from the UK and Australia showing similar patterns, having these findings replicated in Ireland shaped many Medical Council functions including investigating fitness to practice concerns, providing guidance for doctors' conduct and ethics, and quality assuring doctors education, training and lifelong learning.

**Conclusion:** Why are some doctors more complaint prone and discipline prone than others?

**Take Home Messages:** Why are some doctors more complaint prone and discipline prone than others?

#10Q2 (136120)

**Shifting our gaze in professionalism: from individuals to communities of practice and culture**

*Nazia Viceer\*, Cumming School of Medicine, Calgary, Canada*

*Janet de Groot*

*Lara Nixon*

*Amanda Roze des Ordon*

*Tom Rosenal*

**Background:** A culture of respect and professionalism has been endorsed by faculty members, staff and students at our medical school as important to their success. Our newly formed professionalism network chose appreciative inquiry (AI) methodology to intentionally support such a culture. Another medical school reported that implementation of the AI method to promote relationship centred medical care, found improvement in a measure of culture medical student satisfaction.

**Summary of Work:** Professionalism network members (faculty members, staff students, public and external medical organization members), organized into working groups representing celebration and awareness, education, scholarship and consultation. Projects build on current strengths and discovery of opportunities. Examples include adapting the Emory humanism and professionalism faculty development series to our context for excellent clinical educators across medical disciplines. Organizers and participants became a community of practice to convey and educate for humanism and professionalism in clinical learning environments. The course will continue annually and some graduates are planning a similar course adapted for postgraduate trainees. Additional communities of practice are engaged in peer-reviewed, funded research projects; curriculum mapping; consultation and celebration.

**Summary of Results:** Several communities of practice in professionalism education, scholarship, celebration and consultation have developed within two academic years, with department heads' support of faculty members' time contributions.

**Discussion:** Establishing an educational and scholarly hub provides opportunities to deepen our understanding of professionalism and to support professional identity formation and maintenance. It also attracts students and faculty leaders beginning professionalism projects.

**Conclusion:** Growth in numbers of and intersections between communities of practice in celebration, consultation, education and scholarship with a shared purpose of an appreciative professionalism culture has the potential to contribute to culture shift. Additional measures of culture must be identified.

**Take Home Messages:** Communities of practice based on appreciative inquiry in professionalism education, research and celebration intersect to contribute to a culture of respect and professionalism and support professional identity.

#10Q3 (132462)

**Making professionalism a reality: Students need to have an early authentic involvement in patient care**

*Bianca Schuh\*, Medical University of Vienna, Vienna, Austria*

*Christoph Gisinger*

*David Taylor*

*Antia Rieder*

**Background:** At the Medical University of Vienna we run a compulsory first year course to foster professional attitudes towards patients and members of the interprofessional healthcare team. The research question is whether the course design and its implementation enables students to attain the intended learning outcomes.

**Summary of Work:** A student survey and two qualitative studies were conducted. The latter comprised analyses of students' reflection reports using qualitative content analysis (Mayring 2010). Furthermore, feedback from educational experts concerning the course design was obtained. All data were synthesized to conduct a reflective self-evaluation (Rossi et al. 2004), addressing needs assessment, conceptualization and design, implementation, and outcomes.

**Summary of Results:** The students stated that the intended outcomes were attained. Moreover, based on students' reflection reports, there was a clear enhancement of their positive attitudes towards patients and towards members of the interprofessional healthcare team (in 93 % and 65% of the reports analysed respectively). Moreover, the students reported that they had gained experience in interacting with patients, and recognized important factors for successful interaction. The module's design and implementation is useful and mainly enables the students to achieve the learning outcomes. However, students only visit the patients and they are not allowed to do any nursing or medical activities.

**Discussion:** Possible limitations will be discussed, e.g. the non-research-led purpose of the analysed reports.

**Conclusion:** The results show that the course fosters professionalism through early experience in an authentic setting. Although the course mainly facilitates the development of professional attitudes, the placement could be shaped in a more authentic way by expanding the range of tasks.

**Take Home Messages:** Students need to be effectively involved in the process of patient care. They need to have authentic tasks from the beginning of their studies. This is the best way to foster professional attitudes.

#10Q4 (133167)

**Professionalism outcomes: differences between school leavers and graduate medical students**

*Nicoletta Fossati\*, St George's University of London, London, UK, London, UK*

*Judith Ibison (St George's University of London, London, UK)*

*Mohamed Morsy (St George's University Hospitals, London, UK)*

**Background:** Professionalism teaching and assessment are now an integral part of the medical curriculum. In 2007 St George's University of London added an academic route to the Doctor as a Professional (DaP) domain to longitudinally assess students on professional behaviour in the workplace. In this study we looked at whether there were any significant differences between school leavers and graduate students in the incidence of unprofessional behaviour episodes.

**Summary of Work:** 143 school leavers (MBBS5) and 114 graduate students (MBBS4) from the 2009-10 cohort were included. Episodes of unprofessional behaviour were extracted from the administrative database. Statistical analysis was performed using the chi-square test.

**Summary of Results:** In the DaP domain 37.1% (53/143) of MBBS 5 students were flagged up, 5.6% (8/143) as single episodes and 31.5% (45/143) as multiple episodes, respectively. 24.6% (28/114) of MBBS4 students, spread equally between single or multiple episodes (12.3%, 14/114) were flagged up. There was a significant difference between school leavers and graduates in the numbers of single ( $p < 0.001$ ), multiple ( $p < 0.001$ ) and cumulative ( $p < 0.05$ ) episodes. However, there was no significant difference between the two cohorts in the number of times they were seen by staff, fitness to practise procedures or expulsion.

**Discussion:** More school leavers than graduate students were flagged for unprofessional behaviour. Reasons for this may include lack of previous experience of higher education and/or coping strategies. However, the incidence of more serious events did not seem to be affected.

**Conclusion:** Although school leavers were flagged for significantly more episodes of unprofessional behaviour than graduate students there was no significant difference between the two subgroups in terms of serious procedures, such as fitness to practise panel or expulsion. Support to hone study skills and coping strategies may be required.

**Take Home Messages:** Incidence of serious breaches in professional behaviour does not seem to differ between school leavers and graduate medical students.

#10Q5 (136129)

**Digital Natives: Teaching and Learning Medical Professionalism**

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Stefanie Arreguin, Tecnológico de Monterrey School of Medicine, Monterrey, Mexico

Irving Rodriguez, Tecnológico de Monterrey School of Medicine, Monterrey, Mexico

Ana Lucia Soria, Tecnológico de Monterrey School of Medicine, Monterrey, Mexico

Maria Jose Montes, Tecnológico de Monterrey School of Medicine, Monterrey, Mexico

**Background:** Teaching and learning professionalism face a particular challenge in this era of “digital natives”. The purpose of this article is to describe our experience using interactive teaching methods for medical professionalism in our Bioethics courses.

**Summary of Work:** The Tecnológico de Monterrey School of Medicine curriculum and Professionalism Program comprehend 2 Bioethics courses mandatory for all students during clinical clerkships. Content is oriented to promote reflection and self-awareness as an axis in the process of ethical decision-making through the assimilation of basic knowledge of moral philosophy, professionalism and medical ethics. The courses Bioethics and Clinical Bioethics are taught in two clinical rotations with a 2-hour session once a week for twelve weeks.

**Summary of Results:** In order to improve the courses and reach our digital native students different course activities were included: interactive online education platforms (Socrative, Nearpod, TEDLessons & Blackboard), online resources from medical associations (AAMC, AMEE, ACOG, Royal College, Jefferson Medical College Professionalism in Medicine), other online and multimedia resources (SurveyMonkey, YouTube, Netflix), as well as high-fidelity simulation cases of ethical dilemmas.

**Discussion:** This approach has been effective not only to review the contents of each session, but also to promote teaching medical professionalism through problem based learning, medical humanities, narrative writing, case based discussion, role-playing exercises, and deliberation.

**Conclusion:** The use of interactive platforms has allowed us to address differently with the digital native students the experience of teaching and learning professionalism. They showed a major interest in the courses because they found them innovative. The limitation is that students, paradoxically, sometimes had difficulty adapting to the different interactive platforms.

**Take Home Messages:** Integrating innovative interactive teaching tools may promote a greater interest for digital natives in the courses related to professionalism. It requires a cultural change in teaching environments to design, implement and assess its impact, and faculty development to promote its use.

#10Q6 (132842)

**Developing Self Learning Modules (SLM) for Professionalism Teaching in Medical School Clerkship**

**Anna Byszewski\***, University of Ottawa, Ottawa, Canada

Derek Petit (University of Ottawa, Canada)

Heather Lochnan (Department of Medicine, Faculty of Medicine, University of Ottawa, Canada)

Melissa Forgie (Department of Medicine, Faculty of Medicine, University of Ottawa, Canada)

Andre Bilodeau (Faculty of Medicine, University of Ottawa, Canada)

Emma Stodel (Excellence 4 education, Ottawa, Canada)

**Background:** Survey of all Canadian medical schools conducted in 2007 and again in 2012 confirmed, that apart from informal role modeling during clinical duties, that most schools do not have formal instruction in professionalism during clerkship. Much of the professionalism curriculum is taught by informal role modeling. Students in clerkship are often dispersed geographically leading to difficulties in delivering a structured activity face to face.

**Summary of Work:** Based on a student needs assessment and results of the Canadian Graduation Questionnaire, objectives were developed for professionalism content of four on line Self Learning modules (SLM), to complement current objectives for the formal curriculum in the pre-clerkship phase.

**Summary of Results:** Four mandatory on-line SLM were developed and implemented, each with a specific theme and objectives: 1) Mistreatment and Disruptive Behavior in the Learning Environment 2) Communication 3) Ethics/Consent Issues and 4) Boundary Issues. Each SLM (approximately 1 hour in duration) consists of a pretest and post test, as well as several cases relevant to the theme and links to resources and pertinent policies. Topics covered, sample case scenarios, results of student feedback sought after each module as well as rate of success on post test will be presented.

**Discussion:** A formalized professionalism curriculum with explicit messages can promote students to develop attributes necessary in developing professional identity in the clinical milieu.

**Conclusion:** This framework for self study can assist other schools in ensuring that professionalism attributes are emphasized during clerkship, thus supporting navigation of challenging professionalism circumstances that they may encounter in clinical circumstances.

**Take Home Messages:** During clinical years of study medical students can benefit from strategies to enhance the professionalism curriculum and an opportunity to work through theoretical scenarios supported by relevant policies.

## #10R Conference Workshop: How can we promote cultural diversity in medical education research? (133819)

Location: MR 125 – P1

**Hiroshi Nishigori\***, Kyoto University, Kyoto, Japan

**Dujeepa Samarasekera**, National University of

Singapore, Singapore, Singapore

**Gominda Ponnampetuma\***, University of Colombo, Colombo, Sri Lanka

**Danai Wangsaturaka\***, Chulalongkorn University, Bangkok, Thailand

**Ming Jung Ho\***, National Taiwan University College of Medicine, Taipei, Taiwan

**Lambert Schuwirth\***, Flinders University, Adelaide, Australia

**Background:** During the past, many of the research papers that have been published in medical education have originated from western countries. As educational research reflects cultural and ideological values in each context, more research from diverse contexts or cross-cultural research is warranted.

**Structure of Workshop:** The workshop will focus on how we conduct medical education research with cross-cultural perspective. In the first part, facilitators from Asia-Pacific region –including Japan, Singapore, Sri Lanka, Taiwan, Australia and Thailand – will present the cultural challenges they face (including language barrier) when they conduct research in medical education. By sharing experiences mainly from Asia Pacific countries, we will discuss how we should utilize the strength of diverse cultural values. In the second part, participants will in small groups discuss their challenges and possible solutions in conducting research in medical education with cross-cultural perspective, like international collaborative research. Plenary discussion will be followed to discuss how we will promote cultural diversity in medical education research.

**Intended Outcome:** Participants will have wider perspectives and deeper insights in terms of cultural diversity when researching in medical education

**Who Should Attend:** Medical education researchers who are interested in cultural diversity, both from western and non-western countries

**Workshop Level:** Intermediate

## #10S Conference Workshop: Continuing Medical Education: Innovative Approaches to Putting Theory into Practice for Curriculum Development (134070)

Location: MR 127 – P1

**TJ Jirasevijinda\***, Weill Cornell Medical College, NYC, USA

**Reena Karani\***, Icahn School of Medicine at Mount Sinai, NYC, USA

**Monica Lypson\***, University of Michigan Medical School, Ann Arbor, USA

**David Thomas\***, Icahn School of Medicine at Mount Sinai, New York, USA

**Background:** Medical educators are frequently called upon to develop new continuing medical education curricula yet few have received 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 practice.

**Structure of Workshop:** We will use a variety of instructional methods including small group practice, facilitated discussions and large group presentation during this workshop.

**Intended Outcome:** By the end of the session, participants will 1) become familiar with the fundamental theories of how practicing physicians learn, 2) gain practical skills in instructional design related to continuing education program development, 3) practice developing a model curriculum using the step-wise approach and 4) develop an outcomes framework for their curriculum related to actual clinical performance .

**Who Should Attend:** This interactive workshop is designed for an international audience of educators interested in mastering the skills necessary to design innovative continuing professional development programs.

**Workshop Level:** Intermediate



**#10T Conference Workshop:  
Understanding the World Federation for  
Medical Education (WFME) criteria for  
recognising agencies that accredit  
medical schools (133765)**

Location: M 211 + 212 – M2

**David Gordon\***, World Federation for Medical Education (WFME), Ferney-Voltaire, France

**John Norcini\***, Foundation for Advancement of International Medical Education and Research (FAIMER), Philadelphia, USA

**Martavan Zanten\***, Foundation for Advancement of International Medical Education and Research (FAIMER), Philadelphia, USA

**Background:** Accreditation of basic medical education evaluates and ensures the quality of medical education programmes and encourages their improvement. Nonetheless, accreditation practices vary considerably worldwide. Consequently, the World Federation for Medical Education (WFME) has developed and implemented a global programme of recognition designed for agencies that accredit medical schools. The WFME recognition process uses published criteria to evaluate these agencies. The purpose of this workshop is to provide an overview of the WFME Recognition Programme and an in-depth understanding of the WFME recognition criteria.

**Structure of Workshop:** The workshop will start with an overview of the WFME programme for recognising accrediting agencies and a summary of the steps to be taken by agencies seeking recognition. This will be followed by group activities aimed at increasing participants' understanding of the specific WFME recognition criteria, including the reasons why these components are important for accrediting agencies to incorporate in their systems. Associated challenges and how an agency can move towards fulfillment of the elements will also be addressed. The workshop will conclude with a general discussion of the important themes that have emerged.

**Intended Outcome:** The goal of the WFME Recognition Programme is to enhance the quality of accreditation systems, which will improve medical education and health care worldwide. At the conclusion of this workshop, participants will have gained a greater understanding of the WFME Recognition Programme 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.

**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.

**Workshop Level:** All levels

**#10V Conference Workshop:  
Migrating face-to-face courses to e-  
learning formats: A hands-on  
introduction to building e-learning  
elements (131790)**

Location: MR 130 – P1

**Lauren Maggio\***, Uniformed Services University of the Health Sciences, Bethesda, USA

**Anthony Artino, Jr.\***, Uniformed Services University, Bethesda, USA

**Steven Durning\***, Uniformed Services University of the Health Sciences, Bethesda, USA

**Dario Torre\***, Uniformed Services University of the Health Sciences, Bethesda, USA

**Background:** Across the medical education continuum, educators are being asked to migrate in-person or face-to-face (F2F) courses to e-learning formats. As more faculty are called to transition courses, the need for training and development grows. Migrating a F2F course is not just about transferring content and lectures into a digital format, rather it is about transforming a course to leverage the affordances provided by e-learning. Therefore, the purpose of this workshop is to: 1. Compare and contrast the key elements of F2F learning and e-learning; 2. Provide participants opportunities to interact with case-based examples and brainstorm with colleagues about practical instructional strategies for implementing e-learning in their own practice and institutions.

**Structure of Workshop:** To begin, instructors will describe e-learning benefits and key instructional elements, including learner/teacher roles; instructional materials; and assessment. Instructors will focus on how these elements differ between F2F and e-learning modalities. Next, participants will divide into small groups to identify key elements of e-learning based on a provided case or example from their practice. Together participants will use a structured worksheet to strategize how to incorporate these elements to plan an online course. Participants will then report to the large group. The workshop will conclude with a facilitated discussion in which participants share solutions to local implementation challenges while identifying potential collaborations and research opportunities.

**Intended Outcome:** In this 1.75 hour workshop, participants will be able to 1) differentiate the instructional elements of online vs F2F instruction; 2) plan an online unit of instruction that can be implemented at their home institution; and 3) connect with and learn from colleagues faced with similar issues

**Who Should Attend:** Instructors, curriculum designers, educational technologists

**Workshop Level:** Introductory

## #10W Conference Workshop: Supporting the Educator - the new NACT UK guidelines (136396)

Location: MR 131 – P1

*Liz Spencer\**, NACT, Central Milton Keynes, 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.

**Structure of Workshop:** The new NACT UK guidelines will be shared with those attending and applied in small groups to some scenarios. It is hoped that these guidelines will be introduced into faculty development programmes.

**Intended Outcome:** To enhance the understanding of how faculty and hospitals can support educators who find themselves in trouble.

**Who Should Attend:** This is relevant for all educational leaders, medical trainers and those involved in faculty development. The context will be postgraduate but the principles would be relevant to those involved in undergraduate education.

**Workshop Level:** All levels

## #10X Conference Workshop: Written feedback on assessment: making it effective for learning (133353)

Location: MR 132 – P1

*Sandra Kemp\**, Nanyang Technological University, Singapore, Singapore

*Katharine Boursicot\**, Health Professional Assessment Consultancy, Singapore, Singapore

**Background:** Providing effective feedback to students on assessment tasks is an important skill for all educators. The purpose of this workshop is for participants to understand how different circumstances, timing and characteristics contribute to the effectiveness of feedback. A key focus of the workshop is on how to ensure that written qualitative feedback on assessment such as OSCEs, Workplace Based Assessment activities and reflective writing assignments will have a positive influence on student learning.

**Structure of Workshop:** This highly interactive workshop will begin with a short interactive lecture, followed by small group activities. Activities in the last section of the workshop will alternate between small-group discussion and large-group discussion.

**Intended Outcome:** By the end of the workshop, participants will be able to: 1) Understand key academic work (both theoretical and empirical) related to feedback. 2) Consider the consequences of different types of feedback on student learning. 3) Understand techniques of effective written feedback in different assessment contexts.

**Who Should Attend:** Educators involved in assessment, program leads overseeing formative and summative assessment

**Workshop Level:** Intermediate

## #10Y Conference Workshop: Translating research findings from higher education research (133610)

Location: MR 133 – P1

*Klara Bolander Laksov\**, Karolinska Institutet,  
Stockholm, Sweden  
*Yvonne Steinert\**, McGill University, Montreal, Canada

**Background:** Research in medical education has grown exponentially during the last two decades. The research produced in the field, as witnessed in an increasing number of medical education journals, provides a base for how to develop the practice of medical education. Still, no field of research can develop in isolation from other disciplines, and although we have observed increased theoretical rigour and inspiration from disciplines such as sociology and social anthropology in the last few years, medical education seems to often work in isolation from the research field of higher education. Higher Education research is a field of research, which is interdisciplinary and explored in a breadth of journals focusing on policy, management, assessment, learning, academic development, quality of teaching, and evaluation. (Tight, 2008). Although biomedical scientists may find the publications in Higher Education journals sometimes wordy and not written in the same way as they are used to (Albert et al 2008), we believe there is great value in being aware of, and dialoguing with, research from the higher education field.

**Structure of Workshop:** 1. The workshop starts with a short introduction to four concepts (30 mins) 2. Participants will work in groups of four to translate the concepts into their own teaching practice (20 mins) 3. New groups are formed, where each group work with ONE single concept, sharing their ideas and exploring the concept from the two perspectives of a) barriers and b) benefits. (20 mins) 4. Each 'one-concept' group reports on a flip chart sheet their findings on the concept they worked on and this is discussed in the full group. (20 mins)

**Intended Outcome:** By attending this workshop, participants will deepen their understanding of four higher education concepts and engaged in the process of translating these into medical education

**Who Should Attend:** Faculty developers and medical teachers. Anyone interested in what happens in other fields than medical education, and how it can benefit their own teaching/ research in medical education

**Workshop Level:** Intermediate

## #10Z Conference Workshop: Design, Practice and Assessment of Experiential Learning for Health Professions Education based on contextual needs and settings (135276)

Location: MR 134 – P1

*Vishna Devi V Nadarajah\**, International Medical  
University, Kuala Lumpur, Malaysia  
*Norul Hidayah Mamat\**, International Medical  
University, Kuala Lumpur, Malaysia  
*Stefan Kutzsche\**, International Medical University,  
Kuala Lumpur, Malaysia

**Background:** The transition to qualified health professionals relies progressively on participation and experiential learning. This learner-centered approach emphasizes direct engagement, rich learning events and the construction of meaning by learners. The concept is relevant to students' own future careers and becomes effective if it is applied innovatively to different stages of education; from early workplace exposure and experience, clerkships, and residency and beyond. Designing a successful experiential learning intervention must be accounted for both context and potential for participation, justifying costs and decision making. This workshop offers practical clues and training that can point a possible way towards curriculum improvements.

**Structure of Workshop:** At our experiential learning workshop, we discuss how health professions educators can use this learning experience to deliver learning outcomes related to basic medical sciences to clinical and pharmaceutical sciences. Our experience at practicing experiential learning at the International Medical University will provide a case study of how strategic planning can add clarity to the roles of teachers, students and other stakeholders in experiential learning, promote interprofessional partnerships between programmes (medicine, dentistry, pharmacy etc) with tips and tools to tackle challenges faced during implementation. The workshop will also engage participants by introducing simple assessment and evaluation methods (these include e-learning and self-assessment tools) for experiential learning. Participants will also be asked to reflect on implementing experiential learning with other student learning activities within the curriculum. Through this workshop participants will be able to develop and share ideas for utilisation in their own settings.

**Intended Outcome:** Participants are able to i. Strategically design, practice and innovate for experiential learning in their own settings and needs ii. Develop an assessment and evaluation process for experiential learning

**Who Should Attend:** The workshop relates to AMEE 2016 theme of innovating in education as it creates an opportunity for stakeholder engagement in health professionals' education and emphasises patient

centred education in the training of future health professionals. Hence participants include educators, health professionals, students, patient support and community leaders.

**Workshop Level:** Intermediate

### #10AA Conference Workshop: Making sense of our mistakes: Exploring interpretative, narrative based pedagogy for professional identity development (135791)

**Location:** M 215 + 216 – M2

**Kirsten Dalrymple\***, Department of Surgery and Cancer, Imperial College, London, UK

**David Alderson\***, Torbay Hospital, Torbay and South Devon NHS Foundation Trust, Torquay, UK

**Background:** Medical professionalism is a complex, shifting and socially-derived construct, heavily influenced by the context in which professionals work. Educational efforts should attempt to draw on this complexity, its actors and their interactions with greater emphasis. Humanities-based approaches are able to portray the vivid and complex dilemmas of real practice, readily incorporating social, emotional, ethical and political dimensions of professional identity. However, educators should be cognizant of the psychological vulnerability such personal explorations can create. Careful consideration of the underpinning pedagogy is needed to promote interpersonal growth of meaning while maintaining safety. Narrative Pedagogy, a form of interpretive pedagogy, represents one approach for using stories as a source for learning. Co-created understanding is achieved through consideration of multiple perspectives while attending to the psychological safety of participants (Ironsides, 2005). We aim for workshop participants to experience examples of this approach to stimulate dialogue about its place in professional identity formation. We will focus on a full-length stage play (True Cut). This hybrid verbatim theatre, based on phenomenological research by one of the authors, follows clinicians and a patient as they seek to make sense of a serious clinical error.

**Structure of Workshop:** Participants' shared stories will sustain initial discussion of the nature of Narrative Pedagogy. Scenes from True Cut, video, audio and participatory reading, will underpin an interactive exploration of its potential.

**Intended Outcome:** 1. Experience hybrid verbatim theatre; reflect on its impact and validity as a source for learning 2. Explore the basis, uses and limitations of narrative pedagogy for professional identity development 3. Consider how it could enhance existing educational practices

**Who Should Attend:** Those with an interest in exploring the use of stories to support professional identity development

**Workshop Level:** Intermediate

### #10BB Conference Workshop: Stories in Medicine ARE Medicine! A Healthcare StorySLAM Workshop (136020)

**Location:** M 211 + 212 – M2

**Bryn Baxendale\***, Nottingham University Hospitals NHS Trust, Nottingham, UK

**Susan Kennedy\***, Health Education England, London, UK

**John Tegzes\***, Western University of Health Sciences, Los Angeles, USA

**Alan Ryan\***, Health Education England, London, UK

**Background:** Storytelling is an ancient art. The Moth started in 1997 as a curated storytelling event that celebrates the raconteur or storytelling novice who has lived through something extraordinary and yearns to share it. From these origins the 'storySLAM' open floor events have become a hugely popular format of first person storytelling with an emphasis on authenticity, vulnerability and confession. StorySLAMS cover the range of human experience; each story must be true and the authenticity of the voice can offer enlightenment and inspiration by offering new perspectives and even ways to overcome challenges. Whilst patient stories are established as both therapeutic and to support education of healthcare professionals, storySLAMS might be a method to enhance personal reflection for healthcare professionals as well as promote peer learning from personal experiences.

**Structure of Workshop:** This workshop will expose participants to the storySLAM experience and consider its potential benefit for healthcare professionals. • What is a storySLAM? The Moth origins will be referenced • An authentic voice telling their story by way of demonstration • Facilitated group working on 'what makes a good story?' • Exploration of the different elements of communicating a story • How could the emotional experience affect the audience and what they learn, how might this vary? • Logistics of organising a healthcare education storySLAM • Personal and/or group preparation of a story • Finale - the storySLAM performance!

**Intended Outcome:** 1. Participants will understand the principles of storySLAMS and their application in a healthcare education setting 2. Participants will be able to describe or tell a story that can impact meaningfully on an audience 3. Participants will consider how this experience might enhance personal reflection and promote shared learning

**Who Should Attend:** Anyone in healthcare education who wishes to explore the value and use of authentic storytelling by healthcare professionals for their peers. Participants will be encouraged to explore their own 'stories' and work at crafting a story for sharing.

**Workshop Level:** Introductory



## 10CC Posters: Leadership/ Management

Location:

#10CCo1 (131766)

**How are leadership skills currently developed in UK undergraduate medical students?**

**Gwyneth Jansen\***, *Queen Mary University of London, London, UK*

*Dane Goodsman (Queen Mary University of London, London, UK)*

**Background:** Modern doctors are now not only expected to have exemplary levels of medical knowledge but also must develop other skills such as leadership. For example, Tomorrow's Doctors and the Medical Leadership Competency Framework both highlight the importance of leadership and give suggestions for its implementation into undergraduate curricula.

**Summary of Work:** This study examines what medical students understand of leadership and leadership development; i.e. whether it happens, if it has how it occurs, and also explores their understanding of leadership as a concept - plus their view of its importance.

**Summary of Results:** Data shows which factors are influential in shaping leadership skills and understandings in undergraduate education including medical school curriculum, extracurricular activities and external leadership development programmes.

**Discussion:** Through tracking leadership development; its potentials and changes over time can be determined in medical students. This data will be mapped to the Medical Leadership Competency Framework.

**Conclusion:** This data contributes directly to how we can evaluate current leadership development for medical students - toward informing future leadership education at undergraduate level.

**Take Home Messages:** We need careful examination of how leadership development is created for undergraduate medical students.

#10CCo2 (133651)

**Clinical Leadership Training Programme - an evaluation of the Welsh experience**

**Suzanne Phillips\***, *Cardiff University, Cardiff, UK*

*Alison Bullock*

**Background:** To develop future medical and dental leaders, the Wales Deanery set up the Clinical Leadership Fellowship programme in 2013. It is open to doctors and dentists undertaking core higher trainin. During the 12-month programme, trainees undertake a project within a host organisation and attend structured leadership training provided by Academi Wales.

**Summary of Work:** We undertook a qualitative, formative evaluation of the first two years of the programme (four Fellows each year). Data gathering was guided by Kirkpatrick's model of programme evaluation. Our objectives related to motives and expectations, project progress, reflections on learning, the programme's impact and how it could be improved. We collected data from observation of training sessions, four focus gruops and 12 one-to-one interviews with Fellows at the beginning, middle and end of each year; an telephone interviews with each Fellows' nominated supervisor (n=8).

**Summary of Results:** Programme success was facilitated by: workplace introductions; regular contact with supervisors; feeling valued; a flexible approach to the projects; peer support; and Academi Wales training. Of particular value were the action learning sets which provided Fellows with a network of leaders. Challenges to the programme included: funding issues which constrained project progress; varied levels of organisational support and supervision; and a reduction in earnings.

**Discussion:** Fellows benefitted from a well-balanced programme of theoretical and practical aspects of leadership and management, and real projects which provided insight into NHS Wales and Health Board structures.

**Conclusion:** Fellows' expectations of developing leadership and management skills were met. Akin to the Darzi fellowship scheme, the programme in Wales had a significant impact on Fellows who experienced a 'mind shift'.

**Take Home Messages:** The Fellowship programme enables participants to develop skills required for future leadership roles.

#10CC03 (134332)

**Medical leadership and clinician managers – time to develop medical students into our future leaders?**

*Eleanor Burleigh\*, University of Sheffield, Sheffield, UK*

*Chloe Hobbs*

*Nadir Osman*

*Hena Begum*

*Saiful Miah*

**Background:** There has been a recent push to steer more clinicians into managerial roles within the U.K National Health Service. The Medical Leadership Competency Framework (MLCF) outlines the leadership competencies required by doctors, dentists and medical students in order to fulfil their role. This project seeks to determine the attitudes and opinions of final-year medical students regarding leadership and clinician managers namely; importance, level of interest, future aspirations and currently quality of training on this subject.

**Summary of Work:** An online questionnaire was completed by 114 final-year medical students at 10 UK medical schools. A five point Likert scale was used for each question.

**Summary of Results:** 94.8% of respondents agreed that clinicians should influence managerial decisions within a clinical setting, with 64.9% expressing an interest in undertaking such positions in their future careers. Only 9.6% of students rated their undergraduate leadership training as good, with 85.1% unaware of what a leadership position within the NHS entails. 62.3% would have appreciated more leadership training throughout medical school, and 78.0% believed medical leadership opportunities should be highlighted to students during their undergraduate education.

**Discussion:** Effective medical leadership and management (MLM) is essential for optimal patient care with convincing evidence, hospitals lead by clinicians are significantly associated with better performance outcomes than those led by non-clinicians. Our study suggests that final year medical students have poor insight of MLM and evaluate their undergraduate MLM training as weak.

**Conclusion:** Medical students value clinicians' input in managerial decisions and have a thirst for more MLM training; however the quality and quantity of training currently on offer does not meet this demand.

**Take Home Messages:** More effort is required to engage and develop current medical students into our future medical leaders.

#10CC04 (130525)

**Training Future Healthcare Leaders: Program Assessment of a Undergraduate Medical Education Leadership Elective at the University of Ottawa**

*Laurie McLean\*, University of Ottawa, Ottawa, Canada*

*Suhair Bandeali (University of Ottawa, Ottawa, Canada)*

**Background:** Early leadership training for physicians has become recognized as crucial to improving medical care. In this regard, developing leadership competencies in medical students has also been recognized as paramount by the Association of Faculties of Medicine of Canada. The purpose of this study was to evaluate the components of the Undergraduate Medical Education Leadership Elective (LE) curriculum at the University of Ottawa.

**Summary of Work:** Program assessment was performed using multi-level evaluation based on Kirkpatrick's Hierarchy for Health Professions Education with qualitative and quantitative methods. Students completed standardized evaluation forms to appraise their overall experience in the LE as well as specific components of the LE. Students rated (before and after the LE) their confidence, knowledge of different concepts and practical applications of leadership skills. The paired t-test was used to compare non-parametric data for differences in baseline and final results.

**Summary of Results:** Thirty students completed the LE between 2011-2015. The greatest identified strengths of the LE were its role in fostering enthusiasm in students to learn more about leadership knowledge and skills in the future, and its development of students' leadership potential to prepare them for future leadership roles. Discussing goals/expectations and setting the format of the LE in advance of the elective start date were areas identified as most in need of improvement.

**Discussion:** Undergraduate medical students who participate in a leadership elective improve their leadership knowledge and skills but also, as importantly, are inspired to continue developing leadership competencies as their medical career progresses.

**Conclusion:** An undergraduate medical education (UGME) leadership elective can provide a strong foundational framework of leadership knowledge, practical experience, and mentorship that is instrumental in the development of future healthcare leaders.

**Take Home Messages:** 1. When developing a UGME leadership curriculum, utilize a Leadership Framework to which the student can espouse throughout his/her career. 2. A better understanding of the concept of healthcare transformation, and contribution to the transformation, can be achieved through a Leadership Elective in UGME. 3. By way of a formal Leadership project in UGME, students are afforded a practical means to enact leadership competencies.

#10CC05 (134574)

**Training future clinical leaders – can voluntary experience compensate for a lack of formal leadership teaching in medical curricula?**

**Katharine Stambollouian\***, King's College London, London, UK

Samir Zaman (King's College London, London, UK)

Naveed Khan (King's College London, London, UK)

**Background:** Leadership skills are frequently cited as essential for future doctors however undergraduate medical teaching offers few formal opportunities to develop them. Volunteering is commonplace amongst UK university students. Could volunteering provide informal opportunities to develop these key skills?

**Summary of Work:** A literature review examined the impact of volunteering on the development of leadership skills in undergraduate medical students. Literature was searched using Medline, CINAHL and Web of Science. Eligible studies published between 1984 – 2014 in the English Language were included. Search terms included medical education, medical student, volunteer and voluntary work. A scoping search was conducted, with all abstracts reviewed, and full articles evaluated if they explored development of leadership from volunteer experiences.

**Summary of Results:** Students often lack formal opportunities to develop leadership skills as part of their medical education. Experience of volunteering has been associated with increased leadership ability in undergraduate students irrespective of the context of volunteering work.

**Discussion:** Regulatory bodies such as the GMC describe leadership ability as a requirement of future NHS doctors as it is associated with effective team collaboration, commitment to excellence and support for innovation. Few teaching models exist that effectively develop leadership attributes during undergraduate medical education. The predominant curriculum emphasis is on developing clinical reasoning rather than leadership skills.

**Conclusion:** Many students participate in voluntary opportunities whilst studying, however skills learned in these environments are not usually given any formal credit. Voluntary work could be making an important but currently underrecognised contribution to the development of leadership skills in future doctors. Formal recognition may increase student commitment to developing these skills.

**Take Home Messages:** Greater access to voluntary work for credit could contribute to the development of leadership skills in medical students, fulfilling a learning requirement currently unmet by curricula.

#10CC06 (135429)

**A Leadership Awakening: The Role of Theory in Leadership Development**

**Claire Vogan\***, Swansea University Medical School, Swansea, UK

David Johnstone (Swansea University Medical School, Swansea, UK)

Judy McKimm (Swansea University Medical School, Swansea, UK)

Paul Jones (Swansea University Medical School, Swansea, UK)

**Background:** Leadership is fundamental for effective health service organisations, with leadership development a key focus. 51 doctors in training studying a masters' in clinical leadership were recruited into a study aimed at identifying core aspects of leadership development.

**Summary of Work:** Written reflective portfolio assessments were analysed using grounded theory to identify 'theory in use' and 'theory in action' (1, 2) and other factors in important for effective medical leadership development. (1) Schon DA. (1991) The Reflective Practitioner, How Professionals Think In Action, Ashgate Publishing Limited, Aldershot (2) Gasson S (2004) Rigor in Grounded Theory Research: An Interpretive Perspective on Generating Theory from Qualitative Field Studies, Drexel University, USA

**Summary of Results:** Leadership theory is important for doctors in training's development as 'small 'I' leaders' (3), triggering a leadership 'awakening', allowing them to make sense of and analyse the clinical environment. Other factors driving development include greater self-awareness, an understanding of others, clinical exposure and leadership tools. (3) Bohmer R (2012) The Instrumental Value of Medical Leadership: Engaging Doctors in Improving Services. The Kings Fund, London

**Discussion:** Each factor individually plays an important role within leadership development but it is their collective force that is most effective. The vertical leadership development model's (4) core components ('heat experiences', 'colliding perspectives' and 'elevated sensemaking') reflect those identified in this study. (4) Petrie N (2014) Future Trends in Leadership Development. Centre for Creative Leadership

**Conclusion:** A number of inter-dependent factors are fundamental in educating future leaders. The vertical leadership model, plus leadership tools to equip students with skills to manage challenging scenarios and better understand themselves, others and health systems, provide a curriculum for more effective leadership programmes.

**Take Home Messages:** • Leadership theory and the vertical leadership model provide structure and a lens through which to develop practical leadership skills; • Programmes need to provide opportunities to develop self-insight, observe others in action, practice skills and receive feedback.

#10CC07 (135377)

**Value of a Leadership and Management Course for 3rd Year Medical Students**

*Jasmine Ehsanullah\*, Chelsea and Westminster Hospital, Imperial College, London, UK  
Eleanor Southgate, Chelsea and Westminster Hospital, Imperial College, London, UK  
Suveer Singh, Chelsea and Westminster Hospital, Imperial College, London, UK*

**Background:** Leadership and management (L&M) skills are becoming more prominent as a priority for trainee doctors, and the GMC has outlined L&M responsibilities for all doctors. However, there is currently little emphasis on L&M in medical school curricula, beyond quality improvement projects (QIPs). Knowledge and understanding of NHS structure is important for those working within it, including medical students. This study investigated student perception and motivation related to L&M, before and after a tailored 3 hour L&M course.

**Summary of Work:** A 3 hour course was designed and delivered to 51 3rd year students from Imperial College, London, in collaboration with a private L&M consultant and the Undergraduate Department. The focus was on NHS structure and tools to enable change. Pre-and post-course questionnaires ascertained student perceptions and chi-squared tests used.

**Summary of Results:** Course implementation improved the percentage of students confident to describe the NHS structure England from 2.7% to 91.9% ( $p < 0.001$ ), and NHS trust management structure from 0% to 91.9% ( $p < 0.001$ ). After the course, 84.2% intended to use the change management skills they had learnt, 63.1% had increased motivation for QIP involvement, and 70% were more confident in undertaking QIPs. 71.1% of students intended to read more about NHS current affairs.

**Discussion:** This short workshop identified a lack of knowledge of L&M, and improved confidence in it. Furthermore, it motivated students to apply skills learned, for example in QIPs. L&M courses may have a beneficial role if integrated into medical school curricula.

**Conclusion:** L&M courses are valuable to students. They improve student confidence and may help engage and empower students and young doctors in QIPs and the wider NHS.

**Take Home Messages:** L&M courses have growing relevance to medical students and are of worth through motivation and engagement of the workforce to make change.

#10CC08 (135526)

**Role of Supervisors in the Transfer of Learning for Leadership Development in Junior Healthcare Leaders**

*Wei Beng Lim\*, National Healthcare Group, Singapore, Singapore*

*Yong Hao Lim (National Healthcare Group, Singapore, Singapore)*

*Chee Lian Poh (Institute for Mental Health, Singapore, Singapore)*

*Yvonne Ng (National Healthcare Group, Singapore, Singapore)*

*Nicholas Chew (National Healthcare Group, Singapore, Singapore)*

*Wee Shiong Lim (Tan Tock Seng Hospital, Singapore, Singapore)*

**Background:** The National Healthcare Group (NHG) is redesigning how care is provided in collaboration with partners with the introduction of the Regional Health Systems in Singapore. An organizational development initiative to train a targeted 1500 junior leaders in interprofessional leadership skills was identified as a key component in enabling this transformation.

**Summary of Work:** We sought to examine the importance of supervisor participation among junior healthcare leaders attending an interprofessional leadership program. This comprised pre-course briefing for both participants and supervisors, 5-day face-to-face workshop developed in two blocks over 3 months, and a supervisor engagement session one-month thereafter. Pre-post surveys of 32 participants were conducted regarding self-efficacy in 15 leadership behaviors based on the Yukl (2012) hierarchical taxonomy and perceptions of supervisor's workplace engagement and support.

**Summary of Results:** Participants, whose supervisors attended either the pre-course briefing or post-course engagement, endorsed a higher increase in post supervisor engagement scores. Correlation analyses indicated that participants with more engaging supervisors reported higher increases in their self-efficacy in problem-solving ( $r = 0.42$ ,  $p = 0.03$ ) and supporting leadership behaviors ( $r = 0.36$ ,  $p = 0.07$ ) after attending the program.

**Discussion:** The expanded model of faculty development (O'Sullivan & Irby 2011) calls for engagement of the workplace community of practice for effective transfer of learning to the workplace. Our results suggest that beyond trainee characteristics, curricular design and program delivery; supervisors play an important role in workplace transfer of learning for leadership development in junior leaders.

**Conclusion:** Beyond the immediate outcomes of formal leadership-training programmes, it is important to measure and ensure the transfer and application of learning back into the workplace. Our results intimate that the influence of supervisors in the workplace transfer of learning cannot be neglected.

**Take Home Messages:** Immediate supervisors of junior leaders play an important role in their workplace transfer and application of leadership skills.



#10CC09 (134343)

**"Zeitgeist": The Impact of Politics on Medical Education**

*Zain Amir\*, University of Bristol, Bristol, UK  
Nikhita Shrimanker*

**Abstract:** In the context of the current challenges facing Junior Doctors in England, we wanted to create an art piece to portray a snapshot of our current medical student population and their views regarding their future within a changing and adapting NHS. Britain has championed the ideal of free healthcare for all, but growing economic pressure and practical demand on the NHS has led to calls for reform. We wanted to see the impact that recent political changes would have on the medical education prospects of our cohort of students. This is a qualitative piece, which aims to inspire debate among medical students and members of the public regarding the NHS Junior Doctor Contract. The University of Bristol Ophthalmology Society (UBOS) took photographs of the eyes of medical students and overlaid them with illustrations inspired by the recent doctor protests. It is currently on display at an art exhibition as an interactive piece and will be circulated amongst various medical student common rooms. Visitors are encouraged to engage with the piece by responding to the following questions:

- What Do You Understand About the Junior Doctor Contract?
  - How Do You Feel about Studying Medicine in Today's NHS?
  - How Do You Feel about the Junior Doctor Contract?
- This is an emotive subject among UK students and healthcare professionals, so much so that it has led to industrial action including strikes and marches. Recognising this, we at UBOS would like to share our original piece alongside high quality images of key quotes to the international community. By highlighting the views of the next generation of doctors, we hope to open an international discussion on the impact of politics on medical education by inviting conference visitors to respond back.

#10CC10 (134727)

**Implementing Educational Interdepartmental Correlation Sessions through Project Management**

*Elisabeth Schlegel\*, The Partnership for Health Advancement in Vietnam (HAIVN), a collaboration between Harvard Medical School (HMS), Beth Israel Deaconess Medical Center (BIDMC), and Brigham and Women's Hospital (BWH), Boston, USA  
Nancy J. Selfridge*

**Background:** Interdepartmental clinical correlation sessions such as case-based activities or educational games are well-established in integrated undergraduate medical curricula. However, guidance and development require collaborative team efforts across academic and operational departments involving systematic planning, creative-problem solving, and establishing consensus under time constraints. Techniques and tools of project management are effective ways to develop, implement and establish successful recurring interdepartmental learning activity sessions. Here we show examples of task lists, and project flows for generalized interdisciplinary sessions.

**Summary of Work:** Adapted project phases developed by the Project Management Institute (PMI)[1] aligned with collaboratively developed integrated sessions are (1) identifying educational needs, (2) planning an intervention, (3) performing the session, (4) monitoring and improving, and (5) establishing the recurring session in the curriculum. Thus, deciding on educational objectives and clinical settings, establishing a task list with timed deliverables and persons responsible for completion are key to reproducible activity sessions appreciated by students as evidenced in surveys.

**Summary of Results:** A multistep procedure involving teamwork across interdisciplinary departments can be carried out in an organized fashion keeping track of tasks allowing immediate recording of challenges. Improvements are then implemented at the next iteration of the session.

**Discussion:** Project management approaches are universally applicable to complex fields including medical education. Pedagogically highly effective but demanding sessions require proper management and guidance, which can be provided using task lists and portioning the development into phases with timelines.

**Conclusion:** Developing and implementing interdepartmental educational sessions are challenging endeavors, which can be mastered successfully using project management approaches.

**Take Home Messages:** Techniques and tools of project management are effective ways to establish procedures, deliverables and timeframes of successful recurring interdepartmental sessions appreciated by students. [1] Project Management Institute (PMI), Inc. (2016). <http://www.pmi.org/>. Corporate webpage. Retrieved February 13, 2016.

#10CC11 (135230)

**A Total Quality Management Approach to Medical Education**

**Luke Ruffle\***, University Hospitals of Leicester NHS Trust, Leicester, UK

Joanne Kirtley (University Hospitals of Leicester NHS Trust, Leicester, UK)

Rob Powell (University Hospitals of Leicester NHS Trust, Leicester, UK)

Sue Carr (University Hospitals of Leicester NHS Trust, Leicester, UK)

**Background:** The management of Medical Education quality is becoming ever more prevalent. It is paramount for Teaching Hospitals, such as University Hospitals of Leicester (UHL) NHS Trust, to continually meet the GMC requirements and to deliver a high quality training environment for all trainees.

**Summary of Work:** Leadership is critical for delivering Total Quality Management (TQM). Appointing a Director of Medical Education (DME) with a vision of improving quality is essential. The DME is supported by a senior management team comprising of a Deputy DME, Quality Manager and Clinical Tutors. Establishing a Medical Education Strategy gives direction to addressing key challenges and aims to embed an educational culture within the organisation; key priorities from this strategy are addressed at a 'Medical Education and Training Committee'.

**Summary of Results:** An 'Educational Dashboard' is utilised to capture local data which in conjunction with the GMC Survey is used address key issues. Data from this dashboard is presented regularly as a standing agenda item to the Trust Executive Board. Appointing an 'Education Lead' in each Clinical Management Group supports the delivery of the strategy at an operational level. More recently a review into the accountability of tariff funding and the inclusion of Education PA's in supervisor job plans has further sought to improve and embed quality.

**Discussion:** Within UHL, TQM has raised awareness of Medical Education at Trust Board level which has improved engagement with senior management and clinicians. A shift towards an 'Education focused' culture has led to improvements in trainee satisfaction; supported by data from the GMC Trainee surveys'.

**Conclusion:** Within UHL significant steps have been made to improving and embedding quality within Medical Education by focusing on key elements of TQM; leadership, strategy, measurement, analysis and knowledge management.

**Take Home Messages:** TQM takes time to implement but offers a long term holistic approach to improving quality that can be adapted to most organisations.

#10CC12 (133901)

**Do quality interventions really make a difference? Supporting the department in difficulty**

**Joanne Kirtley\***, University Hospitals of Leicester, Leicester, UK

Richard Higgins ( Health Education England- East Midlands, UK)

Christina Oppenheimer ( University Hospitals of Leicester, UK)

Sue Carr ( University Hospitals of Leicester, UK)

**Background:** In 2014, an external quality management visit identified concerns which required significant improvements to training delivery and environment in a clinical department with considerable service pressures. An education quality improvement approach using locally developed and supported education quality measures was key to addressing the concerns.

**Summary of Work:** Concerns were addressed with Specialty and Strategic stakeholders. Baseline data was collated using the Trust's Education Quality Dashboard (EQD) and an improvement plan aligned with the EQD, was developed by the Medical Education Quality Lead (MEQL). An Education Board with College, management and trainee representation was established, reporting to the Local Management Board and Director of Medical Education. Trainees were involved throughout the process and took a lead role in designing and implementing a new rota. The external Quality Management Team monitored progress with the Trust Education Quality Manager.

**Summary of Results:** A follow-up visit took place in June 2015 with Specialty School involvement. The subsequent report noted that 'a significant amount of change had been achieved within a relatively short space of time, with notable improvements in all areas highlighted during the earlier visit'. The action plan and EQD outcomes reflected the improvements

**Discussion:** Concerns identified during a quality management review provided impetus for improvement in a challenged clinical environment. The short timescale ensured a focused approach to improving quality with appropriate clinical, trainee and managerial representation.

**Conclusion:** Existing local education quality tools were utilised effectively to support improvement including the EQD and the MEQL role. External feedback reflected the changes and training in the specialty was retained.

**Take Home Messages:** Improving education quality in a department in difficulty requires measurable local outcomes that are valued by the Organisation and investment in staffing resources to evaluate, develop, monitor and maintain change

#10CC13 (134378)

**A Education Quality Lead role improves educational quality in a large hospital**

**Monika Kaushik\***, University Hospitals of Leicester NHS Trust, Leicester, UK

Bhaskar Bhowal (UHL, Leicester, UK)

Joanne Kirtley (UHL, Leicester, UK)

Rob Powell (UHL, Leicester, UK)

Sue Carr (UHL, Leicester, UK)

**Background:** GMC standards and guidance in education and training state that NHS organisations should have effective systems of educational governance and leadership management to manage and control the quality of medical education and training.

**Summary of Work:** At University Hospitals of Leicester NHS Trust the clinical departments are divided into 7 Clinical Management Groups (CMGs). Each CMG is represented by an Educational Quality Lead (EQL). This role was introduced in 2013 to Quality Assure education at the CMG level. Data was collected on key prognostic quality indicators based on GMC guidelines and an improvement exercise was undertaken. These were recorded on the Education quality dashboard (EQD) quarterly. These findings were reported at the CMG Board level and Directorate of Medical Education.

**Summary of Results:** In October 2014, the GMC trainee survey identified several areas for improvement in a department including : % of trainees with identified clinical supervisors, attendance of trainees at departmental induction and % trainees that completed trust mandatory training, accountability of Education funding schemes within the CMG. Following appointment of a funded EQL role (with time in job plan), by Dec 2015, more than 87% of trainees had identified clinical supervisors, supervisors had undertaken supervisor training, departmental induction was standardised and the quality of induction improved. In addition, 70% of trainees had completed mandatory training. There was an improved understanding of education funding and increased accountability.

**Discussion:** EQLs work with the clinical and Director of Medical Education to ensure a focused approach to improve key performance indicators in education and training. Similar results were seen within other CMGs in the trust.

**Conclusion:** EQLs help to ensure education and training issues are represented at the CMG Board and improve the transparency and accountability for education resources to ensure a safe learning environment. Analysis of EQD showed improvement in key quality indicators.

**Take Home Messages:** Educational Governance requires measurable outcomes. In big trusts, this quality data can be improved by collaboration between the clinical board and the DME. This can be supported by a EQL role.

#10CC14 (132493)

**Are innovative thinkers the medical and health sciences educators?**

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Olga Matus (Universidad de Concepción, Concepción, Chile)

Carolina Marquez (Universidad de Concepción, Concepción, Chile)

Bárbara Inzunza (Universidad de Concepción, Concepción, Chile)

Javiera Ortega (Universidad de Concepción, Concepción, Chile)

Cristhian Pérez (Universidad de Concepción, Concepción, Chile)

**Background:** Despite technological development, we still face complex health problems that require innovative solutions. However, habitual thought patterns are difficult to break for think better solutions. Innovative thinkers observe, question and produce original ideas. Although Innovation is important to scientific progress, we aren't training health students to think creatively. Objective: Medical educators' innovative thinking diagnosis, part of project to improve education funded by Government, which aims to develop innovative thinking in educators and students.

**Summary of Work:** This project involved 25 academics from five Health Sciences faculties and three associated faculties (engineering, management and economics, social sciences). Prior to the intervention, participants skills and attitudes to innovate were diagnosed, using a validated by expert judgment questionnaire which included 26 items in Likert scale from 1 to 5 (acceptable value higher than 4) on the dimensions of: Observation ability (4 items), questioning ability (4) Experimentation (9) networking (4), Creativity and associativity (5). 21 academics responded, 14 women and 7 men, ages from 25 to 58 years (mean: 35). The results were analyzed through descriptive statistics.

**Summary of Results:** The average score of the questionnaire was 3.8 points (range = 3.3 - 4.2). Only seven academics (35%) were rated over 4. Experimentation capacity was the worst evaluated, with an average of 3.5 points and 90% of the academic scoring under 4, followed by Questioning and Creativity, averaging 3.7 and 70% under 4. Both Observation and Networking were evaluated over 4, but 15% and 20% of the academics did not reach the minimum score.

**Discussion:** Traditional training of health professionals is based mainly on the development of hypothetical deductive thinking, with overvaluation of evidence-based medicine, above innovative thinking, which is reflected in the results of this diagnosis.

**Conclusion:** Medical and health sciences educators have low development of innovative thinking, so will struggle to teach their students to seek innovative solutions to solve complex health problems, which

requires a previous training program for those who have the responsibility to teach.

**Take Home Messages:** It is essential to implement programs to develop innovative thinking in medical and health sciences educators, before teaching students to address the complex health problems with an innovative perspective.



## 10DD Posters: The Teacher and Faculty Development

Location:

#10DD01 (135036)

**Do you deserve an award? Preceptor characteristics associated with students' perceptions of teaching excellence**

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Law Hwa Lin (Tan Tock Seng Hospital, Singapore)

Lim Yong Hao (National Healthcare Group, Singapore)

**Background:** Pharmacy students experience different preceptors during their clinical rotations. Studies have examined qualities associated with preceptor excellence, but characteristics that affect decisions to nominate the preceptor for a teaching award have not been clearly delineated in the pharmacy education literature.

**Summary of Work:** Twenty-two 3rd year pharmacy students provided qualitative feedback about the preceptors they encountered during their 6-week clinical placements in a large acute hospital. There were 75 indications of nominations, and 29 indications of decisions not to nominate.

**Summary of Results:** We identified the following characteristics upon analysis of student feedback for preceptors they would nominate for an award: 1) Teaching: effective teaching (stimulating questions, systematic), preparation/time investment (learning materials), clear communication ensuring understanding, 2) Content expert, 3) Real-world application: opportunities for hands-on practice, role-modelling (demonstrates with patients), useful advice, 4) Desirable traits (approachability). Students highlighted the following characteristics for preceptors they would not nominate: 1) Insufficient content and depth, 2) Insufficient practical application, 3) Communication (fast-paced), 4) Traits (unfriendly, rude)

**Discussion:** Gaining knowledge, and the practical application of knowledge were the main aims of students on clinical attachments. Students appreciated well-prepared, sincere, approachable, and knowledgeable preceptors with effective teaching skills, who can stimulate their thinking with challenging questions to arrive at their answers. Preceptors who also ensured opportunities for practical application, and role-modelled by demonstrating their expertise with patients were more likely to be nominated by students for an award.

**Conclusion:** A genuine desire to teach and assist students in achieving their rotation aims is evident to students, where a perceived lack of effort, knowledge, and willingness to teach affects a student's decision to nominate the preceptor.

**Take Home Messages:** Preceptor awareness on student perceptions regarding teaching effort and self-presentation skills should be increased.

#10DD02 (133620)

**What makes a physician a good teacher? Four archetypes of teachers based on experts' conceptions of teacher qualities.**

**Marleen Ottenhoff- de Jonge\***, Leiden University Medical Centre, Leiden, Netherlands

Neil Gesundheit (Stanford University School of Medicine, Stanford, CA, USA)

Willem J. J. Assendelft (Leiden University Medical Centre, Leiden, Netherlands)

Friedo W. Dekker (Leiden University Medical Centre, Leiden, Netherlands)

Albert J.J.A. Scherpier (Maastricht Medical School, Maastricht, Netherlands)

Roeland M. van der Rijst (ICLON Leiden University Graduate School of Teaching, Leiden, Netherlands)

**Background:** Good teachers can have a major impact on students and students' learning outcomes. We are interested in what medical teachers conceptualize as essential teacher qualities within the context of small group teaching, as this is one of the cornerstones of a student-centred curriculum. As a conceptual analytical tool we used a framework which distinguishes six levels essential to good teacher functioning: environment, behaviours, competencies, beliefs, identity, and mission (Korthagen, 2004). After exploration of individual teachers' conceptions we aimed to investigate whether archetypes, clusters of teachers with comparable conceptions of teacher qualities can be delineated and, if so, how these archetypes are associated with participants' demographic data.

**Summary of Work:** We interviewed 26 expert teachers from two medical schools to explore their conceptions of essential teacher quality elements. Using a qualitative content analysis, we first categorised all elements of teacher conceptions that emerged. Clusters of participants with similar conceptions were then identified through a qualitative holistic approach.

**Summary of Results:** Within the six above framework levels, eighteen elements critical to teacher qualities were uncovered. Even though the interview focussed on teacher qualities, the participants also reflected on their task, role, and mission as patient-caregivers and academics. Furthermore, four qualitatively different archetypes of teachers were proposed: the inspirer, the role-model, the practitioner, and the critic. In all archetype-clusters, fragments in both outer and inner levels are being mentioned, yet the clusters show that experts differ significantly in their emphasis on these respective levels. The inspirer-cluster consisted of teachers from one of the two medical schools exclusively.

**Discussion:** We will discuss the contributions that each archetype can have within medical schools.

**Conclusion:** Suggestions are offered how insight into these teacher archetypes might be useful for individual teachers, for faculty development programs as well as for medical institutes.

**Take Home Messages:** The inspirer, role-model, practitioner, and critic represent four archetypes of teachers with complementary teacher qualities.

#10DD03 (133040)

**Engagement in Medical Teachers: do we believe what we teach?**

**Carmina Flores\***, *Universidad Anahuac Mexico, Huixquilucan, Mexico*

Julio Herminio Pimienta Prieto

Fernando Azcoitia Moraila

Maria Jose Diaz Huizar

Montserrat Urban Oropeza

**Background:** Work engagement is a state of mind related to work which is positive and fulfilling, it is considered as the opposite of burn out. It is characterized by three dimensions: dedication, vigor and absorption. It is crucial in the educational field, if teachers invest themselves in the teaching-learning process, they will obtain much fulfilling results, they would not only do their teaching work, they will enjoy it.

**Summary of Work:** We conducted a study on 229 medical teachers using the Utrecht's Engagement Survey (UWES) on a Medical School in Mexico's City, we added demographic variables, years of experience in teaching, Medical School cycle in which they taught and if they had prior Educational studies. Our goal was to analyze the engagement teachers have towards their job in a Medical School. The instrument was applied during the mid-semester time through an online survey webpage. This work was approved by our University's Research Committee and Bioethics Committee, all teachers agreed to participate. Results were filtered and processed using SPSS IBM Software®.

**Summary of Results:** Our sample was composed by 59% male and 41% female teachers. Their ages ranged from 30 to 78 years with a mean of 46.78. A number of 10.4% worked as full time teachers and 89.6% as hour-based contract teachers. 19.6% taught on basic cycle, 62.2% on clinical cycle and 17.8% on both basic and clinical cycle. Only 13.5% said teaching is the primary source of their income. In terms of Work Engagement, teachers had very high engagement levels in 53.5%, High in 39.6%, Average in 6.1% and Low in 0.4%.

**Discussion:** We found statistically significant differences between work engagement and age ( $p=0.05$ ), where people with ages near the mean had higher engagement scores. The main income source was also statistically significant ( $P$  Spearman = 0.48), where teachers who had a main source of income different than teaching had higher scores in work engagement.

**Conclusion:** Teachers should be invested in their teaching job in order to achieve the best results both for students and for them. It seems mid-aged teachers, and those who have other sources of income have much higher work engagement levels.

**Take Home Messages:** Work engagement in teachers of the 21st century is worth further research due to its importance in the long term both for faculty and their student's outcome.

#10DD04 (135868)

**Promoting teachers' mobile technology skills in medical education with a self-assessment tool at the University of Helsinki**

**Teemu Masalin\***, *University of Helsinki, Faculty of Medicine, Helsinki, Finland*

Kalle Romanov

Eeva Pyörälä

**Background:** Tablet computers have been integrated into preclinical phase studies in our faculty since 2013. Students have now started their clinical studies. It is high time for the clinical teachers to adopt teaching methods of the mobile generation. A large number of clinical teachers require support and training in mobile learning.

**Summary of Work:** A self-assessment tool was developed to examine what kind of support teachers needed. It was based on a questionnaire applied with students in an ICT course in 2013-15. Teachers were able to evaluate their skills in a survey of 13 items covering basic usage, information processing, communication and information sharing.

**Summary of Results:** A pilot of the self-assessment tool, was conducted in December 2015 and February 2016 ( $n = 39$ ). The basic 13 skills were surveyed with a Guttman scale. We found that teachers still needed training on several basic skills; using applications and back upping (68 %); processing and sharing information (50%).

**Discussion:** Our teachers have had access to a library of short instructional videos of iPad skills since summer 2014. However, these videos have been seldom used. The self-assessment tool enables teachers to assess and recognise their learning needs and stimulate them to learn the required mobile learning skills with appropriate videos.

**Conclusion:** Many teachers are fluent everyday users of the mobile devices, but they need support in integrating new technology into teaching and learning activities. With the self-assessment tool they are able to recognise their needs and use time more efficiently in self-study, and the faculty is able to provide support cost-effectively.

**Take Home Messages:** Teachers' learning needs, motives and time constraints require to be examined in order to provide medical educators with successful and fit-for-purpose support in instructional use of mobile devices.

#10DD05 (130510)

**Faculty burnout: Does prior teaching experience in an established residency system help one to adapt to a change in training system?**

**Raymond Fong\***, Changi General Hospital, Singapore, Singapore

Vanessa Au, Shui Boon Soh (CGH, Singapore)  
Roy Debajyoti, Teck Boon Low (CGH, Singapore)  
Kiat Sern Goh (CGH, Singapore)  
Siang Chew Chai (CGH, Singapore)  
Poh Yen Loh (CGH, Singapore)

**Background:** Burnout is common amongst medical professionals who have to juggle clinical and education work. Transitioning to the new ACGME-styled residency system in Singapore may benefit specialist trainees immensely but faculty members may instead face greater academic and administrative challenges. We postulate that faculty members with prior teaching experience in foreign established residency education systems may be less prone to burnout.

**Summary of Work:** We performed a paper survey inviting 60 senior residency medical faculty members to participate. They were asked to complete the Oldenburg Burnout Inventory and to provide demographic and job-specific data.

**Summary of Results:** A total of 44 faculty members completed the questionnaire. Two-thirds (67%) were deemed as being at high risk of burnout, of whom less than half (45%) were aware of it. Most factors related to demographic and job-specific variables did not impact propensity for burnout. However, having 2 or more children [(48% vs 60% (1 or less child))] and having resident teaching experience in a foreign institution [40% vs 80% (with none)] were associated with a low or medium risk of burnout.

**Discussion:** Faculty members previously from foreign institutions with established residency training programs may adapt better to the new ACGME-styled residency system as they may be more familiar with the academic and administrative requirements. Thus they are able to better balance work responsibilities and be less prone to burnout. Having to handle greater family responsibilities may also enable faculty members with more children to handle work stress better.

**Conclusion:** Burnout commonly affect faculty members and many are not aware of their risk level. Transitioning to a new specialist training system may have contributed to the process.

**Take Home Messages:** Preventive strategies for burnout could be targeted at those new to the ACGME-styled residency program and better equip faculty members to balance various responsibilities and achieve work-life balance.

#10DD06 (135743)

**Supervisors' orientations to supervision;  
Development of a self-assessment instrument**

**Juha Nieminen\***, Karolinska Institutet, Stockholm, Sweden

Klara Bolander-Laksov  
Maria Weurlander

**Background:** The supervision of doctoral students has attracted a lot of attention in research literature during the last decade. There is a growing body of literature on supervisors' orientations to supervision. These orientations differ regarding the degree of control over the research project the supervisor take, and whether the main focus is the task (research) or the person (doctoral student). A self-reflection instrument may help a doctoral supervisor become more aware their own beliefs and preferred roles and how these may affect their work with students.

**Summary of Work:** Based on previous literature, we created a 41-item questionnaire representing four ways of approaching supervision. We used a 7-point Likert scale ranging from "I strongly disagree" to "I strongly agree".

**Summary of Results:** A total of 160 doctoral supervisors from medical and engineering fields answered the questionnaire. Based on a series of factor analyses and consideration of theoretical relevance, four scales were created: Personal Relationship ( $\alpha = .63$ ), Project Leadership ( $\alpha = .51$ ), Activating Mentorship ( $\alpha = .52$ ), Fostering a Critical Researcher ( $\alpha = .58$ ).

**Discussion:** The four orientations reflect ways PhD supervisors experience the goals and the nature of supervision. The orientations are not intended as mutually exclusive, a supervisor can be expected to adopt several of them simultaneously. Further development would entail selecting and creating items that are more clearly related to just one orientation.

**Conclusion:** We were able to create a first version of a self-reflection instrument for supervisors, thus enabling a supervisor to reflect on their own beliefs and behaviours as supervisors, and the possible conflicts with a doctoral student's or co-supervisors' expectations. Areas of further development will be discussed.

**Take Home Messages:** The presentation will be of interest to those engaged with doctoral supervision and to those interested in developing a self-reflection instrument.

#10DD07 (136201)

**Medical Students' perceptions about teaching skills at a medical school from Amazon region: a third year focus group analysis**

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Iuri Sena (Universidade Federal do Amapá, Macapá, Brazil)

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Dyone Silva (Universidade Federal do Amapá, Macapá, Brazil)

Jiulyanne Belfor (Universidade Federal do Amapá, Macapá, Brazil)

**Background:** Research indicates that it is essential the participation of medical students in the context of the formulation of educational diagnosis. The objective of this study is to use the focus group technique to understand the perception of medical students on teaching skills necessary for a medical education of quality in a course that adopts the methodology of Problem-Based Learning (PBL).

**Summary of Work:** Qualitative study involving seven medical school students from undergraduate third year of Universidade Federal do Amapá, headquartered in State of the Brazilian Amazon, attended a session of Focus Group. It was used guiding roadmap with five questions related to medical education. Digital records of image and audio were performed. To analyze the content delivered, it was used the Wordle.net platform and Bardin technique.

**Summary of Results:** After content analysis, five predominant themes were discussed: pedagogical skills of teachers, academic planning, assessment of teaching skills by students, integrating the activities of the course and development of medical education.

**Discussion:** In the perception of students, the development of efficient teaching process occurs through the integration of teachers from different years and disciplines. In addition, it is necessary the association between theory and practice during every year of the course, so that the contents are worked in its various dimensions, involving cognitive and psychomotor skills. Furthermore, the effective feedback between teachers and students was a point emphasized as fundamental to the quality of medical education.

**Conclusion:** The perceptions of students, obtained through the focus group, were of paramount importance for the diagnosis of the educational reality of the institution. From these data, it has the purpose of creating a teacher evaluation platform for students.

**Take Home Messages:** The critical perception of students can help to develop teaching skills of teaching staff of a medical school.

#10DD08 (134291)

**Clinical teachers' perception of medical student evaluation of teaching**

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Namfon Inna

Daranee Intralawan

**Background:** Student evaluation of teaching (SET) is common practice in medical education worldwide. It's an effective tool to improve teaching and learning. Medical Education Center Chiangrai Prachanukroh Hospital also provides clinical teachers with student feedback. However, teacher's perception on students evaluation of teaching has not been examined. This study aimed to examine clinical teachers' perceptions on SET.

**Summary of Work:** Electronic form of constructed 5 Likert scale questionnaire was distributed to medical staffs to assess teacher's responsiveness to the evaluation of medical staffs' teaching methods included teaching style, challenging their students to think and raise the questions, using technology to advance student's learning. Additionally, teachers' manner and personality was also included in the evaluation.

**Summary of Results:** Forty three medical staffs completed the questionnaire. Medical staffs highly aware and accepted to be evaluated by the students (4.38). Student's feedback moderately influenced medical staffs to change their teaching styles (3.66). The staffs viewed that the evaluation of their manner and personality was unnecessary (47%).

**Discussion:** The acceptance of SET was high, but moderately influenced on willingness to change staff's teaching styles. Manner and personality evaluations were not acknowledged by the staffs, even though this is an important part for the professional development of medical students.

**Conclusion:** Clinical teachers accepted SET especially on their teaching methods.

**Take Home Messages:** The utilization of student evaluation of teaching should be encouraged and integrated into faculty development program, together with professional attitudes, values and behaviors.



#10DD09 (134353)

**Evaluation of Teaching on the Run-Based Modules for Postgraduate Students Learning Core Competence**

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Mao-Meng Tiao (Kaohsiung Chang Gung Memorial Hospital, Kaohsiung, Taiwan)

**Background:** The purpose of the teaching on the run (TOTR) program is to help clinical teachers plan for teaching in the clinical setting and provide effective feedback and learner support.

**Summary of Work:** In this study, core competence of fever was identified as our learning plan for postgraduate doctor when they studied in pediatrics. The unit is comprised of pre-test, learning resource materials, post-test and a feedback questionnaire. The duration is 14 days. Cognitive gain was assessed using pre-test and post-test for each student. Students' perceptions were recorded using an online feedback questionnaire on a 5-point Likert scale..

**Summary of Results:** There were 24 students enrolled into pediatric TOTR modules. Among them, 20 students completed the entire pre-test and post-test. The summed average score was increased significantly from  $70.5 \pm 12.34$  to  $90 \pm 9.73$  ( $P < 0.001$ ). The class-average normalized gain for the entire module was 0.661(66.1). The rating score ranged between 4 and 5, i.e. agree and strongly agree. The highest score was effective feedback and microteaching/case-based discussion. The discussion time was about 16-30 minutes per day.

**Discussion:** TOTR included planning learning, clinical teaching, skills teaching, assessment, supporting learners and effective group teaching. However, planning learning is important to recognize that clearly articulated outcomes and relevant information that has a strong clinical focus is beneficial for both clinical teachers and learners. In TOTR program, teacher knows the learner's level and can give positive critique feedback about their core competencies. The students perceived that the course designed was informative and useful.

**Conclusion:** Curriculum innovation in the form of TOTR module for learning core competencies was moderately effective and well perceived by the students. Furthermore, it can help postgraduate students approach patients holistically and safely.

**Take Home Messages:** Using "teaching on the run" model will explore with clinicians basic educational principles to apply in the clinical setting for all phases of learning and teaching with students.

#10DD10 (133447)

**"Seniority rules": A qualitative exploration of Taiwanese medical students' experiences and barriers for giving faculty feedback on professionalism behaviours**

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**Background:** Assessing faculty for their professionalism is important. Since 2014 we have been developing the Modified Professionalism Assessment of Clinical Teachers (M-PACT) for faculty professionalism assessment. However, compared to Western counterparts, Taiwanese students give few comments and are reluctant to give negative feedback for teachers with lower professional performance. This study seeks to understand why.

**Summary of Work:** Semi-structured one-to-one interviews were conducted with 16 5th-year clerks following their pediatric clerkship in one hospital in Taiwan to explore their explanations of their thoughts, values and barriers for providing honest faculty professionalism feedback, and the thematically analyzed data are ongoing too.

**Summary of Results:** Participants revealed how they preferred teachers to share their own experiences and feelings around clinical professionalism so they can learn and combine this into their clinical practice. The professionalism learning and identity formation occurs when they work directly with clinical staff, observing and feeling directly from teachers' values and behaviors at work. Under the influence of the "Seniority rules" of Confucianism, medical students willingly gave positive feedback rather than negative comments to their teachers.

**Discussion:** One reason for this is that students' fear negative consequences for themselves, the other students and for their teachers.

**Conclusion:** The "Seniority rules" of Confucianism is a barrier for our students to give negative feedback in faculty professionalism assessment in Asia and sharing the faculty experiences and feelings on clinical professionalism learning is a good way to promote professionalism learning for medical students. In order to effectively assess faculty professionalism and cultivate professionalism in medical students, it is worthwhile to generate strategies to overcome such barriers.

**Take Home Messages:** Taiwanese students are reluctant to give negative evaluations to their teachers.

#10DD11 (133810)

**A Model of Teaching Excellence for the Health Professions**

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**Background:** Academic hospitals affiliated with the University of Toronto collaborated with the University's Centre for Faculty Development to determine what distinguishes foundational from truly exceptional clinical teaching. The goal of this project was to develop a model of teaching excellence of relevance to all clinical teachers (i.e., not profession-specific), and to describe an actionable set of relational competencies that describe an excellent clinical teacher.

**Summary of Work:** The rigorous development process included six phases: 1. an environmental scan; 2. the development of a long list of competencies, based on literature synthesis; 3. a Priority Sort methodology that engaged a diverse group of health professionals including trainees, clinical teachers and leaders; 4. development of a draft model of teaching excellence; 5. soliciting system feedback and finally, 6. dissemination of the model.

**Summary of Results:** Four key relational competencies were identified as most critical to excellent teaching. An integrative model was developed, then shared and refined based on system stakeholder input.

**Discussion:** This model will enhance clinical teaching excellence by aligning focus across the system, supporting the development of a shared language, enabling development of common resources and tools, and facilitating evaluation and planning for faculty development of health professionals.

**Conclusion:** An actionable set of relational competencies was created including a user guide and brief vignettes to support development of excellence in clinical teaching. This version has been made available for use across the system, and further research will elucidate how different hospitals used it to support and promote teaching excellence.

**Take Home Messages:** This work moves away from traditional teaching competency frameworks and describes an aspirational model of teaching excellence which provides a tool educators and faculty developers can use to inform their work.

#10DD12 (135102)

**Observed Structured Teaching Encounter (OSTE) Implementation in a Pediatric Cardiology Training Program: Evidence of Perceived Need and Impact Elicited from Self-, Learners, and Faculty Evaluations**

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Carrie Bernat (University of Iowa, Iowa City, USA)

Ray Lowery Sunkyoung Yu (University of Michigan, Ann Arbor, USA)

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**Background:** Observed Structured Teaching Encounters (OSTEs) are useful tools in assessing and improving teaching performance. Although subspecialty fellows play an integral role in the education of students and residents, many feel under-prepared for this responsibility. Targeted OSTE programs may help, but may not be feasible in pediatric subspecialty settings.

**Summary of Work:** After performing a needs-assessment in a pediatric cardiology division at a large academic medical center, we developed an OSTE exercise focused on the teaching and feedback skills necessary for a pediatric cardiologist supervising difficult learners. First-year fellows (n=6) were assigned to early- or late- intervention arms in a randomized crossover design and underwent the OSTE mid-way during an inpatient rotation. Pre- and post-intervention assessments evaluating teaching and feedback skills were collected from fellows as well as learners (n=124) and faculty (n=24) who interacted with them during each rotation (100% response rate). Group differences were evaluated using effect size.

**Summary of Results:** The needs-assessment revealed significant deficiencies prior to the OSTE; 90% of fellows reported their teaching skills were "rarely"/"never" evaluated. At the end of the year, both groups received effective teaching ratings from attendings (100%) and learners (93.5%). The early intervention group had higher magnitudes of improvement in several teaching domains despite having lower baseline scores. Participants reported the OSTE was realistic, valuable, and worth recommending to peers. Additionally, confidence in all domains (feedback, supervision of "difficult" learners, and good working relationships) improved after participation.

**Discussion:** A structured observation of teaching was perceived as needed and helpful to fellows' teaching performance; the magnitude was more pronounced with early exposure. Limitations included small sample size and the need for resources and buy-in.

**Conclusion:** Targeted OSTEs implemented early in pediatric subspecialty training contributes to improved fellow confidence and teaching skills.

**Take Home Messages:** Targeted OSTEs are feasible and useful in pediatric subspecialty training; however, resources and buy-in are critical for successful implementation.

#10DD13 (135533)

**Evaluation Process and Continuous Improvement of the Faculty Education Program at AO Foundation**

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*Miriam Uhlmann*

**Background:** The Faculty Education Program (FEP) within the AO Foundation Education Institute runs app. 40 worldwide events per year. The program focuses on improving faculty members' teaching skills.

**Summary of Work:** The evaluation process of the FEP uses three methods to assess outcomes: (1) a standardized evaluation form as required by CME accreditation bodies (quantitative data), (2) personal feedback in an interactive discussion session, and (3) the completion of a commitment-to-change form.

**Summary of Results:** The results are summarized in a special developed form, which gives the possibility to evaluate the participant's feedback at a glance by the Faculty and Educator as well as the Curriculum Developer as a tool to identify possible gaps and to improve the effectiveness of the course.

**Discussion:** Several methods can be used for data acquisition, — quantitative or qualitative. Quantitative are typically easier to analyze while qualitative methods are rather open formulated and can gather personal answers that may be more meaningful for reporting the quality of the delivered program. Therefore, the AO Foundation decided to use a mixed-methods approach.

**Conclusion:** The evaluation of the Faculty Education Program contributes mainly to the verification of the attainment of the teaching and learning outcomes and the optimization of the offered activities. Moreover feedback is reflected to the EACME to verify the effectiveness of the Faculty Education Program of the AO Foundation.

**Take Home Messages:** Ongoing verification of the quality of the executed courses is essential for a continuous improvement process of the established Faculty Development Programs at AO Foundation and guarantees lasting review of the program.

#10DD14 (135888)

**Cognitive Style Assessment of Indian Medical Faculty - A Step towards Achieving Cognitive Integration in Teaching Practices**

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*Mahendra Chotaliya ( Postgraduate Department of Education, S.P University, Vallabh Vidyanagar, India*

**Background:** Faculty members' knowledge about their cognitive style can be used in implementing practices which synergize the same with medical students' cognitive styles for better educational outcome.

**Summary of Work:** Cognitive style assessment of faculty members was carried out using 'Alert Scale of Cognitive Style'. Pre-session awareness and post session perceived awareness, relevance, usefulness and applicability of cognitive styles were tapped using single likert type question (range 0-9). Analysis was done to know cognitive style preferences, their association with age, gender, qualification, handedness, religion, subject specialization and teaching experience. During session, sensitization about individual cognitive styles, demonstration of methods of synthesizing different cognitive styles in teaching through specific examples was provided.

**Summary of Results:** Of 88 participants studied, left, middle and right brain cognitive styles were observed in 32%, 56%, and 12% respectively. Cognitive style was not found associated with any factors. Mean awareness about cognitive styles was 3.6 prior to the sessions. Post-sensitization mean rating for awareness, relevance, usefulness and applicability of cognitive style was 6.57, 6.81, 6.89 and 6.73 respectively.

**Discussion:** Study significantly enhanced cognitive style awareness. Educators with left brain dominance tend to teach using lectures and discussions. Those with right brain dominance tend to use more art, visuals, music and hands on activities. Middle brain dominant teachers can combine both. Left brain dominant strategies, biased curricula may neither be catering to diverse cognitive preferences of students, nor totality of subject

**Conclusion:** Pedagogic interventions for ensuring teacher-student cognitive integration need to be implemented and their effects to be studied for better educational outcome.

**Take Home Messages:** Awareness about cognitive styles and education about application of cognitive principles can offer help improving teaching practices.

#10DD15 (134880)

**Developing Educational Skills through Digital Educational Materials Created by Health Professionals**

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**Background:** The e-learning Family Health Specialization course of Brazil's Open Health University of Federal University of Health Sciences of Porto Alegre (UNA-SUS/UFCSPA) has graduated 1318 students. Although the program's methodology has received positive reviews (76.36%) from students, there is a need to produce new Digital Educational Materials (DEM) and to improve those which already exist by introducing active learning activities. Health professionals usually have difficulty on creating DEM that use active learning methods.

**Summary of Work:** This study introduces strategies for the development of educational skills in the creation of DEM designed by 34 health professionals (physicians, dentists and nurses) who also assessed this process at the end. The main strategy was to offer training courses in which active learning methods were also used to exemplify the process. These courses included insights (educational communication, learning theories and educational planning), skills (selecting contents, planning active learning situations, and selecting media suitable for the topics) and initiative (creativity and research). Those who participated in the training courses filled a form in which they had to assess the activities.

**Summary of Results:** Data collected from forms showed that 100% of those who had participated in the courses considered that they reached their goals (integration, sharing of experiences, motivation to work) and that the technicalities of e-learning were better understood. 94.12% of them considered that concepts related to teaching/learning were better understood, and because of that, students were able to apply them to the creation of materials. 88.23% of the students considered that participating in new training courses is important for their education.

**Discussion:** Dealing with educational skills in an active way is made easier by training courses, which also help improve the creation of DEM.

**Conclusion:** The professionals enrolled on course feels able to develop optimized DEM.

**Take Home Messages:** Developing educational skills is fundamental for health professionals to create DEM associated with active learning.

#10DD16 (133767)

**Teaching Tips – a grass-roots shared resource**

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David Topps

**Background:** Our community-based educators meet annually to discuss teaching challenges, and techniques. During these meetings, small group sessions frequently share very practical solutions to common problems, but little sharing happened beyond the meeting confines

**Summary of Work:** We have collected Teaching Tips, using a grass-roots approach over the past four years. Various methods have been tested to improve data collection, access and discoverability

**Summary of Results:** Previous attempts using mobile database replication proved too complex to maintain. Collaborative software has made this easier by providing readily accessible infrastructure. The comparative evaluation has assessed multiple methods, singly and in combinations. Through 4 years of TTips, we have enhanced this service by improving contribution mechanisms and recommendation/popularity/usage tracking through a hybrid approach, using freely available tools. Over 100 TTips have been contributed to date, by more than 60 authors. Qualitative analysis has shown little redundancy and high relevance

**Discussion:** The new hybrid approach, with built-in metrics, is providing more useful data, and alternative contribution mechanisms

**Conclusion:** Distribution of Tip highlights through social media has increased exposure. Our TTips have benefited from cross-platform integration

**Take Home Messages:** simple online publication mechanisms to improve discovery and contribution of teaching tips are very effective



#10DD17 (133658)

**Impact of pedagogical education on assessment practices**

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**Background:** The University of Helsinki has provided medical educators with pedagogical training for over 20 years. More than 400 educators have taken a 10 ECTS credit course. As a vital part of an ongoing curriculum reform, the present assessment program is evaluated and accordingly revised to better align with learning outcomes.

**Summary of Work:** The data were collected using a web-based questionnaires sent to the faculty (N=100), medical students (N=730) and dental students (N=230). The survey focused on the assessment practices and rules, assessment tools, standard setting and transparency of assessment criteria, feedback of assessment. The response rates of the three groups were 41-49%.

**Summary of Results:** Both teachers and students expressed that assessment is mostly summative and based on essay questions. Students agreed that assessment focused on core curriculum. They were unsatisfied with transparency of assessment, feedback provided, clinical skills assessment and formative assessment. There was a statistically significant difference between medical and dental students' answers.

**Discussion:** The results indicate that the educational and assessment methods are not aligned. The teachers had more positive perception of the assessment practices than the students. This might be explained by the fact that clinical lecturers are responsible for delivering the educational activities while the professors are in charge of assessment.

**Conclusion:** The assessment practices are today very traditional, despite the vast investment in providing medical educators with pedagogical training.

Assessment practices require update and programmatic approach to assessment as part of the curriculum reform. This requires improving alignment between teaching and learning activities and a dialogue between all faculty and students.

**Take Home Messages:** The survey of teachers' and students' experiences of assessment has provided valuable information for improving assessment as an important part of the new curriculum. Teaching and learning activities and assessment need to be authorized for the same faculty members. Further efforts for inviting all faculty in pedagogical training are required.

#10DD18 (135151)

**Better Judgement: What does training assessors about judgement biases deliver?**

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Lambert Schuwirth (Flinders University, Adelaide, Australia)

Svetlana King (Flinders University, Adelaide, Australia)

**Background:** Human judgement is necessary when assessing competence but human judgement is subject to biases. Biases are not prejudices, but misrepresentations in the assessor's mind of what occurred. The use of biases is natural and 'hard-wired' so they cannot be trained out but the assessor can be trained to manage them.

**Summary of Work:** A training program supporting awareness raising about nine biases was developed utilising online mini-lectures, acted video cases, real-life videos and workshop activities. Ten workshops were held with 292 participants from universities in Australia and Europe. Open questions feedback was collected and an inductive thematic analysis was conducted.

**Summary of Results:** The themes identified from the feedback were: the empowering of the assessor through the provision of a language; the ability to translate the workshop content to the participants' own future practice; the participants' conceptualization of how a variety of measures can be used to flexibly manage biases, rather than seeking for a one-size-fits-all; and the need to explore issues of bias in assessment.

**Discussion:** Raising awareness enables assessors to recognise and manage biases in their judgement and decision making. This understanding enables them to more consciously choose what to do with the assessment information. It also this enables them to justify and articulate their judgements and decisions which leads to both more credible judgements and the empowerment of the assessors.

**Conclusion:** Our analysis of the data collected so far indicates that the language that people acquire through the training is what is most empowering – both in terms of their judgement and in terms of teaching teams being able to discuss assessment.

**Take Home Messages:** Supporting examiners to be more aware of the biases that may influence their judgements makes the judgement process more conscious, adding credibility and defensibility to their judgements.

#10DD19 (134703)

**ASIST- Longitudinal Faculty Development improves novice simulation educators' confidence of simulation based education skills and shows their learning steps**

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*Yuki Moritoki*

*Shigetoshi Ohshima*

*Hitoshi Hasegawa*

*Jannet Lee-Jayaram*

*Benjamin W Berg*

**Background:** We have conducted introductory and advanced simulation educator faculty development workshops in Japan since 2011. Post course surveys revealed that <50% of participants were actively using simulation and identified a need for increased and additional skills to confidently use simulation methods. We developed a "third step" program for educators ; Advanced Simulation Instructor Skills for Teaching (ASIST) focusing on four competencies; scenario development, facilitation and debriefing skills, and assessment. Curriculum Research is designed to assess learning outcomes and behaviors attributable to ASIST.

**Summary of Work:** ASIST was conducted over 5 months, meeting face-to-face for 6 hours monthly. Pre-, post- and 9 month post-course surveys were administered, comprised of rating scale and free text response types. Pre-post course differences were analyzed by Wilcoxon test, with p value < 0.05 considered significant. Free text was coded for categorizing by qualitative analysis.

**Summary of Results:** The each surveys were complete by 100% (n=13) of ASIST participants. Post 9 month self-confidence is increasing in developing new scenarios (46.2%), Briefing (30.8%) and debriefing, facilitation (23.1%). new non-confidence area, reliable validated assessment, educational outcome measurement, assessment for educator come to the surface. Analysis of pre- and post9- self-assessment showed significant improvement in 3/10 domains: 1) Development of a validated scenario (p=0.02); 2) Providing effective facilitation for all types of learner (p=0.03); and 3) assessment of developed original course/program (p=0.04). Primary barriers to implementing simulation education were time, human resources.

**Discussion:** ASIST's longitudinal design was feasible. Self-confidence still improved in some domains during 9 month after taking course. Post 9 month improved confidence that was seen in scenario development, debriefing and facilitation outcomes. The result shows self-confidence requires a time to increase after course and recognize a need more skill in new areas of assessment for next step.

**Conclusion:** This pilot program identified gap in educational design for improving confidence in debriefing. Advance educator's needs are changing from instructing skills to assessment/evaluating skills. This shows higher educator pursues more quality in their education activities. Experience continues as a

necessity for developing debriefing, facilitation skill and confidence.

**Take Home Messages:** Faculty development step in simulation based education requires step1) facilitation and debriefing skills, step2) scenario development skill, step 3) assessment skill for learner, step 4) evaluation of developed course and education outcome.

## 10EE Posters: Teaching about Research

Location:

#10EE01 (134590)

The Collaborative INSPIRE Research Taster Day Scheme

**David Evans\***, Cardiff University School Of Medicine, Cardiff, UK

**Izabella Smolicz\*** (University of Bristol, Bristol, UK)

**Rachel Dbeis** (Plymouth University Peninsula Schools of Medicine and Dentistry, Plymouth, UK)

**South West & Wales INSPIRE Leads** (University of Bristol, Cardiff University, University of Exeter, Plymouth University; Bristol, Cardiff, Exeter, Plymouth, UK)

**Background:** The Academy of Medical Sciences INSPIRE initiative, funded by the Wellcome Trust, aims to encourage medical, dental and veterinary students to establish interest in research through new initiatives. The Universities of Bristol, Cardiff, Exeter and Plymouth collaborate on the INSPIRE Taster Day Scheme which allows students to visit a research group for a day, potentially leading to a Vacation Studentship Award. The aim of this work is to collate feedback from the Taster Day Scheme to inform future schemes, within or outside the four universities.

**Summary of Work:** The Taster Day Scheme was piloted in 2013 and took place in 2014 and 2015 across the four universities. Students are matched to research groups and attend one Taster Day in November/December. After the experience, students and supervisors provide feedback via a questionnaire.

**Summary of Results:** 431 students attended Taster Days between 2013-15, with 63% attending Taster Days at their home institution and 37% at a partner institution. Student Feedback 88% students rated their experience as "excellent" or "potentially fruitful". Of the students who attended Taster Days, 44% developed a supervised research project and 56% planned on applying for a Vacation Studentship. Supervisor Feedback All proposed Taster Days had an attendance rate of 100%. Over 70% of supervisors offered a research project to Taster Day students. The four institutions have awarded 47 funded INSPIRE Vacation Studentships to date and students have communicated their resulting successes, including publications and conference presentations.

**Discussion:** Results to date suggest INSPIRE Taster Days and collaborative work across the four universities have established pathways between research groups and students.

**Conclusion:** Taster Days provide students the opportunity to gain 'hands-on' experience and develop interest in research, leading to Vacation Studentships.

**Take Home Messages:** Students are keen to engage with research, achieving impressive results when offered access to opportunities.

#10EE02 (133151)

Knowledge and Practice of First Year of Medical and Dental Students in Awareness of Osteoporosis in Elderly Research Project

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**Wanwalee Jindamang**

**Apinya Khaminkhiao**

**Pattama Tongdee**

**Pornpip Nimkuntod**

**Background:** Undergraduate research in medicine is important to expose and encourage the students towards the newer advances and research practices. Self-development projects are a step taken by the institute of medicine to promote attitude and research skill.

**Summary of Work:** Cross-sectional study in medical research .Awareness of Osteoporosis in Elderly Project is first clinical practice of medical research with 2 months of medical research project with 3 hours for prepare knowledge during curriculum. Individual interviewed by students used factor-affected osteoporotic-awareness questionnaire. Measuring with Likert scale and difference in awareness by T test. Student self-reflection with mean+SD.

**Summary of Results:** The nursing home research project was performed with 9 medical and dental students. 51 elderly (28 women, 23 men) participants was interviewed. Uneducated elderly people, history of osteoporotic elderly people and family that has osteoporotic member factor-affected osteoporotic-awareness in elderly. The self-reflection about gained knowledge and attitude to successfully research (3.56+0.745) but need advisor to facilitate at least 50% of research activity. Obstacles included lack of knowledge about methodology and experience in real practice (4.30+0.87) and lack of time to data collection (4.27+0.84).

**Discussion:** After action review by team, data was collected using only pre tested but posttest questionnaire after educational intervention not complete due to time limit and communication problem during interview and lack of good communication skill between students and elderly participants.

**Conclusion:** Medical and Dental students had gained knowledge to design, conduct, present in factor-affected osteoporotic-awareness in elderly. Research activities help the students for better work experience.

**Take Home Messages:** Importance for facilitator and faculty to prepare and coping strategy before start medical research project in next year.

#10EE03 (133148)

**Expectations and experiences of final year medical students regarding family medicine rural rotations, and the relationship with intention to practice in a rural setting after graduation**

**Nazlie Beckett\*, University Of Cape Town, Cape Town, South Africa**

*Rhena Delpont, University of Pretoria, South Africa*

**Background:** A serious shortage of medical practitioners has been reported over recent years in the rural under served areas of South Africa. The Division of Family Medicine at the University of Cape Town (UCT) implemented a compulsory 1 week rural rotation in 2015, as part of the final year 4 week clerkship.

**Summary of Work:** The aim of the study was to explore the expectations and experiences of final year UCT medical students regarding the rural rotation. The study findings will be used to optimize the learning experience and identify factors which influence entry into rural practice. A qualitative study design was used.

**Summary of Results:** The majority were females aged 22 years to 33 years and came from the Western Cape and Kwazulu- Natal. Themes for student expectations included program content and clinical experience, language barriers, and the physical environment. Themes for student experiences related to environment and resources, program content and clinical experience, language barriers and logistics. Most of the students expressed an intention to enter rural practice, and reasons included effective teamwork, continuity of care and autonomous practice.

**Discussion:** The experiences of the rural rotation were mostly favorable. Positive experiences included good mentoring by supervisors, autonomy to perform procedures, and improved preparedness for internship. Negative experiences included inadequate clinical exposure and time allocation. The students made recommendations which were implemented in January 2016. The majority (21) who were females from urban areas were willing to return to a rural setting to practice. A limiting factor for some included personal reasons such as children's schooling.

**Conclusion:** The majority, who were females from urban areas, showed intent to practice in rural areas, so the aim of the intervention appeared to be achieved.

**Take Home Messages:** Exposure to rural medicine in the undergraduate curriculum may increase the number of students who enter rural practice.

#10EE04 (136135)

**Academic research: No longer a badge of honour for the UK higher surgical trainee?**

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*Jenan Younis*

*Dione Lothar*

*Humphrey Scott*

**Background:** The majority of UK general surgical trainees awarded a certificate in completion of training (CCT) have a higher degree in the form of an MD or PhD. Research is commonly undertaken during higher surgical training, not necessarily with the aims of complementing a future academic career but rather in response to an increasingly competitive job market. With the huge challenges facing UK surgical training, is time spent in research truly necessary? The aim here was to assess the views of higher surgical trainees regarding their opinions on spending a period of time in academic research.

**Summary of Work:** Higher surgical trainees from the Kent, Surrey and Sussex and London deaneries were asked to take part in a survey. Questions asked included whether they had completed/were undertaking a higher degree, whether they planned to undertake such a degree in the future, motivating factors for such plans and opinions as to the necessity of research.

**Summary of Results:** 42 trainees participated. 25% (n=11) trainees had completed/were currently undertaking a higher surgical degree. 60% (n=25) were planning a period of research. Of these 84% (n=21) cited pressure from supervising trainers and the deanery as the reason underlying their decision; 16% (n=4) had plans to pursue an academic career. 15% (n=6) had no intentions undertake research.

**Discussion:** The majority of trainees here have plans to undertake a higher surgical degree, however only a small minority had the intentions of pursuing an academic career. There are huge challenges facing training. These include reduced working hours, competency based assessment, and post CCT specialty training.

**Conclusion:** The question arises as to whether research for those with no intention of pursuing an academic career is truly necessary.

**Take Home Messages:** Changes in UK surgical training demand that attitudes towards research amongst trainers change and consider whether such time is better invested elsewhere.



#10EE05 (135975)

**PBL: A tool to enhance Students' Research Knowledge: A pilot study**

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*Hamzah Naji*

*Ibrahim Muhsen*

*Shouq Kherallah*

*Muhammad Raihan Sajid*

**Background:** Problem-Based Learning (PBL) is an active instructional strategy that permits discussion, critical thinking & self-directed learning. PBL has helped transform medical education in pre-clinical years from a passive to an active process. Moreover, PBL plays a role not only in developing scientific curiosity but also in bracing students to become professionals capable of playing multiple roles in practice. Those characteristics make PBL an attractive and potentially suitable modality to be utilized for research education.

**Summary of Work:** This research aims to investigate students' perspective on integrating competencies pertaining to biomedical research concepts and skills into the PBL. We modified a number of PBL cases by integrating some research competencies and Evidence-based medicine topics within the case scenarios (E.g. concepts of 'Randomized control Trials' and 'Sensitivity and specificity'). These topics were integrated by using three main tools: Question boxes, reference boxes and enhancing the scenario of PBL to elicit students' curiosity. The modified PBLs were given to students through in regular PBL sessions conducted at Alfaisal University, and the feedback of those students was collected through surveys and interviews.

**Summary of Results:** Results showed that even though most students (73%) believed that PBL is an efficient modality to deliver Research objectives; 61% of them indicated that research objectives should not be integrated with each PBL. Students slightly agreed that these PBLs have enhanced their understanding of the added concepts (mean Likert scale value of 3.11), with a preference towards using Question Boxes (Likert Scale value of 3.67).

**Discussion:** person to person interviews provided an additional perspective on reasons that led students to discourage this integration, for example: distracting the students from the main objectives of the cases and the need of additional time to prepare for the PBL.

**Conclusion:** In conclusion, the results encourage the integration of research and evidence-based medicine concepts in the context of PBL, given that objectives should be manageable for students to prepare and donot overburden them.ses. Educators must appreciate the context, complexity and the suitability of the integration. More insights can be achieved by case-control studies.

**Take Home Messages:** PBL is a vehicle that can be used to speed up research competencies acquisition in the undergraduate years given they be integrated in a favorable fashion for the learners.

#10EE06 (132457)

**Stimulating community building of clinician-scientists: alumni-involvement in an MSc Clinical Health Sciences programme**

*Manon Kluijtmans\*, University Medical Center Utrecht, Utrecht, Netherlands*

*Mirelle Stukstette (University Medical Center Utrecht, Utrecht, Netherlands)*

**Background:** Utrecht University offers a 2-year part-time MSc programme in clinical health sciences (CHS) to educate (non-physician) clinicians in health science research. There is a need for clinician-scientists, professionals who connect care and science to advance health care by research and care innovation. However, the clinician-scientists career is difficult because of the complexity and competing demands of a dual career. To stimulate community building and role modelling involvement of alumni in the educational programme was sought.

**Summary of Work:** From 2013-2015, in collaboration with alumni, a yearly event was developed as part of the master programme, the 'Science Carousel': a full afternoon with a conference look-and-feel set-up. The event starts with alumni (lunch) meetings, research presentations of recent graduates, student awards, poster presentations, and a work-field and alumni-organisation market. It ends with a plenary lecture of an international renown guest speaker followed by closing drinks.

**Summary of Results:** Over 270 students, staff, alumni and work field representatives participated in the 2015 'science carousel'. Average evaluation was 7.1 for students, 8.0 for alumni. The social aspect of meeting with alumni and work field was valued 6.6 by students, 8.6 by alumni. Students specifically appreciated the afternoon for the contacts with other students (70%), being inspired (62%) and widening their view (40%). Alumni specifically appreciated the ability to network (67%).

**Discussion:** Active involvement of alumni in an educational programme is not easily realised: the participation of alumni being hampered by work obligations. Also, attention is needed to increase the interaction between students and alumni as they do not automatically commingle.

**Conclusion:** Alumni-involvement in education is worthwhile since a mixed event, although for different reasons, is appreciated both by alumni and students.

**Take Home Messages:** Involvement of alumni in education is appreciated by both students and alumni, and may stimulate community building.

#10EE07 (134256)

**Evidence-Based Nursing Journal Club: A Model for Translation of Knowledge into Clinical Practice**

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*Chia-Hui Wang (Taipei Medical University - Shuang Ho Hospital, New Taipei City, Taiwan)*

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**Background:** Evidence-based nursing (EBN) aims to provide nurses with choices about the most effective care based on the best available research evidence. However, there are substantial gaps between the best evidence and clinical practice. EBN journal clubs are used by health care practitioners to critique and to keep up-to-date with relevant health literature.

**Summary of Work:** EBN journal club was arranged monthly by the director of Center for Evidence-based Health Care and the educated supervisor of nursing department. Once a clinical issue has been brought to attention, the presenter and supervisor will extract available data banks, in attempt to provide the best evidence for current opinion and guidelines. Once the clinical issue has concurred with the best evidence, a health care quality improvement team will be formed, and based on the principles of plan-do-check-act cycle, to promote and apply the evidence in clinical practice.

**Summary of Results:** The effectiveness of the EBN journal club was evaluated over a ten month period using a questionnaire of participants. General satisfaction was evaluated using a five item Likert scale (1 = strongly disagree, 5 = strongly agree). Evaluation surveys were completed by 133 nurses. The mean satisfaction score in EBN journal club overall quality is  $4.79 \pm 0.13$ . Besides, one quality improvement programme and two research studies were conducted after EBN journal clubs.

**Discussion:** Nurses frequently have questions about the nursing care of their patients, but collecting and managing data for clinical research presents significant challenges for them.

**Conclusion:** EBN journal club was appreciated by most of the participants, and may shorten the gaps between the best evidence and current clinical practice.

**Take Home Messages:** Implementing EBN journal clubs in hospital may strengthen health care quality.

#10EE08 (134400)

**A Model Workshop for Systematic Review Protocols at Teaching Hospitals: the second midterm report**

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*Yuki Yoshi Sumi*

*Mai Akazawa*

*Yuki Kataoka*

**Background:** Systematic reviews play an important part of five steps of evidence-based medicine. However, medical practitioners are unfamiliar with them and a workshop for creating systematic reviews is not common at teaching hospitals despite upwelling relevant clinical questions. The purpose of our project is to develop a model workshop for participants to acquire skills in creating high quality protocols of systematic reviews based on their clinical questions at teaching hospitals.

**Summary of Work:** We used an action research method to create the model workshop, and implemented it at four teaching hospitals in Japan. The main participants are personnel engaged in medical care. Two teachers who are Cochrane review authors including one master of public health holder gave interactive consecutive lectures. We improved the program by conducting reflection based on questionnaires to participants in each lecture and quality of homework submitted by participants after each lecture. Not only the model workshop itself but also accomplished protocols of systematic reviews are assessed as the outcome measure.

**Summary of Results:** We held seven interactive lectures from April 2015 to July 2015 at the first hospital. In the second hospital, we held seven interactive lectures from October 2015 to February 2016. Twenty-one participants produced seventy-three research questions at the first hospital and eleven participants produced thirty-three research questions at the second hospital. Then four review teams with nine members accomplished their protocols of systematic review.

**Discussion:** We found medical practitioners had startling number of clinical questions through this workshop and only two teachers were able to handle their numerous clinical questions and to support protocol development.

**Conclusion:** By using this model workshop, participants could acquire skills in creating systematic review protocols.

**Take Home Messages:** After completion of this workshop, clinician educators will be able to use this model for teaching method of systematic reviews.

#10EE09 (136074)

**Assessing Field-Specific Research Competencies Needed for Undergraduate Medical Students, Its Importance and Delivery: Mentors' Perspective**

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**Background:** Research plays an essential role in the development of healthcare systems. Hence, integrating research into the medical curricula is vital to produce graduates who are competent to conduct research. Evidence showed that current medical curriculum models still lack effective integration. Therefore, this study aims to identify competencies relevant to Basic and Clinical/Epidemiological research, and to evaluate mentors' perspective regarding the importance, teaching style, and delivery method for each competency.

**Summary of Work:** A cross-sectional survey was created and validated by field experts, then it was distributed to four institutions; with two sections, (1) General participants' identification, (2) Assessment of seven and fourteen competencies of Basic and Clinical/Epidemiological research respectively, in terms of importance, teaching style, and mode of delivery.

**Summary of Results:** Sixty mentors were surveyed. Results of basic and clinical/epidemiological research competencies showed that all suggested competencies had mean importance above 3.6 ranging (3.6 → 4.7) and (3.6 → 4.5) respectively on a 5-point Likert scale. Regarding teaching style, mentors believed that both research fields should be taught non-compulsorily. Considering the mode of delivery, mentors favoured using both active and passive-learning pedagogies with minor exceptions for certain competencies.

**Discussion:** Medical curricula designs vary in the methods of implementing the essential competencies relevant to Basic and Clinical/Epidemiological research. However, in the era of competency based medical education, it is highly important to clearly identify, and prioritise the needed competencies, and to look for the most effective methods to implement them in the undergraduate curricula.

**Conclusion:** All competencies listed in this research are important and should be effectively considered in designing research courses for medical students. Moreover, educators are advised to integrate active learning and performance based assessment like projects which will enforce and enhance students' experience.

**Take Home Messages:** It is important to provide educational opportunities for undergraduate medical

students to develop skills and interest in conducting research during the medical school years and beyond.

#10EE10 (132963)

**Promoting the scientist within medical students from year one: a practical research experience**

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Zarabeth Newton

Lesley Jones

**Background:** Evidence-based medicine to improve the population's health and wellbeing is founded on research carried out in multiple different settings: the laboratory, the clinic, the hospital and amongst the general population. Research is an essential part of any clinician's practice. In order to address this, a student-selected component (SSC) was designed for year one medical students that introduced them to the concepts of research.

**Summary of Work:** Postgraduate researchers (PGR) within the School of Medicine at Cardiff University delivered a snapshot of their research. The topics included both laboratory and data analysis projects and tutors were provided with a bespoke training programme. Delivery was over three sessions and included an overview of a research project, potential clinical impact and a hands-on-practical allowing student engagement under direct supervision. A survey to gather student feedback on the practical research experience was undertaken at the end of delivery.

**Summary of Results:** We received feedback from seventy students with representation of responses across all PGR tutor groups. The majority of students reported clear understanding of the content in the introductory (83% students), practical (93%) and wrap up sessions (100%). When asked if sessions met expectations, there was strong overall agreement. More than 90% students agreed that they could see the clinical relevance of the practical research experience and more than 95% students agreed that the delivery of all three sessions was good.

**Discussion:** Medical students reported learning more about research methods (30%) and scientific skills (26%). Student comments included "The practical session was complicated and difficult to understand at first but the more we discussed it, the more we understood it." "A valuable experience. I learnt some basic research skills and it was really good exposure to the research field."

**Conclusion:** Year one medical students clearly benefitted from this practical research experience. For the PGR tutors it emphasized the importance of setting their research into its clinical context, no matter how basic the nature of the research. For the future, refining the delivery and depth of content is a priority.

**Take Home Messages:** It is important that future doctors understand the research process and are able

to evaluate research evidence presented during training and in future careers as practicing clinicians.

#10EE11 (133882)

**Timing of the research internships in a medical curriculum**

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**Background:** Training medical students in performing research is essential; students need to acquire research skills and learn to translate research outcomes in daily practice. In order to obtain insight in optimal timing of the research internship in the medical curriculum, characteristics of internships performed before and after clinical clerkships were compared.

**Summary of Work:** Duration of the internships, locations (abroad or not), disciplines, and grades were compared between students (n=428) who carried out their internship pre-clinically (in year 4) or post-clinically (in year 6). We used an open-ended questionnaire to explore reasons for students to choose for an internship in year 4 or 6.

**Summary of Results:** Students performing their research internship in year 4 opted more often for a longer internship (37% versus 21%) and an international location (27% versus 11%) and chose other disciplines (more pre-clinical specialisms). Internship grades did not differ significantly. Motives behind their choices for the timing of the internship did differ.

**Discussion:** Students choose for timing of their research internship in line with their personal goals and ambitions. Students are willing to spend more time on research in the pre-clinical phase compared to the post-clinical phase. These results might have implications for the timing of research internships in designing a medical curriculum.

**Conclusion:** Research internships carried out before clinical clerkships can be at least as effective for learning research skills as those performed after clinical clerkships. Providing students with a choice in the timing of their research internship can offer customized tracks for students with different motives and career perspectives.

**Take Home Messages:** For optimal professional and scholarly development of students it might be beneficial to offer students the possibility to make a personal choice for scheduling their research internship in the medical curriculum.

#10EE12 (126038)

**A scale for measuring evidence-searching capability: a modified Delphi study**

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Yu-Shiun Tsai

Tien-Pei Fang

**Background:** The ability to acquire the best evidence efficiently is important for busy healthcare professionals who have to make decision within a limited time. However, the current available assessment tools in evidence-based medicine (EBM), e.g. Berlin questionnaire and Fresno test, were not designed for examining evidence-searching capability. The objective of this study was to develop a consensus scale for measuring evidence-searching skills.

**Summary of Work:** We use 2-round modified Delphi technique and organised a workforce of 7 experts who provided comments on a draft 33-item scale and rated each item on a 5-point Likert-type scale. All items rated less than 3 by any expert were removed. The items were modified or merged after authors' discussion considering experts' comments. When all items were rated  $\geq 3$  by all experts with an interquartile range (IQR) of  $\leq 1$ , a consensus was achieved. The searching capability of two examinees was assessed by two raters and re-assessed two weeks later for reliability.

**Summary of Results:** All 7 experts completed the two rounds. In Round 1, 33 items were removed and 11 items were merged into 4 items, leaving 17 items remained in the scale. In Round 2, 17 items were removed. The final consensus scale consisted of 15 items, all rated 4 or 5 with a mean of 4.79 and an IQR of 1 or less. The full details of the scale will be presented. The inter-rater correlation was 0.911 (95% confidence interval 0.821-0.956), while the intra-rater correlation coefficient was 1.

**Discussion:** This study is the first to develop a scale for measuring evidence-searching skills through a systematic approach. The scale is composed of 15 items that can be used in objective assessment of knowledge-acquiring ability. We will conduct research to further validate the current scale for searching skills in EBM.

**Conclusion:** This consensus scale fills in the gap in assessment tools for evidence-searching capability, and may be used in improving the training of evidence-searching.

**Take Home Messages:** EBM teachers may use the scale in measuring evidence-searching skills and improving the training of evidence-searching skills.



#10EE13 (134875)

**The unknown or accepted lack of statistical knowledge among health science professionals**

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Inmaculada Herranz

Daniel Vélez

Pilar Gómez

Luis Prieto

**Background:** Relevant articles show that an important number of health science researchers lack of basic and necessary statistical knowledge, they do not understand properly the basis of terms and concepts which they use every day and this prevents to understand own or others results and design an appropriate research.

**Summary of Work:** We designed a brief test including basic questions about biostatistics. We selected a random sample of health science researchers from 20 different countries during several International Congresses of Medical Education including AMEE 2014 celebrated in Milan. We asked, besides age and nationality, what they think about his biostatistics level and ten simple questions related to statistical knowledge.

**Summary of Results:** Total number of respondents was 74. The ages ranged from 20 to 64, with a mean  $40.36 \pm 12.69$ . 24% did not calculate mean of a frequency distribution correctly, 45% did not have a clear idea about percentile concept, 57% did not recognized Z score, 82% could not identify cumulative frequency in a normal distribution and 86% did not recognize binomial distribution in a simple example. 85% did not recognize p value definition. Only 40% of respondents answered more than 5 questions correctly. 55% affirmed to understand p value concept but only 20% of them chose correct answer in the related question.

**Discussion:** It could exist a relation between personal opinion in statistics and the place of these questions in the test. If the questions related to personal opinion are placed at the beginning of the test, respondents show more confidence than if these questions are placed after the statistics questions ( $p = .07$ ). Also, who respond personal evaluation at the beginning, think that need less review than who respond this question at the end ( $p < .01$ ).

**Conclusion:** Most of health science professionals use statistics in their current researchs, thinking they are using the concepts in an appropriate way but the tests show a lack of basics in this area. This fact is not related to age or nationality, therefore we are in front of a global problem.

**Take Home Messages:** Deficiencies in different areas of statistics should be recognized in order to improve or review the necessary knowledge. Good use of statistics is not a "nice to have" in biomedical research, it is essential.

## 10FF Posters: Subjects in the Curriculum

Location:

#10FF01 (132365)

**Education in Human Rights. A survey in the Medical and Nursing Schools in Greece (Med Schools of Athens and Patras - Nursing Schools of Athens and Uni Peloponnese)**

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*M C Papadopoulou*  
*A Terzidis*  
*T Rosenberg*

**Background:** It is 2015, the year when medicine has made it to a point where a complicated machine holds you in life simply by pumping air into your lungs. Still, it struggles to be guided by the human rights principles that lie in its core.

**Summary of Work:** Our survey aims to explore the existence of human rights education in two of the medical schools and the two university nursing schools of Greece. By examining the detailed curriculum of every school we registered the subjects that include human rights. We also attempted a comparison between the abovementioned schools.

**Summary of Results:** Human rights are included in 23% of the courses taught in the medical school of Athens, 9% in the medical school of Patras, 44% in the nursing school of Athens and 43% in the nursing school of Peloponnese. Those courses are mostly optional in the medical schools, while the nursing schools include mandatory Human Rights teaching throughout their curriculum.

**Discussion:** Our findings suggest that human rights are more or less neglected in the medical school curricula. There is hardly a special course on human rights and even medical ethics principles are included in too few subjects in the curriculum. Nursing schools exceed medical schools by almost twice the number of subjects that include human rights.

**Conclusion:** The two greek medical schools have a lot to learn from their colleagues in nursing. Following their example by incorporating human rights teaching in their curriculum will definitely contribute to a better therapeutic result and to a future medical community that respects human beings.

**Take Home Messages:** It is high time medical schools interpreted the Hippocratic oath to a doctor-patient relationship guided by the principles of respect and responsibility. And this requires human-rights teaching and stimuli provided to medical students throughout the educational process.

#10FF02 (134999)

**What features of a two-week undergraduate anaesthetic placement makes the most impact in learning?**

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*Amardeep Riyat*  
*Shree Voralia*

**Background:** Despite anaesthetists representing the largest proportion of hospital specialists in the UK (Rohan et al, 2009), no consensus on the aims of undergraduate anaesthetic teaching has been reached. At our medical school anaesthetic training is limited to a 2 week attachment undertaken by undergraduates in their first clinical year. With a view to optimise curriculum design, the aim of this study was to identify features of the placement that students felt significantly impacted on their learning.

**Summary of Work:** 24 third year medical students were asked to complete a standardised questionnaire following a 2 week attachment in anaesthetics. This included the question "What was the most striking feature of your attachment". Blank space was provided for students to answer. Thematic analysis of the results was independently carried out by 3 investigators. Investigators then met to discuss and reconcile their analyses.

**Summary of Results:** Thematic analysis of the responses revealed several broad themes that registered with students. These were knowledge based features, human factors and insights into medical practice. A significant number of students commented on learning about teamwork in an anaesthetic setting.

**Discussion:** These results suggest students are most interested by practical anaesthetic skills and their experiences in obstetric anaesthetics. This may relate to more abundant opportunities to practice procedural skills. These are consistent with previous studies (Cheung et al, 1999). Students also took away distinct lessons about teamwork in an anaesthetic setting.

**Conclusion:** This study concurs with previous work that highlighted the opportunities for practical skills training in undergraduate anaesthetic placements and suggests that anaesthetics could provide a valuable learning opportunity in team working in clinical medicine.

**Take Home Messages:** 3 broad areas of student interest following their were knowledge based features, human factors and insights into medical practice. Study highlights the opportunities for learning about teamwork in clinical medicine.

#10FF03 (135494)

**Third-year medical students' knowledge about self prevention from blood and body fluid borne infection: Khon Kaen University**

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*Warunporn Siriboonpipattana (KKU, Khon Kaen, Thailand)*

*Rueangrit Siriphanit (KKU, Khon Kaen, Thailand)*

*Nuntiya Srisongmueang (KKU, Khon Kaen, Thailand)*

*Suchada Paileeklee (KKU, Khon Kaen, Thailand)*

*Varisara Luvira (KKU, Khon Kaen, Thailand)*

*Rapeepat Pipatnanun (KKU, Khon Kaen, Thailand)*

**Background:** A general risky practice in self-prevention procedures from blood and secretions of patients has been observed amongst the Khon Kaen University (KKU) medical students. There is a lack of information amongst the pre-clinical-year medical students.

**Summary of Work:** A cross sectional study was conducted to examine the third-year medical students' knowledge about the self-prevention of blood and body fluid born infections. Data were collected from a total number of the third-year medical students in academic year of 2015 using self-administered questionnaire.

**Summary of Results:** The response rate was 100% (230/230). The median knowledge score about blood and body fluid born infections was 8 out of 10 (95% CI: 7, 8). The majority of students (>90%) knew the level of risk of infection during practice if exposure to blood and body fluid of AIDS, HBV/HCV patients. The median knowledge score at pre-contact was 4 out of 6 (95% CI: 4, 4) and at the post-contact was 6 out of 7 (95% CI: 6, 6). About three-fourth of students had misunderstanding regarding pre-contact of needle disposal and discard them in the infectious waste. Another one-third had misunderstanding about post needle stick injury.

**Discussion:** Most of students had sufficient knowledge about the risk of blood and body fluid born infections. This may be explained by the sessions provided or self study. However, there are still a number of students lack of practical knowledge which may possibly explain by none of practical classes were provided or inexperienced in any clinical procedures.

**Conclusion:** The third-year medical students at KKU had sufficient knowledge about the risk of blood and body fluid born infections. However, There is a need for improvement in self-prevention procedures for patients' blood and secretions.

**Take Home Messages:** Practical training or e-learning should be provided about self-prevention from blood and body fluid born for pre-clinical students.

#10FF04 (133892)

**Beliefs and attitudes of the medical students towards biostatistics**

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*Berik Koichubekov, Karaganda State Medical University, Karaganda, Kazakhstan*

*Viktor Riklifs, Karaganda State Medical University, Karaganda, Kazakhstan*

**Background:** Many students have problems with statistics due to non-cognitive factors, such as negative beliefs or attitudes towards statistics. Such factors can hinder learning statistics, or create difficulties for developing statistical intuition and using statistics' principles in the future.

**Summary of Work:** 573 students of the Karaganda State Medical University were interviewed to assess their beliefs and attitudes towards biostatistics prior to its learning.

**Summary of Results:** More than a half (64,05%) of the students think that biostatistics will include a lot of mathematics. Solving mathematical problems causes anxious feelings in 20,94% of the students. 20,42% of the students previously had problems with mathematics. 37,00% of the students starting to study biostatistics experience anxiety. 35,77% of the students believe that biostatistics will see no use in their prospective professional activity.

**Discussion:** The medical students associate biostatistics with mathematics and thence they have certain typical negative beliefs and anxious feelings about themselves in relation to quantitative problem solving. Some students either doubt or don't believe in biostatistics appropriateness in their professional future and career.

**Conclusion:** We try to demonstrate that main goals of biostatistics are data analysis and decision making, as opposed to the simple computations using mathematical rules and procedures. We invite students to participate in research projects, which are carried out at our department and motivate them to do their own research. This approach will not only allow to interest students, but also to change their attitude towards biostatistics and to evaluate its role and necessity in their future professional activity.

**Take Home Messages:** Biostatistics teachers need to respond to students' emotional and attitudinal status, organise and carry out assessment of the initial students' beliefs and attitudes prior to learning biostatistics and monitor the status of such beliefs and attitudes during the course.

#10FF05 (133600)

**Traffic accidents involving pure electric cars. Are new training programmes for paramedics and emergency physicians necessary? A needs assessment regarding emergency care for injured in electric vehicles**

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**Background:** The involvement of pure electric cars in traffic accidents and how this affects the rescue mission is largely unknown. The project “SafetE-car” concerns itself with the expectations and experience of rescuers regarding these accidents. Special emphasis was placed on the applicability of established rescue algorithms, as well as safety concerns on the rescuers side and the necessity of special knowledge. The goal was to identify required adjustments and extra training for e-car accidents.

**Summary of Work:** In fall of 2015 a requirements analysis based on a cross-sectional research design was conducted. 294 questionnaires were completed by mainly paramedics and emergency physicians. Data was collected on three dimensions: (1) professional category; (2) accidents of electric car: experience and expectations; (3) performance of one’s own institution.

**Summary of Results:** 7,5% were involved in a rescue mission including a crashed electric car. 3.1% attended training seminars for electromobility. On a scale from 1 (not at all) to 6 (fully applies) the applicability of established algorithms was given an average rating of 3.72. For respondents with experience in electric car incidents [A] the mean was 3.73, for those without [B] 3.72. The necessity of special knowledge had a mean ranking of 4.28, respectively 4.00 [A] and 4.30 [B]. “It’s harder to establish operational safety” had an average rating of 3.69, respectively 3.85 [A] and 3.68 [B].

**Discussion:** To some extent current algorithms might be applicable to accidents involving electric cars. The fact that only very few respondents were already trained for e-car accidents and special knowledge seems to be necessary stresses the importance of new and adjusted training concepts. The same also applies for establishing operational safety.

**Conclusion:** New training programmes concerning traffic accidents with electric car involvement should be established.

**Take Home Messages:** Special training may be needed for emergency care in e-car accidents.

#10FF06 (132554)

**The attitude about narrative medicine between pre- and post- clinical service medical students**

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Ming-Che Tsai  
Kung-Cheng, Ueng

**Background:** A program of narrative medicine is carried out among medical students during their internship in our medical university hospital. A new program of narrative medicine was designed for medical students before their clerkship. We wanted to compare the attitude about narrative medicine between pre- and post- clinical service medical students.

**Summary of Work:** Just before their clerkship, medical students were taught a course about narrative medicine and were shared the stories from the facilitator according to previous sharing from interns. After sharing the stories, medical students during their internship or before their clerkship were asked both quantitative and qualitative feedback for their attitude about narrative medicine. Unpaired-t-test was used to analyze the quantitative result.

**Summary of Results:** During a two years period, there were 196 medical students (126 just before their clerkship, 67 internship) gave their feedback about narrative medicine. Between two groups, interns showed significant positive attitude about narrative medicine than medical students before clinical service ( $4.7 \pm 0.3$  vs.  $3.1 \pm 2.4$ ,  $P < 0.01$ ).

**Discussion:** Most of the interns felt that narrative medicine could let them join their medical work better from sharing, understanding and internalization. The top three negative qualitative feedbacks from the pre-clinical students were that they felt no empathy, they could read the stories themselves and it was unnecessary to share the stories before clinical service.

**Conclusion:** Narrative medicine can strengthen the attitude of the students to be a good doctor during their internship. However it is better not to engage it to the medical students before their clinical service.

**Take Home Messages:** Narrative medicine is very helpful to the medical students in the working place. Further research should be done to young residents.



#10FF07 (133678)

**Electrifying substance abuse medicine education. From colour paper sheets and clickers to mobile assessment**

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*Teemu Masalin*

*Maarit Raukola*

*Hannu Alho*

**Background:** University of Helsinki Faculty of Medicine, substance abuse medicine course (1.8 ECTS) consists two-day seminar of case-based patient cases for graduating sixth year students. Course has been held since 1980s and in the end of the course a final exam has been held using three evolving methods.

**Summary of Work:** Students answered to the exam by racing coloured papers with coordinator calculating answers. Voting clickers were initiated 2008, with automated collection of answers. With the adoption of mobile devices, Socrative mobile quiz voting was introduced in 2014. With positive feedback, Socrative was selected to use in 2015.

**Summary of Results:** Feedback has been very positive (2015: 3.49 on average in Likert scale, N = 144, n = 111, 77.8 %). Socrative has been cost-effective and has reduced the need of resources. Students can use any device and also participate from home. Data is easily and rapidly accessible. Course feedback has increased in last two years substantially (2013 27 %, 2014 62 %, 2015 77 %).

**Discussion:** In the paper era, the course feedback was collected first only verbally and then by paper. 2002 web-based feedback system (WebOodi) was adopted. Feedback percentage dropped from 60% to 30% from 2005. Voting clickers did not increase feedback and expensive clickers and expanding participants proved challenging. With Socrative quiz, students give anonymous, immediate and more versatile feedback.

**Conclusion:** Students prefer Socrative exam (2015: 65.5 %, n = 142). Even though students use own devices, preparation is crucial. Devices require enough charge, reliable internet and spare devices should be available. Interactive self-study materials motivate students to learn. Low-threshold system e.g. Socrative promotes high quality assessment.

**Take Home Messages:** Moving to mobile assessment requires motivation, courage and versatile support. However, the benefits are clear and the change evolves assessment.

#10FF08 (133166)

**Abortion in the medical curriculum: a survey of UK undergraduate medical students**

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*Lotte Elton (London School of Hygiene and Tropical Medicine, London, UK; Newcastle University Medical School, Newcastle, UK)*

*Lisa Murphy (University of Glasgow School of Medicine, Glasgow, UK)*

*Tessa Fautz (UCL Medical School, London, UK)*

*Philippa Nicklin (UCL Medical School, London, UK)*

*Suzanne Tween (Barts and the London School of Medicine and Dentistry, UK)*

**Background:** Access to safe abortion relies on adequate numbers of well-trained providers. The study aimed to reflect upon UK medical students' experiences of and attitudes towards abortion teaching in their medical curricula, in order to identify successes and shortcomings in the current provision of undergraduate abortion education.

**Summary of Work:** Medical students studying at UK institutions were invited through online communication to complete an online questionnaire. The survey used a 36-item questionnaire, with a mixture of binary, sliding-scale, categorical and free-text response items.

**Summary of Results:** The survey received 119 responses from participants studying at 21 universities, representing all stages of the medical course. 53% had not received any pre-clinical teaching; 78% had had no formal clinical teaching. 73% reported wanting more lecture-based/classroom-based teaching and 59% reported wanting more clinical exposure to abortion. 60% of our cohort rated their pre-clinical teaching as insufficient, with an even larger proportion (77%) giving an 'insufficient' score for their clinical exposure.

**Discussion:** The majority of students felt their teaching on abortion had been insufficient and there was widespread lack of confidence in counselling a woman about her pregnancy options, even amongst those in their final year. This was most often put down to lack of knowledge or abortion-related communication skills.

**Conclusion:** We identified dissatisfaction with abortion education and a lack of confidence in abortion-related clinical skills in our participants, despite the majority of respondents feeling that abortion was 'very relevant' to medical education. The lack of confidence around abortion counselling is particularly concerning in final year students.

**Take Home Messages:** Such results indicate the need for further evaluation of the content and quality of undergraduate abortion teaching. An improvement in delivery of undergraduate medical education on abortion is necessary to ensure that junior doctors are confident in their abilities to provide competent and compassionate care to women seeking abortion.

#10FF09 (135953)

**Does a mental health educational program change medical students' attitudes towards people with mental illness?**

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*Rosa Malena Delbone de Faria  
Silvana Maria Elói Santos*

**Background:** The stigma attached to the mentally ill is a universal phenomenon and a major barrier to the provision of mental health services. Stigmatising attitudes among health professionals can result in compromised patient care.

**Summary of Work:** A mental health educational program implemented in a Brazilian medical course partnered with the local community mental health system were evaluated. A Questionnaire to collect social demographic information and investigate students' personal experience with mental health issues, and The Attribution Questionnaire (AQ-27) that measures stigma towards mental illness were used for assessment. Initially, 431 students from the first to the last year of the course accepted to participate. Factorial analysis was carried out to validate the Portuguese version of AQ-27 and cluster analysis to separate groups with distinguished stigmatization tendencies. Assessment was repeated for 156 students after their training. Additionally, multiple linear and logistic regressions analysis was used, among other complementary univariate analyses.

**Summary of Results:** We found that none of the socio demographic factors or student's mental health life history influenced stigma level showed by the students. Nonetheless, psychiatry as a career choice did ( $p=0.042$ ). The results also showed a statistically significant decrease in the expression of stigma ( $p<0.05$ ) when the training scenarios were analysed all together. Differences were identified when they were compared separately: Therapeutic Workshop Community Centres for first year students ( $p=0.004$ ), Intensive Care Mental Health Units for last year students ( $p=0.064$ ) and Primary Care Units for fourth year students ( $p=0.754$ ).

**Discussion:** Overall, we found that the mental health training activities implemented since 2010 contributed positively to the reduction of stigma related to mental illness. The difference between them is probably due to the students' degree of maturity and previous exposure to the course. In addition, the specificities of each educational strategy offered should be taken into account, including: patients profile and complexity of mental health scenarios, different students' workloads and teaching strategies used.

**Conclusion:** Reducing stigma among medical students requires longitudinal curriculum organization, with the inclusion of mental health educational strategies that promote direct contact of students with mentally ill patients, preferable in community mental health settings. The beginning of the medical course seems to be an opportune time to offer this type of activity.

We also believe that the reducing of stigma related to mental illness contributes to generate greater interest of students by psychiatry and mental health.

**Take Home Messages:** Our experience shows that effective broad-based collaboration between University and Mental Health System can successfully combine achieving educational objectives with delivering community-based health care

#10FF10 (135673)

**Achieving CPR guideline targets: comparison of a reformed with a traditional medical curriculum**

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*Jan Breckwoldt  
Harm Peters  
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**Background:** Every physician is expected to be proficient in cardiopulmonary resuscitation (CPR) and basic life support (BLS). However, performance of post-graduate physicians and final-year-students often does not meet guideline standards. In the reformed medical curriculum (RefC) at Charité-Berlin, teaching of emergency medicine was adapted. To analyse the quality of the new curriculum, we compared performance of chest compressions by students between RefC and traditional curriculum (TradC).

**Summary of Work:** In TradC, resuscitation training was delivered at four time points (in semesters 6, 7, and 10, plus external lay-BLS-course before semester 4), 61 hours total. In RefC, resuscitation training is provided in semesters 1, 6 and 10 (including the BLS course into semester 1), summing 54 hours. In the 6th semester all students have to design and carry out a training session to teach BLS to laypersons. As main outcome we analysed chest compression quality, the most important BLS intervention. Guideline targets (ILCOR 2010 guidelines) are 5.0-6.0cm compression depth, 100-120 bpm, and minimal leaning between compressions (below 5mm). Directly after their course, we compared 26 students from RefC to 128 students from TradC. Students performed compression-only-CPR for 5 minutes on manikins, recorded via Laerdal SkillReporter.

**Summary of Results:** Mean compression depth was 38.8mm [37.4-40.3; SD 8.0] in TradC and 41.4mm [36.9-45.9; SD 11.1] in RefC,  $p=0.275$ . Similarly, compression rate showed no significant difference between groups,  $p=0.130$ . Leaning depth was significantly lower in RefC compared with TradC (7.3mm [5.6-8.9; SD 4.1] vs. 10.9mm [9.6-12.3; SD 7.4],  $p=0.001$ )

**Discussion:** Albeit receiving less teaching hours, but including a "learning-by-teaching" intervention, RefC students performed comparably well as TradC students, with improved quality for leaning depth.

**Conclusion:** In both curricula chest compression quality did not meet guideline targets. Putting more effort into BLS/CPR training still seems necessary.

**Take Home Messages:** Suboptimal BLS/ALS performance quality in simulated trainings may partly explain it's insufficient quality seen in clinical settings

#10FF11 (133669)

**Early introduction of psychiatry in a contextual manner via case based learning in an undergraduate medicine programme**

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James Walters

Mathew Hoskins

Athanasios Hassoulas

Steve Riley

**Background:** It is essential that future doctors have a good grounding in psychiatry to ensure that patients receive appropriate care for both physical and mental health problems. With the aim of introducing students to psychiatry at an early stage in the curriculum, a Mental Health case was developed within a case based learning programme. We here describe the development, implementation and student evaluation of this innovative case.

**Summary of Work:** The Mental Health case used a variety of bespoke resources to enhance the student learning experience. The aim of the case was to address the key learning outcomes in a contextualised framework by "bringing the patient to life" in order to provide students with greater insight into the patient experience. To optimise the impact of the case the Winter School in Psychiatry was held directly following the case. This case was delivered for the first time in 2014/2015 and student evaluation data is presented.

**Summary of Results:** 95% of students rated the case as a positive learning experience. The case generated a considerable interest in psychiatry, with 88% of those who completed the form reporting an interest post-case. High rates of students attending the Winter School also reported that they would now consider a career in psychiatry. Further evaluation data will be presented.

**Discussion:** Students continue to learn about mental health and psychiatry throughout the five-year programme with increasing depth, complexity and clinical focus. Future work will investigate whether these positive experiences of mental health and psychiatry within the early years of the spiral curriculum influence student perceptions and attitudes in later years.

**Conclusion:** Students valued learning about mental health and psychiatry in a contextual manner within a case based learning programme.

**Take Home Messages:** Student perceptions of psychiatry were improved as a result of the Mental Health Case and Winter School, which may have important implications for future recruitment and retention in psychiatry.

#10FF12 (136302)

**Is there a place for Complementary and Alternative Medicine (CAM) in the UK medical school curriculum?**

**Sara Noden\*, King's College London, London, UK**

Afra Jiwa (King's College London, London, UK)

Salma Khan (King's College London, London, UK)

Bonita Amilah (King's College London, London, UK)

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**Background:** In recent years, there has been an increase in the use of Complementary and Alternative medicine (CAM) amongst the general population. With over 100 million EU citizens and 44% of British households choosing to invest in these remedies the case has been made for medical schools to include a selection CAM therapies as part of their core curriculum. While the implementation of this has been successful in a small portion of British medical schools, the majority of schools, recognise the value of CAM but lack the understanding and support to create an effective curriculum and therefore a consistent approach to CAM practice across the country.

**Summary of Work:** A literature search was carried out to analyse the current perspectives on the relevance of adding complementary and alternative medicine (CAM) to the UK medical school curriculum. Papers were also referenced for which CAM topics should be included in the curriculum and which teaching methods and formats were most effective. Any difficulties in administrative support in adding CAM to the curriculum once the value of it was established, were also discussed.

**Summary of Results:** Recommendations from the BMA and the General Medical Council are encouraging of the study and awareness of CAM therapies at undergraduate level. Despite this, of the current 26 medical schools, only six (23%) are offering a form of CAM teaching, a small number comparing to the 75% in the USA and 40% in other European countries.

Amongst these organisations there is agreement that a CAM curriculum should be integrative rather than theoretical, as such is the current practice in participating medical schools.

**Discussion:** Despite the escalating public interest of complementary and alternative medicine, there has been slow progress in CAM implementation throughout UK medical schools. A tenable vision for the future on CAM education involves defining a core curriculum, involving all levels of medical education in a way that avoids the current barriers.

**Conclusion:** We believe that future clinicians should be equipped with a basic understanding of CAM, securing them with the comfort and confidence to discuss CAM therapies with their patients and ultimately meet the recommendations of our governing medical bodies.

**Take Home Messages:** We believe that future clinicians should be equipped with a basic understanding of CAM, securing them with the comfort and confidence to discuss CAM therapies with their patients and ultimately meet the recommendations of our governing medical bodies.

#10FF13 (133280)

**To CAM, Or Not To CAM? – Filling the Gap between Medical Students and Patients Seeking Complementary and Alternative Medicine (CAM)**

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*Ching-Chung Lin*

*Min-Shu Wang*

*Hung-I Yeh*

**Background:** It has been reported that 75-80% of patients in Taiwan have experiences seeking for complementary and alternative medicine (CAM), expense of which, as that of conventional medicine, is reimbursed by the National Health Insurance. However, most of medical students in Taiwan lack “CAM” competency in facing patients who seek for conventional therapy and CAM at the same time, leading to a big gap between physicians and the patients in terms of mutual understanding and in sense of holistic care.

**Summary of Work:** To fill this gap, we initiated an optional course of CAM in year 2, emphasizing cultural and humanity understanding, in addition to current evidence-based knowledge and actual observation in a prestigious CAM hospital. The course design was interactive to inspire medical students to re-think why people in Taiwan adopt CAM instead of conventional therapy alone to manage their illness. In year 5, we have another optional course of CAM, focusing exclusively on hands-on mutual practice of acupuncture to strengthen their personal perception and experience regarding this most widely-used CAM in Taiwan.

**Summary of Results:** We found that medical students who had taken the related courses of CAM, as compared to those who had not, had significantly higher scores for CAM competency.

**Discussion:** We evaluated whether these optional courses substantially enhance CAM competency of medical students by the objective structured clinical examination (OSCE), one station of which was designed to evaluate their related competency, including empathy, altruism, holistic care, humanity- and evidence-based critical thinking, in facing patients opting for CAM as their part or all of therapeutic mode.

**Conclusion:** Appropriate educational courses may help medical students better understand and empathize with patients opting for CAM as one of their treatment modalities to enhance holistic care and bridge the existing patient-physician gap in Taiwan.

**Take Home Messages:** A proper curriculum aiming for cultural competency may help fill the patient-physician gap.

#10FF14 (135786)

**Diversity of Opinions and Preferences About Mode of Delivery among Medicine and Nursing Courses**

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*Carla Betina Polido*

*Maíra Soligo-Takemoto*

*Pedro Docusse JR*

*Lara Amaral*

*Eliana Amaral*

**Background:** To assess the opinions and choices about mode of delivery of those who will be responsible for providing care for women in the near future is essential to understand the influence of professional education in these preferences.

**Summary of Work:** Students attending Medicine and Nursing Programs at Federal University of Santa Catarina were enrolled. A questionnaire was employed with questions about which mode of delivery they would consider less risky and more beneficial, which they would choose for their children and if their opinion about preferred mode of delivery changed during the course.

**Summary of Results:** 607 students were included. Mean age was 22.9 years, 60.3% were female, 81.5% were white, 91.1% were single, and 59% have high family income. Most students (95.5%) declared vaginal birth as the best mode of delivery. A total of 86% of male and 75% of female subjects ( $p < 0.001$ ) reported to prefer vaginal birth for themselves/their partners. Only 12.6% of students changed opinion during graduation years, most towards vaginal birth (10.2% of the total).

**Discussion:** The vast majority of the subjects consider vaginal birth as the best mode of delivery. But a lower number of subjects prefer vaginal birth for themselves, with a more significant difference among women – which can highlight that rational scientific knowledge is not always translated into personal preferences. Among the few students who modified opinion, most did in favor of vaginal birth, which might suggest the influence of training.

**Conclusion:** Most students declared vaginal birth as best mode of delivery, although the number of them who would personally choose to have a vaginal birth is lower, particularly among female students.

**Take Home Messages:** Training might have an important role in influence students' perceptions about mode of delivery, particularly about risks and benefits. Strategies to also impact personal preferences probably should be individualized and customized to fit students' diversity and need further research



#10FF15 (133443)

**The effects of CAM oral feeding skill training program on maternal confidence, knowledge, and premature infants' feeding patterns and weight gain**

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*Hsiu-Lin Chen*

*Hung-Lung Lin*

*Fan-Hao Chou*

**Background:** Since apnea and feeding tiredness frequently appear during premature infants' oral feeding, coordinating feeding is a key factor to judge their neural integration and healthy growth. However, sucking and swallowing reflexes do not develop properly until 32-34 weeks; hence successful sucking skills training during this period is particularly important.

**Summary of Work:** Daily CAM oral feeding skills, including oral massage and stimulation of acupuncture points on the tongue, are used for premature infants with a gestational age of less than 37 weeks. The experimental group (EG) had 16 participants; the control group (CG) 15. The CG participants received traditional care and education; the EG was given CAM and a detailed brochure.

**Summary of Results:** Linear mixed model with random effects provided the following results: (1) maternal confidence and knowledge: EG was higher (6.07 & 4.35, respectively) than CG; (2) the percentage of weight gain during the hospitalisation: EG was significantly higher than CG (13.58 ± 11.67% vs. 6.60 ± 5.25%).

**Discussion:** CAM can improve maternal feeding confidence, knowledge, the percentage of weight gain and the establishment of early preterm children's sucking ability. The training progress can assess the family resources of premature infants and the interaction between babies and families; moreover, it can lower the pressure care places on mothers.

**Conclusion:** Our results confirmed the effects of CAM on maternal confidence, knowledge, and premature infants' feeding patterns and weight gain. The skill training program can establish the sucking ability of preterm infants as early as possible. The interdisciplinary cooperation of nurses is clearly demonstrated.

**Take Home Messages:** CAM can improve maternal feeding confidence and establish early preterm infants' sucking ability. The results can provide some advice for patient instructions of preterm infants' sucking training and for the nurses, whose duty it is to feed the preterm infants. It can also empower the role of care in mothers.

#10FF16 (135886)

**Health professionals' preparedness to deal with Intellectual disability as an intersection of diversity**

*Mario Smith\*, University of the Western Cape, Cape Town, South Africa*

**Background:** Diversity training for health professionals has traditionally been conceptualised as differences in gender, race or ethnicity, culture and sexual orientation. More recently physical disability and mental illness has been included as a dimension of difference. Intellectual disability (ID), as a clinical syndrome and diversity concern, has received lip service.

**Summary of Work:** This paper reports on health professionals' perceptions of their preparedness to competently deal with issues of diversity pertaining to ID. This qualitative study included a purposive sample of 18 health care professionals experienced in intellectual disability services (IDS). Two focus groups were facilitated over three sessions. Transcripts were analysed thematically. Permission to conduct the study and ethics clearance was obtained from the Senate Research Committee at the University of the Western Cape. Permission to access health professionals was obtained from employers and all principles of ethics were adhered to.

**Summary of Results:** Findings suggested that Health professionals were inadequately prepared to consider ID as a diversity issue which compromised the extent to which they could advocate for reasonable accommodation. There was a differential familiarity with issues related to diversity and intellectual disability with profession constituting an additional intersecting dimension of diversity.

**Discussion:** Diversity training for health professionals remained traditional and insufficient. Training in Intellectual disability was clinically focused.

Professionals felt underprepared to engage the political and civic aspects of patients with intellectual disability. Their familiarity with intellectual disability was informed by scopes of practice and profession.

**Conclusion:** Traditional training does not prepare clinicians for the complexity of diversity issues. Profession is an intersection of difference that is underappreciated in how it shapes discourse and engagement.

**Take Home Messages:** Patient groups must be seen in clinical contexts, and in terms of diversity and reasonable accommodation. Health professionals cannot engage in advocacy if they have insufficient awareness and training.

## 10GG Posters: Speciality Training

Location:

#10GG01 (131655)

**A Formula for Success: Incorporating Specialty Trainees into Internal Medicine Residency Programs**

**Mary Hedges\***, Mayo Clinic Florida, Jacksonville, FL, USA

Michele Lewis (Mayo Clinic Florida, Jacksonville, FL, USA)

**Background:** Preliminary Medicine residents are PGY1 (Post Graduate Year 1) trainees matched to future specialties (Anesthesiology, Dermatology, Radiology, Radiation-Oncology, and Neurology). They are an increasing percentage of Internal Medicine residency programs in the United States. It is imperative that they are successfully incorporated.

**Summary of Work:** At Mayo Clinic Florida, we instituted the following: 1) Block schedules specific to the trainees' future specialty 2) 1-2 dedicated rotations within their future specialty 3) Associate program director as a liaison between all involved programs. 4) Quarterly individual resident reviews 5) Bi-annual preliminary medicine Retreats

**Summary of Results:** Very positive ACGME (Accreditation Council of Graduate Medical Education) survey results in overall evaluation of the program as well as all subsets surveyed. This survey is completed anonymously by all of our residents. These results are consistently higher than they were prior to initiation of this program.

**Discussion:** ACGME surveys combine both Preliminary Medicine residents and categorical Internal Medicine residents. If our preliminary medicine residents were not well incorporated, our overall residency scores would decline. However, we have successfully shown notable positive improvement.

**Conclusion:** Successful incorporation of Preliminary Medicine residents leads to improved satisfaction within the Internal Medicine residency as a whole. A learner-focused approach is imperative.

**Take Home Messages:** Curriculum for PGY1 specialty trainees must integrate both essential Internal Medicine training as well as future specialty specific needs.

#10GG02 (132769)

**An Innovative Integrated Orthopaedics Trauma Learning for Resident**

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**Background:** Integrated orthopedics trauma learning was an innovative strategy for intensive learning. This study described the process and the outcomes evaluation of this integrated module.

**Summary of Work:** An innovative learning program; integrated orthopedics trauma, was implemented among residents at Khon Kaen Hospital. It comprised 3 parts. The first part was the core knowledge topics which provided a certain period for residents and internists to present the problem-based discussion. The second part was the formal operative procedure evaluation, well documented pre-operative planning was prepared and discussed with staff. Evaluation during the supervised operation was undertaken immediately using structured intraoperative feedback. The third part was post-operative film assessment which staff provided feedback to improve residents' operative performances.

**Summary of Results:** The module was implemented to 6 resident rotations. All supervised operations were successful with average operative score of 83.3 percentages without any complication. The highest score was the operative note report (96.4%) and the lowest score was the correct step of operation (75.4%). Overall in-training examination score was improved from 41.4 to 63.9. Satisfactory evaluations showed good results.

**Discussion:** This formal operative procedure evaluation is an innovative module for orthopaedics resident learning, which should be generalised implemented. The surgical case should be selected appropriately regarding to the year level of the resident.

**Conclusion:** An innovative learning module in orthopedic trauma was successful in terms of residents' operative competencies and satisfaction. The structured intraoperative and post-operative film feedback can clearly identify their strengths and areas for improvement.

**Take Home Messages:** Role of surgeon as a leader during operation should be more emphasized among orthopedic residents.

#10GG03 (134939)

**Utilising grounded theory for women and children's education for future general practitioners**

*Sigi Joseph\*, Patched General Practice, Edinburgh, UK*  
*Sonia Joseph*  
*Claire Hathorn*

**Background:** The Royal College of Paediatrics publication in December 2015 "Facing the Future Together for Child Health: working with general practitioners" highlighted the need for grass roots education in conjunction with service redesign in order to sustainably deliver safe care for children and families of the future. The cultural demands for "specialists" have led to a reduced pool of confidence amongst generalists. Service pressure and recruitment challenges then mean that patients who may be "out of your comfort zone" are referred quicker than those the practitioner has received training in.

**Summary of Work:** We have undertaken a training needs analysis in conjunction with service review for both general paediatrics and obstetrics and gynaecology across a region. The results have supported the redesign of the GP trainee training days for both Obstetrics and Gynaecology and Paediatrics with plans to follow this cohort through into the first two years of practice. The service placements for GP trainees have also changed enabling them to attend more relevant educational experiences such as clinic with build up to observed consultation and feedback from senior staff.

**Summary of Results:** 22/30 trainees completed the survey. Time spent in A&E was found to be relevant to GP by all trainees, and acute receiving unit by nearly 90%. Only a third of trainees found Respiratory, Neurology and Haematology/Oncology relevant to training. Unfortunately this was not reflected by the time spent in each specialty, with 19/22 GPSTs spending less than 4 weeks in ARU and A&E. Clinic attendance was very poor, with 13/22 trainees attending fewer than 5 clinics during their 6 month attachment, and all attending fewer than 10. 80% found them relevant to GP. Teaching was found to be satisfactory by 50%, but comments included the lack of GP-specific teaching available. Many GPSTs had very positive experiences of paediatrics and obstetrics placements describing excellent learning opportunities and team-working. GP trainees described observing a difference between practices where doctors had experienced effective training pre-cut versus those who had not. This included thresholds for referral, communication about the clinical pathology and understanding of risks.

**Discussion:** The programmes implemented are the first steps towards supporting practitioner knowledge in the care of women and children. Translating sound educational methodology and applying a "quality improvement" approach have enabled buy in for the pilot programmes with subsequent cultural acceptance and demand for both programmes.

**Conclusion:** The first 2 phases of the programme have been successful as judged by the feedback from

participants. The next phase is rolling out a programme for established GPs and linking the impact of the educational interventions on service ie. number of referrals and quality of referrals, qualitative feedback from GPs followed up over the first 2 years of their substantive GP posts

**Take Home Messages:** Trainee empowerment enables long term achievement of standards

#10GG04 (135237)

**The midweek activity: implementing a different style of teaching**

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*Dabia Al Mohanadi*  
*Ahmed Al-Mohammed*  
*Abdurrahman Elbuzidi*  
*Mahmood Mubasher*  
*Ali Rahil*

**Background:** Problem based learning (PBL) is an inquiry based learning strategy that was well studied in undergraduate education. It facilitates group discussions, critical thinking and self-directed learning. Few studies have demonstrated its effectiveness in postgraduate education. Midweek activity (MWA) is an educational activity in the internal medicine (IM) residency program; an ACGMEI accredited program at Hamad General Hospital in Qatar. This study demonstrates the implementation and effectiveness of introducing this teaching format in the IM residency program

**Summary of Work:** Random selection of five sessions of acute medicine, each attended by 25 residents was performed. Instructors were trained about the PBL format, residents were oriented and case scenarios were prepared to facilitate conversation. Residents' feedback was collected using two focus group discussions. A satisfaction questionnaire was mailed to the residents.

**Summary of Results:** 39 residents out of 88 (44%) responded to the survey. 18 residents participated in the focus group discussions. 97% rated midweek activity as a valuable activity. There were no differences between residents in regards to training year. 87% found that they did improve their knowledge through discussion and reflection, 84% agreed that they were more interactive and 79% stated that they would favor this type of teaching in the MWA sessions topics for decision making

**Discussion:** This study ought to describe the implementation of PBL into IM residency program and explore residents' perception. Residents demonstrated good perception of the new teaching modality. They recommended its implementation in sessions that require critical thinking, while they preferred the other lecture style in sessions such as ethics.

**Conclusion:** Based on the present study, we conclude that incorporation of problem-based format in residency program resulted in more residents'

engagement, interaction, peer to peer education and overall more satisfaction.

**Take Home Messages:** PBL can be implemented in postgraduate education successfully with proper faculty training, residents' orientation and proper case selection

#### #10GG05 (132154)

**Simulation-based education with flipped classroom improves Residents' clinical performance in intensive care**

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Chia-Yuan Liu

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His-Hsien Hsu

Hung-I Yeh

**Background:** Critical care training is a great challenge for second-year residents (R2) in medical practice, especially if they are not trained for the medical intensive care unit (MICU). Traditionally, didactic lectures have served as a medium for introducing knowledge to residents, but a huge gap still exists between R2's awareness and clinical performance.

**Summary of Work:** This study combined flipped classroom (FC) and simulation-based education (SBE) in pre-MICU training. A third-year resident (R3) (control mode) and eight MICU-naïve R2s were included. Each participant read the teaching material and online instruction before the FC and manipulated the SBE scenarios. The pre-curriculum written test score and the SBE results were compared as manifestation of a "match mismatch highlight (MMH)." Post-curriculum feedback questionnaire was provided for self-evaluation.

**Summary of Results:** The residents achieved relatively higher scores in the written test than in the simulation ( $78.5 \pm 10.0$  vs.  $69.1 \pm 2.7$ ). Compared to R3, the R2s fell short in first aid teamwork, invasive procedure, and mechanical ventilator. The training workshop enhanced participants' ability in MICU (Likert scales, from 2.6 to 3.3,  $p < 0.05$ ) and alleviated MICU difficulties (Likert scales, from 4.5 to 4,  $p < 0.05$ ).

**Discussion:** Based on the "know how" versus "show how," we discovered the "match" and "mismatch" phenomenon between residents' knowledge and performance. "Match" is defined as consistency in the written test and the simulations, whereas "mismatch" is defined as inconsistency in both. Based on the MMH, faculties will more easily create preliminary remediation for residents before they attend the MICU.

**Conclusion:** The integrated FC and SBE workshop associated with MMH analysis may serve as an innovate methodology for pre-MICU training.

**Take Home Messages:** 1. FC enforces residents' active learning outside the classroom and facilitates problem solving inside the classroom. 2. High-fidelity SBE provides residents to participate in specific scenarios.

3. Using the MMH, faculty members can make personalized recommendations to increase training efficacy.

#### #10GG06 (127077)

**Patient-centered simulation training, evaluation, and feedback for the ACGME general competencies of first-year post-graduate residents in internal medicine**

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Min-Shu Wang (Mackay Medical College, Taipei, Taiwan)

His-Hsien Hsu (Mackay Medical College, Taipei, Taiwan)

Hung-I Yeh (Mackay Medical College, Taipei, Taiwan)

Shou-Chuan Shih (Mackay Medical College, Taipei, Taiwan)

**Background:** Patient-centered medical care is the trend in medical education, and a simulation-based educational workshop is a valid method for training and evaluating PGY1 residents' acquisition of ACGME competencies; however, first-line clinical residents often do not have access to the actual patients' feedback and recommendations to facilitate the opportunity for self-reflection.

**Summary of Work:** Five simulated scenarios that PGY1-trainees may encounter in their clinical practice of internal medicine were built into a formative-workshop, to allow the assessment of the PGY1-residents' core competencies by attending doctors, using standardized patients who also provided feedback. Sixty-three PGY1-trainees, 10 examiners, and 18 standardized patients participated in the workshop.

**Summary of Results:** The pass-rate for professionalism and systems-based practice competencies showed moderate-difficulty. The highest average-score was attained for the interpersonal and communication skills ( $75.5 \pm 9.2$ ), and the lowest average-score was for the professionalism ( $68.2 \pm 7.6$ ). The evaluation reliability using Cronbach's alpha was 0.60 for attending doctors, and 0.93 for standardized-patients.

**Discussion:** The candidates' overall pass rate was 98%. The average scores assigned by the attending doctors and standardized patients had moderate correlation (Correlation Coefficient 0.417). After the workshop, the trainees understood the patients' feelings and requests; they could also reflect their attitudes using the standardized patients' feedback, and adjust their behaviors.

**Conclusion:** The ACGME core competency simulation-based educational workshop facilitates a global, patient-centered assessment and feedback of PGY1 trainees' learning outcomes, and may provide a reference for future improvements in PGY1 internal medicine training.

**Take Home Messages:** Simulation-based educational workshops could be used to train PGY1 residents to spend time in self-reflection using standardized patients' feedback.



#10GG07 (132583)

### Big Data and Residency – Our program's perspective

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Ming Hui Lim (National Healthcare Group, Graduate Medical Education Office, Singapore)

Qinghui Lu (Tan Tock Seng Hospital, Department of General Surgery, Singapore)

Jia Hui Ng (National Healthcare Group, Graduate Medical Education Office, Singapore)

**Background:** The National Healthcare Group (NHG) General Surgery (GS) Residency Program conducts resident evaluations using multiple platforms, and spreadsheets are commonly used to analyse and report the large amount of data collected to stakeholders, e.g. Program Directors (PDs) and Clinical Competency Committee (CCC). Spreadsheet-based reporting and analysis is time-consuming, tedious and prone to errors.

**Summary of Work:** With the support from the NHG Graduate Medical Education Office, the NHG GS Residency Program focused on applying Business Intelligence (BI) to create a common dashboard for collating resident evaluation and case log data from distributed and varied sources, and performing interactive, intuitive and instant data analysis and reports. The whole process of creating the dashboard follows a typical IT system development: user requirements and specifications gathering; gap analysis on existing spreadsheets and data; BI-data templates designing; data structure scripting; dashboard designing; user acceptance testing and implementation.

**Summary of Results:** The tangible benefits are the ease of use and immediate data access on a centralized dashboard. The dashboard employs BI to deliver analysis and reports reliably, consistently and instantaneously. Efficiency and accuracy of reporting is enhanced as the PCs do not need to manually edit calculations each time the data is refreshed. Stakeholders are also able to access near real-time data and perform analysis or reports on the dashboard, thereby improving their decision making with regards to residents' competency assessment and promotion.

**Discussion:** The pilot implementation of the BI-dashboard was well-received. The next stage is to look at improving the dashboard to cover other aspects of resident performance monitoring and training management such as tracking of program quality indicators.

**Conclusion:** BI has been widely used in the business world and NHG Residency saw the opportunities it offers for both operational and strategic decisions. This dashboard empowers stakeholders to make informed decisions and is the stepping stone to the use of "Big Data" for residency training.

**Take Home Messages:** The use of BI can help to harness data to provide valuable insights, enhance decision making process and improve quality of residency training.

#10GG08 (134496)

### The Unintended Consequences of Duty-hour Restrictions: less is not more

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Mohammed Shaheen

Fareeda Mukhtar

Mikael Soucisse

Pierre Dubé

Paola Fata

**Background:** In 2011, an arbitration imposed additional restrictions over the 80-hour weekly limit that governs all residents training in the province of Quebec. The rulings limited continuous in-house duties to 16 hours with mandatory resting periods. This study aims to describe the effect of the new duty-hour restrictions on the participation of residents in mandatory academic activities in 2 major academic general surgery residency programs in Montréal.

**Summary of Work:** A retrospective review was performed comparing attendance at 4 key surgical academic activities before and after the implementation of the new duty-hour restrictions. Data were obtained using attendance records collected systematically by program administrators for the academic years of 2009-2010(before) and 2013-2014(after). Comparative analyses were performed using independent sample t-tests.

**Summary of Results:** A total of 254 teaching sessions were included. Attendance significantly decreased in both institutions in 2013 compared to 2009. At one, the average percentage of attendance for General Surgery Teaching and Surgical Foundations Teaching in 2013 was 57.6% and 54.1% respectively, compared to 68.1% and 70.6%, in 2009 ( $p < 0.001$ ). At the other, the average percentage of attendance for Core Surgical Teaching for PGY-1s and PGY-2s in 2013 was 69% and 63.2% respectively, compared to 79.6% and 67%, in 2009 ( $p = 0.016$ ). At the first institution, reporting duty hour restrictions as the reason for absence increased 17 fold from 2009 to 2013.

**Discussion:** The noted decline in residents' participation in educational activities may be attributable to the inherent loss of flexibility with implementing day-to-day duty-hour restrictions.

**Conclusion:** Resident attendance to major academic activities decreased significantly after the implementation of the new duty-hour restrictions. These data suggest that the new regulations might have adversely impacted the educational delivery to surgical residents.

**Take Home Messages:** Surgical teaching schedules and methods may need to be re-evaluated in light of implementing less-flexible duty-hour restrictions or otherwise retaining duty-hour flexibility would be necessary.

#10GG09 (134154)

**Approaches to Assessment and Feedback in Residency Programs: Results of Site Interviews from a Five-Site Case Study**

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Michelle Bourdeau, Dalhousie University, Halifax, Canada  
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**Background:** We conducted research to explore the giving, receiving and use of feedback in five residency programs in three countries using a case-study approach. Earlier research taught us that multiple cultural, individual and relationship factors influence the assimilation, acceptance and use of feedback and that it is a complex phenomenon. In this study, we explored the feedback culture, structure and practices in the five different sites, for the purpose of understanding their influence upon the giving and receiving of feedback.

**Summary of Work:** We conducted and recorded structured interviews via telephone or Skype with the program director at each site. Three team members analyzed data using content analysis. We discussed and clarified any inconsistencies.

**Summary of Results:** A variety of approaches to feedback (3-12 per site) were used, with some overlap. A total of 20 different approaches were used but no approach was used across all sites. The more common approaches were in-training evaluation reports (ITERS), multi-source feedback, mock orals and resident self-assessments. Some approaches, such as field notes, daily encounter cards, mini-CEX, direct observation, and reflection were used only at one site. Frequency of feedback ranged from daily to bi-monthly. In some programs the resident was responsible for collecting feedback on their performance and creating action plans.

**Discussion:** All the sites discussed various strengths and difficulties within their feedback processes, along with the 'feedback culture' at their site.

**Conclusion:** There is diversity in approaches across sites. Sites agreed that there are strengths and difficulties in any approach, especially when delivering difficult feedback.

**Take Home Messages:** Findings will enable comparison of the assessment and feedback strategies used with the end goal of strengthening the assessment and feedback provided in residency education.

#10GG10 (130964)

**Assessment of small group teaching (seminars) by residents during Intensive Care Unit (ICU) rotation**

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*Max Andresen (Pontificia Universidad Católica de Chile, Santiago, Chile)*

**Background:** Small group teaching (SGT) is frequently used in postgraduate education. In this methodology, with the help of a facilitator, students work together to actively achieve common learning goals. The aim of this study was to evaluate the residents' assessment of seminars they attended during the Intensive Care Unit (ICU) rotation.

**Summary of Work:** Residents answered this survey, qualifying each statement from 1(never) to 5(always):  
1-The seminars were consistent with the learning outcomes. 2-The contents were clearly explained. 3- There was time for questions. 4-The facilitator encouraged the learners to participate. 5-You studied the topic before the seminar. 6-The seminars helped you to solve doubts.

**Summary of Results:** During 10 months, 89 residents answered the survey. Most of them (more than 80%) answered that the different statements were met "always" or "frequently", except for statements 4 and 5. Only 57% considered that the facilitator encouraged them to participate and just 25% recognized that they studied before the seminar.

**Discussion:** As this study showed, a common problem associated with SGT is that the facilitators not encourage students to actively participate in these activities. Several strategies have been described to promote and improve the dialogue and discussion between students during SGT. Facilitators can use these strategies to improve their role.

**Conclusion:** Although this activity was well evaluated by the residents, the teachers should use strategies to facilitate the dialogue and discussion between students

**Take Home Messages:** Facilitators must remember that small group teaching is a student-centred activity and they must encourage active learning among them

#10GG11 (134249)

**How clinical experience influences residents' personal growth? A qualitative study**

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Haruo Obara*

**Background:** A physician's effectiveness depends on good communication, clinical skills, medical knowledge, leadership and professionalism. The medical residents should try to attain these abilities so he/she can grow. The processes of medical faculty's growth have been described, which state experience, helping relationships and reflection are the key points of personal growth. However, there are few studies to explain what kind of experience is effective or how residents use experience for their own development. The purpose of this study is to explore how clinical experience influences a resident's personal growth.

**Summary of Work:** Ten qualitative semi-structured interviews among Japanese post graduate year two medical residents at Okinawa Chubu Hospital were undertaken, recorded, transcribed, anonymized, and inductively coded. General themes were identified.

**Summary of Results:** "Autonomy" and "Responsibility" of clinical management were the most essential points for clinical experience. Autonomy being defined as the attitude of having one's own choice in managing patients. Responsibility was a force that obliges residents to take charge of their patients.

**Discussion:** Clinical management was a process of taking a history, doing a physical examination, assessment, diagnosis and forming a plan, semi-independently as a doctor. This management made residents understand what they can not do, so they can learn what they should do next. These processes made the clinical experience more educated.

**Conclusion:** Residents grow through experience with autonomy and responsibility.

**Take Home Messages:** The realization of how experience influence personal growth among physicians-in-training can make their development more effective. Incorporating experiences with autonomy and responsibility could lead to improved work-based learning in teaching hospitals, classrooms and practice sites.

#10GG12 (133305)

**Incorporating Direct to Consumer Genetic Testing into Medical Resident Training**

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*Jorie Colbert-Getz  
Joshua Schiffman  
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Sara Lamb  
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**Background:** All resident physicians have exposure to genetics as well as clinical experience with single gene disorders and testing. Yet, these trainees rarely have formal instruction and limited, if any, clinical exposure to direct-to-consumer (DCT) personal-genomic-testing (PGT).

**Summary of Work:** The University of Utah developed and implemented a course on PGT for 130 internal medicine residents. Residents had the opportunity to personally participate in PGT via a provided kit. Effectiveness of the course and test were assessed with pre/post intervention surveys (68% response rate).

**Summary of Results:** After intervention, residents felt more prepared to provide guidance to patients and interpret direct-to-consumer results,  $P < 0.001$ , for both comparisons. However, they found direct-to-consumer tests to be less useful in determining treatment plans,  $P = 0.006$ , and were less likely to recommend direct-to-consumer testing for patients,  $P = 0.023$ .

**Discussion:** PGT is available to consumers at a low financial cost. Since introduction to the market, controversy has grown. Two surveys of PGT consumers have found that approximately 1/3 will discuss the results with their physician. Despite this, most physicians have had no formal training on interpretation of PGT.

**Conclusion:** Adoption of PGT by consumers has been rapid in the US. Despite this physicians are unprepared to provide guidance to patients. A short course, including an opportunity to participate in PGT, improved the resident physician's sense of preparedness. After the course, resident physicians were less likely to recommend DCT.

**Take Home Messages:** Training in PGT interpretation is necessary for primary care physicians. The general public is participating in PGT and 1/3 will seek guidance from their physician. A short course which included an option of participating in PGT was effective in physician's sense of preparedness in PGT results interpretation and guidance.

#10GG13 (133279)

**Invest to progress? A survey of the cost of postgraduate training prior to specialty applications in the United Kingdom**

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Ronak Ved (Cardiff and Vale University Health Board)

**Background:** Postgraduate medical training in the United Kingdom (UK) is expensive, with doctors spending an average of £17 114 prior to obtaining their Certificate of Completion of Training. Expenses include a range of career enhancing activities such as training courses, postgraduate exams and attendance at conferences.

**Summary of Work:** This survey of 100 UK Foundation Doctors sought to establish the range and associated costs of career enhancing activities being undertaken prior to applying for specialty training.

**Summary of Results:** A total of 89 (89%) participants reported undertaking at least one form of career enhancing activity. The most frequently reported motivation was a desire to increase competitiveness for specialty applications (n=71; 71%), followed by developing knowledge and skills (n=66; 66%). The mean total amount spent by each participant was £1460, with those applying for academic training and surgical specialties investing the most (mean totals of £3572 and £2535 respectively).

**Discussion:** This study suggests that junior doctors in the UK are spending substantial but variable sums on career enhancing activities prior to applying for specialty training. This variation appears to relate to intended specialty, with those applying for more competitive areas such as clinical academia and surgery investing the greatest amount

**Conclusion:** The apparent disparity in the amount trainees spend on career enhancing activities seems to relate to intended specialty and their associated competition ratios. However, a larger prospective study should be conducted in order to further investigate the costs incurred and determine the means by which junior doctors are funding these activities.

**Take Home Messages:** - There are numerous reasons why trainees invest in career enhancing activities, with the greatest motivator being a desire to increase competitiveness for specialty recruitment. - This study suggests a correlation between competition ratio and spending on career enhancing activities. - Further research is required to establish the costs incurred and determine the means by which junior doctors are funding these activities.

#10GG14 (134030)

**Meeting the conditions for effective medical residencies**

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Lucía Vazquez (Hospital Italiano de Buenos Aires, Argentina)

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Diego Faingold (Hospital Italiano de Buenos Aires, Argentina)

Marcelo Figari (Hospital Italiano de Buenos Aires, Argentina)

**Background:** Medical training programs should guarantee the learning and wellbeing of residents as well as the safety of patients

**Summary of Work:** We established the following guidelines that must be met by all residency programs: in-hospital activities: residents will not spend more than 80 hours per week at the institution, on weekends, emergency room shifts will not exceed 24 hours, residents will never spend more than 30 consecutive hours at the institution, all care tasks must be supervised, and programs must contemplate at least 30% of total hours reserved for formal learning activities. All residents were invited to take an anonymous electronic survey. A Likert-type scale was used with five options (never-always)

**Summary of Results:** We are a teaching hospital with more than 40 residency programs and 560 residents in training. Response to the survey was 57% (317/560 residents). 31% of residents say they spend more than 80 hours per week at the institution. 64% affirm that emergency room shifts exceed 24 hours on weekends; 57% say that they spend more than 30 consecutive hours at the institution; 73% declare their tasks are supervised; and 48% say that the program offers classroom activities and protected study time

**Discussion:** The Education and Graduate Department we believe it is essential to continue direct communication with residents, enhance teaching activities and obtain regular feedback from management and from professors in the residency programs

**Conclusion:** Residency programs present moderate compliance with the conditions for adequate physician training

**Take Home Messages:** It is essential for residency training systems to ensure mechanisms are in place for healthcare and quality education



#10GG15 (136028)

**Can changes to the accreditation process for Canadian postgraduate medical education lead to improved efficiency? A national pilot project**

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*Anurag Saxena (University of Saskatchewan, Saskatoon, Canada)*

*Sarah Taber (Royal College of Physicians and Surgeons of Canada, Ottawa, Canada)*

*Loni Desanghere (University of Saskatchewan, Saskatoon, Canada)*

*Margaret Kennedy (Royal College of Physicians and Surgeons of Canada, Ottawa, Canada)*

*Ken Harris (Royal College of Physicians and Surgeons of Canada, Ottawa, Canada)*

**Background:** Accreditation is a critical element in ensuring quality and accountability of postgraduate medical education in Canada. However, the existing accreditation process is both resource- and labor-intensive. To improve efficiency without compromising the rigour of the accreditation process, a pilot project was carried out at three Canadian medical schools in 2013. Outcomes were evaluated in terms of time, workload, efficiency, effectiveness and cost.

**Summary of Work:** Two modifications to the standard accreditation process were implemented: (1) separation of the review of institution and program standards; and (2) exemption of selected programs from onsite review. Stakeholders' perceptions (N=424) were obtained (online survey of 13 stakeholder groups; six focus groups). Descriptive, inferential statistics and content analysis were used to evaluate quantitative and qualitative data.

**Summary of Results:** Although there was overall satisfaction, perceptions differed by stakeholder group, and the modified process remained time- and labor-intensive. Separation of the two reviews did not address their interdependent nature, and was considered less efficient and less informative, while creating increased risk of administrative error. The exemption process reduced opportunity for resident input and increased the use of resources.

**Discussion:** While some stakeholders indicated support for separation of reviews, most did not feel that the separation met the required outcome. Separation caused disconnect and stakeholders felt it was not worth the cost. A large percent of stakeholders' comments for program exemption were expressed as disadvantageous and suggestions for changes to the pilot exemption process were voiced (e.g., different levels of exemption).

**Conclusion:** Overall, this accreditation pilot did not improve efficiency, increasing the amount of work with no cost savings and only a few enhancements.

**Take Home Messages:** Perceptions from key stakeholders on the outcomes of the pilot accreditation project provide information helpful in improving the accreditation process. These concepts

can be applied to future endeavors to improve health professions' education accreditation worldwide.

#10GG16 (133018)

**The relationship between prior work experience and attrition amongst obstetrics and gynaecology residents**

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*Chee Yang Chin*

*Bernard Su Min Chern*

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**Background:** Resident attrition wastes valuable resources and stresses residents and health services. We aimed to explore how prior work experience affects attrition amongst obstetrics and gynaecology (OBGYN) residents in Singapore.

**Summary of Work:** This nationwide, mixed methods case-controlled study sequentially utilised a questionnaire to collect demographic and experiential data, from which structured interviews were developed for a subgroup selected for diversity of backgrounds and thoughts of attrition. All 33 OBGYN residents in their 2nd and 3rd of 4 training years were approached. 28 (84.8%) returned the questionnaire. 7 of 15 invited residents attended the interviews.

**Summary of Results:** 32.1% of participants had considered leaving OBGYN training. This was more prevalent among residents recruited directly from medical school (42.9%), versus those with work experience (28.6%). Residents considering attrition most commonly attributed low job satisfaction to mismatched expectations of training. All interviewees felt prior OBGYN medical officer experience enables informed expectations and eases initial learning. OBGYN experiences as students or interns were deemed un insightful, providing superficial specialty-specific work. Most interviewees considering attrition remained hopeful of long public service OBGYN careers, contingent on good leadership and collegiality.

**Discussion:** Similar to previous studies, a significant proportion of these residents have considered leaving training. Valuable early work experiences that prepare junior doctors for the demands of training are limited within contemporary training models that emphasise time-efficient specialty training. Crucially, considering attrition was not associated with diminished career aspirations. These residents should be identified early and provided with necessary support.

**Conclusion:** Lack of prior specialty-appropriate work experience is a major contributor to misinformed training expectations and increased desire to quit. Residents who have considered attrition may still yearn for career longevity in their specialty.

**Take Home Messages:** Accelerating medical training at the expense of valuable pre-specialisation work experience may counter-intuitively lead to increased attrition and resource wastage. Early recognition and

better support of trainees at risk of attrition may ameliorate this phenomenon.

**#10GG17 (132044)**

**Factors that positively influence the satisfaction of doctors in training**

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**Chiara Demartini** (*University of Pavia, Pavia, Italia*)

**Background:** For ten years the PMETB and then the GMC have surveyed all doctors in training in the United Kingdom on their training placements. The response rate is now over 80% of more than 53, 000 doctors in training. The results of this survey are used to consider training quality.

**Summary of Work:** The authors have worked with GMC data analysts to further investigate the outputs of the survey and thus determine which elements of trainee doctor placements correlate with positive training experiences. Correlation and regression analysis was performed on constructs developed from the annual National Trainee Survey.

**Summary of Results:** Overall trainee satisfaction is positively correlated with satisfaction with the adequacy of experience, clinical supervision, feedback and workload. The supportiveness of their environment is key. This is particularly affected by working hours, workload and clinical supervision. Trainee satisfaction is a unifying trait of the most relevant factors affecting the outcomes.

**Discussion:** The annual GMC National Training Survey achieves feedback from doctors in training across many questions and domains. It is possible to correlate the elements that contribute to this satisfaction.

Trainee morale in the UK is currently low. Understanding the factors that contribute to satisfaction may help understand this and contribute to possible solutions.

**Conclusion:** The authors have identified 2 key outputs, overall satisfaction and a supportive environment and the factors which most positively correlate with them. Determining these key factors will enable focus on the most important elements of trainee support.

**Take Home Messages:** It is possible to focus on the key elements of feedback by trainees. This will enable further focus on the key elements that enhance the training experience.

**#10GG18 (136062)**

**Enquiry-Based Learning: Justifying Innovation through Curriculum Development**

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**Samantha Scallan** (*Health Education Wessex, Winchester, UK*)

**Johnny Lyon-Maris** (*Southampton GP Education Unit, Southampton, UK*)

**Background:** In 2012 an innovative programme of facilitated case-based discussions called Enquiry-Based Learning (EBL) started for GP trainees in Southampton and Jersey. Sessions are held monthly with a main clinical topic on a two-yearly cycle. Other vertical curriculum themes run through many sessions, such as consultation skills

**Summary of Work:** In presenting the innovation to other educators, questions were asked about justifying use of the new programme: how did we know it was ‘teaching’ what the trainees needed to know? How did their learning build up over the three years of training? To explore this, one session based on mental health has been considered. The session has taken place in 2012, 2014 and 2016, and has been evaluated through feedback from learners and facilitators, and a review of the EBL case material.

**Summary of Results:** Full results will be presented at the conference after the third mental health session has taken place in Spring 2016. Initial findings concern themes around Resources: better understanding by tutor of how the case material has developed in complexity; Curriculum depth: a wider perspective on areas covered and how they link up across sessions /years Teaching methods: sharper awareness of facilitator and trainee fatigue – identified scope to better pace session to optimize engagement and learning

**Discussion:** The EBL approach has allowed educators to move beyond understanding session feedback as isolated events and instead see how it integrates with the programme as a whole. Ongoing development and review sees future steps to involve trainees and facilitators to a greater extent and further examination of the ‘flow of learning.’

**Conclusion:** Justifying the EBL approach has led to greater understanding of its evolution, and insight into the learner/facilitator experience. Evaluation has highlighted the ongoing development of case materials, curriculum areas and educational practice of the EBL approach.

#10GG19 (131874)

**Responding to challenges through 'Productive Conversations'- a whole system coaching and mentoring scheme for the postgraduate dental team in the West Midlands**

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*Sally Stazzanti (Coaching Innovations, Kingwinford, UK)*

**Background:** A dental coaching and mentoring programme was established to develop a culture of coaching and mentoring in West Midlands Postgraduate Dental Education, enabling the whole dental team to develop: • Education and training • Appraisals and Personal Development Planning • Supporting dentists in difficulty • Leadership skills • Improved team working • Communication skills with Patients

**Summary of Work:** The rationale behind a 3 day training programme assessed through self-assessment of skills and competencies is explored. The programme was extended to joint training of doctors and dentists and a shorter programme for dental practice managers and senior dental nurses, teaching the same approaches and tools for conducting productive conversations.

**Summary of Results:** There are 100 mentors on the dental mentor register and 30 practice managers supporting individual dental team members. Feedback has been positive from the mentors about the programme and the difference it has made to the effectiveness of their work as educators or practice managers, and also from the mentees.

**Discussion:** Feedback on how the skills and tools learnt during the course have been used to improve training and managing the dental team has been overwhelmingly positive. Participants have learnt to ask the right questions and listen more carefully to facilitate the development of individuals and teams to their full potential.

**Conclusion:** The training course in using a coaching/mentoring approach across teams has allowed more effective conversations to take place with trainees and direct reports. CPD sessions allow mentors to discuss their interactions and have feedback on their performance. Increased self awareness allows trainers to tailor their training to individual trainees nonjudgmentally.

**Take Home Messages:** Giving participants new skills and opportunities to practice these in a safe environment with ongoing support and peer supervision has improved the effectiveness of conversations with trainees and the team: "I got some new skills to help with tricky situations at work which I have used and they have worked"

## 10HH Posters: Teaching Practical Skills

Location:

#10HH01 (134423)

**Cardiopulmonary Resuscitation Training for all Singaporean Males**

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**Background:** The Singapore Armed Forces Medical Training Institute (SMTI) is accredited by the National Resuscitation Council (NRC) of Singapore to conduct Cardiopulmonary Resuscitation (CPR) / Automated External Defibrillator (AED) training for all soldiers. SMTI handles an annual training load of 30,000 servicemen, the majority of whom are conscript soldiers. The key challenge lies in engaging learners from different educational backgrounds with varying levels of motivation for learning. Other challenges include inexperienced instructors who are also conscript soldiers themselves and high turnover rate of instructors.

**Summary of Work:** To effectively engage different learners, instructors would organize learners into various groups based on their educational and vocation backgrounds, so that more attention can be placed on weaker learners. To help new instructors to lead better, all new instructors will attend the Basic Cardiac Life Support (BCLS) instructor course. This course, funded and organized by the NRC, equips instructors with standardized instructional skills thus ensuring that CPR/AED training in SMTI is consistent with other centres. Audits are also conducted regularly to ensure that lesson delivery fulfils certain standards.

**Summary of Results:** The standard operating procedures used by the CPR training centre have proven to be effective as passing rates are consistently above 95% each year.

**Discussion:** Being the largest CPR/AED training centres in Singapore, SMTI systematically provides life-saving skills to our soldiers, who would eventually add to the general population, a sizeable group of well trained first-responders.

**Conclusion:** In line with Singapore's objective to reduce cardiac arrest downtime by equipping at least one person in the household with CPR/AED, training centres can expect a more diverse group of learners. There will also be an increased demand for instructors, and with it, the continued problem of inexperienced instructors.

**Take Home Messages:** It is not an easy task to provide CPR/AED training to half the population of a small country (ie the men who serve national service). However, the issues can be overcome with proper planning, training and audit systems in place.

#10HH02 (135073)

**The Integrated Resuscitation Drill: Outcomes of Learning in a Complex Environment**

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Dorai Raj Appadorai (Tan Tock Seng Hospital, Singapore)  
Francis Lo (Tan Tock Seng Hospital, Singapore)  
Loo May Eng (Tan Tock Seng Hospital, Singapore)  
Charmaine Krishnasamy (Tan Tock Seng Hospital, Singapore)

**Background:** The Integrated Resuscitation Drill (IRD) aims to provide participants with an interactive experience through simulation. It allows learners to practice in a complex environment which involves challenging medical scenarios. We aim to look at the immediate and long-term outcomes of such simulated learning by analyzing quantitative data and qualitative feedback gathered from participants.

**Summary of Work:** Interprofessional teams comprising nurses(3) and junior doctors(2) were tasked to simulate crisis scenarios on high-fidelity simulation manikins. Facilitators observed the learners' ACLS knowledge and skills, communication and teamwork and subsequently conducted debrief focusing on Crisis Resource Management principles. Qualitative and quantitative data was collected after the session. Interviews are currently being conducted to obtain feedback about participants' experiences in actual resuscitation cases occurring at least 6-months later, and how such simulated learning has impacted their performance

**Summary of Results:** Quantitative and qualitative feedback was obtained from 56 doctors and 62 nurses. Participants rated their confidence level upon completion of the IRD on a scale of 0-10 (0=Not confident at all; 10=Highly confident) across 7 parameters such as 'crisis recognition' and 'communication effectiveness'. The mean confidence score range among the doctors and nurses was 7.29-7.82, and 6.64-7.16 respectively.

**Discussion:** Our study shows that learners are more confident in managing resuscitation scenarios immediately following the IRD. The preliminary findings from the interviews conducted after 6 months suggest that participants were better placed to deal with actual resuscitation cases, with doctors feeling more empowered to take on leadership roles. Doctors felt that they would not have performed well if they had not participated in the IRD.

**Conclusion:** The IRD is a learning paradigm that improves the knowledge of Crisis Resource Management principles, and enhances confidence in crisis situations.

**Take Home Messages:** The IRD is a powerful learning tool that has positive effects on short and long term outcomes in improving the competency of participants in resuscitating patients in a complex environment.



#10HH03 (134958)

**Evaluation of medical students' basic life support skills retention over time**

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Pedro Lito (Faculty of Health Science - University of Beira Interior, Covilha, Portugal)

Juliana Sa (Faculty of Health Science - University of Beira Interior, Covilha, Portugal)

Miguel Castelo-Branco (Faculty of Health Science - University of Beira Interior, Covilha, Portugal)

**Background:** Basic Life Support (BLS) Course is part of the 1st year medical curriculum of the Faculty of Health Science - University of Beira Interior (Covilha, Portugal). Studies reported that there is a deterioration of retention's degree of these competencies over time.

**Summary of Work:** The objective was to evaluate BLS skills' retention among medical students throughout the years. An OSCE station was designed to assess BLS skills among 1st, 2nd, 4th and 5th year medical students. Analysis was made on BLS overall performance and part tasks (initial assessment, chest compressions, ventilation, and use of automated external defibrillator - AED).

**Summary of Results:** The study included 549 students (1st:164, 2nd:143, 4th:113, 5th:129). Overall, only 8.4% would have passed the BLS practical assessment (100% correct check-list). Best results 17.7% for the 1st year students, and worst 3.1% for the 5th year. The evaluation mean score was 1st:80.5%, 2nd:76.7%, 4th:74.3%, 5th:58.8%. Lowest retention rate was found in the initial assessment (35% completed correctly all steps). Analysing all students, ventilation technique was better performed (77.8%) than chest compressions (64.8%). Regarding the use of AED, only 36.1% performed all subitems correctly. Fifth year's students had the poorest performance in every aspect of the BLS compared to the other years.

**Discussion:** BLS is an important competency for all medical students. It is desirable that their BLS performance after the course would be maintained throughout the years. Unfortunately, this study confirmed that even less than a year after training, the number of students that perform BLS correctly is very low, and it seems that over time this skill retention decay even more.

**Conclusion:** BLS skills retention deteriorates over time. Annual assessment of all medical students' BLS skills is now programmed and the impact of regular assessment will be evaluated in further studies.

**Take Home Messages:** Strategies to improve BLS performance after initial training are needed to maintain competency.

#10HH04 (135147)

**Kolb's Experiential Learning in a Cadaver Airway Training Course**

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Chou Liang Mah (Changi General Hospital, Singapore)

**Background:** Major complications in airway management occur due to lack of judgement, education and training. Experiential learning creates knowledge through the transformation of experience. This learning can take several years and is not always feasible in the clinical environment as it places patients at risk. Use of cadavers is an alternative

**Summary of Work:** Specific airway skill stations were chosen in a cadaver airway training course to promote experiential learning. Statistical analyses of pre and post course questionnaire were used to assess the impact of the course on specific learning outcomes

**Summary of Results:** 94% (15/16) of candidates did not prefer didactic sessions, which was in line with course objective. Candidates reported an increase in confidence levels ( $p=0.008$ ) and comfort levels. Confidence levels of preparation and intubation using fiberoptic scope were improved ( $p=0.001$ ). 88% reported improved hand eye coordination skills. Ease of set up ( $p<0.03$ ) and use ( $p<0.005$ ) of various airway adjuncts were improved. Comfort levels were increased ( $p<0.012$ ) with emergency airway procedures. 94% were most likely to recommend the course to others.

**Discussion:** Majority of airway management skills are obtained from the combination of grasping and transforming experience. Our objective was to promote this experiential learning experience using the cadaver airway course. This was evident from the results achieved in improving the confidence, comfort and skill levels. Experiential learning cycle typically represents concrete experience, reflective observation, abstract conceptualisation and active experimentation.

**Conclusion:** A well designed cadaver airway course serves as an excellent medium for the learner to go through this cycle with ease and serves as alternative to traditional learning in the clinical environment. Experiential learning on cadavers should form a core part of airway training programs to enhance the safety of airway management.

**Take Home Messages:** Simulated training on cadavers enhances experiential learning in airway management.

#10HH05 (127140)

# **Effect of a Cardiopulmonary Resuscitation Training System during Chest Compression**

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Kazuya Imaizumi  
Gen Ouchi

**Background:** The quality of chest compression during cardiopulmonary resuscitation (CPR) is a significant factor for resuscitation in cardiac arrest. The QCPR monitor is a training simulator for learning correct chest compression that displays the compression rate and depth visually in real time. In this study, we report the effect of use of the QCPR in training of students in CPR.

**Summary of Work:** The subjects were 60 first-year students majoring in healthcare informatics. Students practiced using a manikin after being taught how to perform CPR. Then, each student attempted to perform chest compression at a rate of 100 to 120 times per minute using SimMan 3G (Leardal) for one minute. One group of students (group A) performed chest compression with a QCPR monitor, while another group (group B) used only their sense of the compression rate. CPR performance was assessed using log data from the simulator.

**Summary of Results:** The compression rates were  $114.9 \pm 3.1$  per minute in group A and  $135.4 \pm 5.6$  per minute in group B ( $P < 0.001$ ). The correct rate was achieved by 80% of students in group A, but only by 10% in group B ( $P < 0.001$ ). The mean compression depths were  $41 \pm 5.1$  mm in group A and  $39.6 \pm 3.8$  mm in group B. The correct depth of  $> 50$  mm was achieved by 9% of students in group A and 10% in group B, and a close to correct depth of  $> 40$  mm was achieved by 66% in group A and 52% in group B ( $P = 0.006$ ).

**Discussion:** Students were able to reach the correct compression rate using visual feedback. Depending on past experience and difference in muscle bulk between men and women, compression depth was still poor in one-time-only training. However, close to the correct compression depth was approached using QCPR.

**Conclusion:** Repetitive learning and follow-up are necessary to acquire correct CPR skills, but QCPR is effective for learning correct chest compression.

**Take Home Messages:** Students learned correct compression rate using QCPR.

#10HH06 (134927)

# **Non-Preserved Cadaver-Based Clinical Course in Emergency Procedures for 4th Year Medical Students in Korea**

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Do-Sang Lee (College of Medicine, The Catholic University of Korea, Seoul, South Korea)

**Background:** Medical students and training doctors cannot skillfully perform invasive procedures due to social limitations. In Korea, some physicians graduate without performing critical procedures. We designed a fresh cadaver-based course in life saving skills for 4th year medical students. This curriculum provides an approach to increase competency in the performance of emergency procedures and improve understanding of the association between radiologic and anatomical findings.

**Summary of Work:** On the first day, students received radiologic lectures related to anatomy. On the second day, students performed several emergency procedures with fresh cadavers, including tracheostomy under faculty supervision. On the third day, faculty members performed surgical intervention with assistance of students, and students reviewed anatomy and operation procedures. We analyzed students' response for self-confidence, motivation, and competency. We also obtained comprehensive constructed responses.

**Summary of Results:** Students' response revealed that this course improved competency (81%) and was effective for emergency practice (79%), but was lesser effective for clinical anatomy (69%). Self-confidence and competency for procedure showed very effective improvement after this course ( $P < 0.01$ ). Many students felt that their competency and self-confidence for real situation had improved in emergency practice and requested a combination of lectures and actual practice. They also wished for a more extended course on the relationship between surgical intervention and anatomy.

**Discussion:** Invasive procedures during clinical setting for medical students were limited due to social problem. In clerkship, students observed or assisted for invasive practice to patients. They have a little chance to experience practical skill. Simulation has limitation for various clinical setting with high costs, and the inability to replace human tissue and anatomy.

**Conclusion:** Competency and self-confidence for procedural skills may improve after a non-preserved cadaver-based course for 4th year medical students. This course for emergency care may be improving before graduation.

**Take Home Messages:** Non-preserved cadaveric emergency practices help to increase the competency and self-confidence of medical students.

#10HH07 (133943)

**The challenges of teaching airway management - an innovative approach**

**Kate Leech\***, University of Edinburgh, Edinburgh, UK  
Val McDowall  
Janet Skinner  
Rory Mayes

**Background:** Providing immediate care in a medical emergency is a core competence required by the graduating medical student. Good airway management is an essential component of this care but medical students often struggle to retain this knowledge from their airway teaching in clinical skills resulting in poor performance in exams.

**Summary of Work:** We wanted to find an innovative way of teaching airway management that would improve knowledge retention for a skill that is not at this stage clinically relevant. By introducing face paints the students revised their anatomy by painting upper airway structures on each other. Following this they were shown photos of patients with actual or pending airway compromise thereby allowing them to creatively make links between anatomy and actual airway problems.

**Summary of Results:** Evaluation continues by direct analysis of student engagement in the session. Initial analysis suggests students are more aware and enthusiastic in the practical management of airway compromise. They appear to have a better understanding of the theory behind airway problems and the practical application of this knowledge.

**Discussion:** Students can struggle to understand the relevance of this teaching; it occurs in isolation, with the patient group they encounter rarely having any airway compromise, and as such can cause difficulties in exam settings when practical recall is required.

**Conclusion:** Creativity allows the students to be active participants in their own learning. Utilising all aspects of learning -visual, auditory and kinaesthetic, offers an alternative way for retention and recall of teaching.

**Take Home Messages:** Educators should try to • inspire students • be creative when introducing new skills • create building blocks to facilitate lifelong learning

#10HH08 (135361)

**Teaching 'Life-Saving Skills to Parents': Taking the opportunity to deliver a public education service**

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Mekhala Ayya (Sheffield Children's Hospital, Sheffield, UK)  
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**Background:** Choking is a leading preventable cause of morbidity and mortality amongst young children and a well-recognised risk by caregivers. Despite the need and demand for public education programmes offering training in choking rescue manoeuvres and cardiopulmonary resuscitation, free-to-access services are not widely available. This case study illustrates the feasibility of delivering life-saving skills as a voluntary service.

**Summary of Work:** Six one-hour workshops, delivered by volunteer doctors, were held on two separate days in January and February 2016. Each workshop involved a demonstration followed by small group teaching with 40-45 participants per session. Social media was used to promote, gain feedback and enrol caregivers over a one-week period.

**Summary of Results:** In total 252 caregivers attended the workshops with all being over-subscribed. There was an average ratio of one volunteer doctor to four caregivers. Feedback was predominantly positive with caregivers describing sessions as 'invaluable', 'useful' and 'well-organised', highlighting the relevance of these workshops to caregivers' needs. Flexibility and availability of sessions were identified as the main limitation. Volunteers found the experience of teaching caregivers rewarding and satisfying.

**Discussion:** This case study demonstrates interest from caregivers and volunteers, and the minimal organisation needed to deliver these sessions. As a consequence of these workshops, medical students trained by the Royal Life Saving Society have voiced interest in delivering similar events and local children's centres have enquired about hosting sessions.

**Conclusion:** With scarce resources and competing priorities, a programme of voluntary 'life-saving skills' sessions could address this service gap. Further evaluation is required to assess the broader reach and sustainability of a volunteer-delivered education programme.

**Take Home Messages:** A volunteer-delivered service offering life-saving education sessions for caregivers is feasible and requires further research.

#10HH09 (136060)

**Saving more lives by 2020: Introduction of European Resuscitation Council courses into the core curriculum at the University of Zagreb School of Medicine, Croatia**

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*Silvija Hunyadi-Anticevic*  
*Professor Davor Milicic*

**Background:** Medical students and newly qualified medical doctors have insufficient knowledge and practical skills of basic and advanced cardiopulmonary resuscitation (CPR) needed for the care of acute patients, both adults and children. CPR skills deteriorate within months, according to latest resuscitation guidelines that were published on October 15, 2015.

**Summary of Work:** In February 2013 an Agreement has been signed between University of Zagreb School of Medicine (UZSM) and European Resuscitation Council (ERC) to promote highest standards of resuscitation practice and education by mutual collaboration. Four types of ERC courses are introduced as compulsory part of the longitudinal course "Fundamentals of clinical skills" from 3rd to 6th year: CPR/AED (Cardiopulmonary Resuscitation and Automated External Defibrillation), ILS (Immediate Life Support), EPILS (European Paediatric Immediate Life Support) and ALS (Advanced Life Support).

**Summary of Results:** CPR/AED course was completed by 346 3rd year medical students in the academic year 2013/14 and 343 in 2014/15, respectively; ILS course was completed by 287 4th year medical students; total of 976 students with ERC certificate.

**Discussion:** Simulation equipment was purchased by UZSM, organisation required great involvement of teachers-ERC instructors and administration. All attendees rated ERC courses with highest marks. This academic year there is a plan to run EPILS course for 5th year medical students and ALS course for 6th year medical students next year.

**Conclusion:** Introducing ERC basic and advanced resuscitation courses into the core curriculum of the UZSM will result in sustainable number of medical students and young doctors who will be able to provide and teach CPR in Croatia.

**Take Home Messages:** It is rare to find ERC courses as part of the curriculum in medical schools.

#10HH10 (135784)

**Effectiveness of Sixth Year Medical Student Hand-on Workshop in Mechanical Ventilation**

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*Chatchai Kraysubun*

**Background:** Sixth year medical student should be trained to provide effective care for patients who require mechanical ventilation. The aim of this study is to evaluate the effectiveness of sixth year medical student hand-on workshop in mechanical ventilation.

**Summary of Work:** Traditional lecture in respiratory care and mechanical ventilation was introduced to sixteen sixth year medical students while they were fifth year student. At sixth year student, hand-on workshop in respiratory care and mechanical ventilation was provided to students. Students satisfaction were measured by structural questionnaire, and student performance were evaluated by MCQ, after the end of traditional lecture, and hand-on workshop.

**Summary of Results:** Compared with traditional lecture, the mean score was significantly higher in hand-on workshop ( 154.2 vs. 22.84.5; p <0.001). Satisfaction was higher in hand-on workshop than traditional lecture.

**Discussion:** This study compare the effectiveness of hand-on workshop and traditional lecture in mechanical ventilation in sixth year medical students. We found that hand-on workshop provide higher score than traditional lecture.

**Conclusion:** Hand-on workshop in mechanical ventilation appears to promote better score, and favorable satisfaction than traditional lecture .

**Take Home Messages:** Hand-on workshop in mechanical ventilation appears to promote better performance of sixth year medical students.



#10HH11 (136109)

**Plastered medical students – acquisition of core plaster of Paris casting skills utilising a small group practical workshop methodology for medical students**

**Thomas Cooke\*, Barts and The London School of Medicine and Dentistry, London, UK**

Charmilie Chandrakumar

Aleksandra Berezowska

Kalpesh Vaghela

Pramod Achan

Shafi Ahmed

**Background:** Plastering is an essential orthopaedic skill and that is not usually taught much in medical school due to the lack of time available for surgical teaching. Thus, extracurricular activities like skills sessions help medical students develop their skills. We aimed to assess the effect of small group tutorial sessions taught by junior orthopaedic surgeons.

**Summary of Work:** The Barts and The London Surgical Society hosted two plastering sessions. Altogether, 20 students who had never done or seen plastering being performed took part in these courses. Each session had 10 students and before the course, participants filled in a questionnaire consisting of short answer questions and single best answers testing their knowledge on the science, usage and classification of casts. They were then given a short overview of plastering before learning and practising how to make below knee and elbow back slabs for two hours. A week later, the same questionnaire was sent out to the students.

**Summary of Results:** 20 marks were available on the questionnaire. The average scores for the pre-course and post-course questionnaires were 5.92 and 16.67, respectively. Thus, showing a statistically significant difference in their knowledge about plastering after the course than before it ( $p=0.0002$ ).

**Discussion:** Small group sessions allow tutors to give more attention to students than those in big groups. It is possible that students are able to ask more questions and retain more information in these settings. The small number of participating students is a limitation.

**Conclusion:** The effectiveness of being taught in small groups has allowed medical students to have a better understanding of plastering.

**Take Home Messages:** Small group plastering sessions can be implemented into medical school curriculum to provide all students a foundation in orthopaedics

#10HH12 (129644)

**Mixed Models: An interleaving approach to improve observational practice in simulation-based learning**

**Lawrence Grierson\*, McMaster University, Hamilton, Canada**

Arthur Welsher

**Background:** Evidence supports the notion that skill observation supports skill learning. Research on this phenomenon suggests that learning through observation is optimized when the learner observes a combination of expert and flawed models. The idea is that the learner extracts task 'blueprints' from observing experts, while observation of imperfect performances provides learners a mechanism to form strategies to mitigate the consequences of their own errors (Domuracki et al., 2014).

**Summary of Work:** Participants engaged in sets of physical practice that were interspersed with sets of observational practice as they learned a pots-and-beans task in a simulated endoscopic environment. The Blocked group's observation of expert and flawed demonstrations alternated between sets. The Interleaved group observed alternating expert and flawed content within each set. Errors, time to complete, and errors/second were analyzed through practice, and at post-practice, retention, and transfer tests.

**Summary of Results:** All participants' performance improved across the physical practice blocks ( $p < .01$ ). Measures of total errors and errors/second indicated that the Blocked observation group significantly outperformed the Interleaved group post-practice. However, retention ( $p = .04$ ) and transfer ( $p = .016$ ) analyses reveal that this benefit is transient, and that after time, the Interleaved group outperforms those in the Blocked group.

**Discussion:** These results present evidence that suggests that observational practice will yield performance outcomes that reflect the classic contextual interference effect when the observational content is organized in interleaved vs blocked fashion. This finding challenges theoretical interpretations of the effect that suggest that rely on the cognitive effort associated with response selection to explain why learning is improved in the interleaved case.

**Conclusion:** The way an observational practice schedule is designed can impact the degree to which precision clinical skills are acquired and retained in the simulation-based learning context.

**Take Home Messages:** When building observational curricula for clinical skill acquisition, one should be mindful of the impact of mixed model demonstrations can have on positive skill development.

#10HH13 (135864)

**New registered nurses' use of technical skills and possibility for continued learning**

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**Background:** Today's increasingly technical and complex health care places high demands on new registered nurses (RNs). There is a lack of studies that have explored the extent to which various technical skills and medical devices are used in the clinical settings where new RNs frequently work.

**Summary of Work:** The aim of this study was to describe and compare the extent to which new RNs perform various technical skills and handle medical devices in different settings, and to investigate their possibility for continued learning in this respect. A further aim was to describe their perceptions of incident reporting related to technical skills and medical devices. Data were collected by means of questionnaires mailed to 113 RNs who recently graduated from a nursing programme at three universities in Sweden and who had worked as a RN for up to one year after graduation.

**Summary of Results:** The majority of the participants (76%) considered themselves in need of continued practical training. However, less than half of them (48%) had access to training opportunities. Although the participants rated their technical ability as high, several of them (43%) had been involved in incidents related to technical skills or medical devices, and these incidents were not always reported. Over a third of the participants (31%) did not use the existing guidelines in connection with the performance of technical skills, and reflection on one's performance was uncommon.

**Discussion:** The challenge is to establish a culture where nursing students and new RNs understand the importance of using evidence-based guidelines.

**Conclusion:** This study emphasizes the importance of shared responsibilities between nurse educators and health care employers to provide learning opportunities for new RNs in technical skills, in order to maintain patient safety.

**Take Home Messages:** The wish for postgraduate training is a signal to employers to establish opportunities for a life-long learning approach.

#10HH14 (135930)

**Effect of audiovisual intervention on learning a minor procedure: a prospective controlled trial**

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**Background:** At the University of Helsinki IUD insertion is taught to fifth year medical students during their gynecology course. In a small group session, a brief introduction presenting the technique and hands-on practice with the help of a plastic uterus-model is done, then the students proceed to treat live patients. Our objective was to evaluate whether teaching the application of an IUD with an additional video tutorial showing a live situation of IUD insertion could support the acquisition of the new skill, increase self-confidence of the medical student, and improve the patient's experience.

**Summary of Work:** We performed a prospective controlled trial where the students were divided into a reference group receiving traditional hands-on training only and an intervention group receiving an additional video tutorial. Evaluation of the technical performance, anxiety, technical skills and/or pain were measured after each session by a senior consultant, the student and the patient with the help of structured questionnaires.

**Summary of Results:** Forty students participated in the control and fortythree in the intervention group. In the control group the students had done slightly fewer gynaecological exams, but we did not find any difference in the feelings of preparedness, anxiety or nervousness before the performance between the groups. We did not find any difference between the groups in the pain experienced by the patients and the patients were equally satisfied with the students' performance. A sole significant difference was found in the evaluation of the technical performance done by the teacher ( $p < 0,01$ ).

**Discussion:** The teacher was not blinded for the randomisation which may well have affected the evaluation.

**Conclusion:** A video-tutorial alone did not significantly enhance learning of the procedure Furthermore, the effect of a teaching intervention might be overestimated when based only on the opinion of the teacher

#10HH15 (132413)

# **Comparison of Khon Kaen University's Nasal Packing Model to the Standard Nasal Packing Model**

*Intira Anantpinijwatna\*, Mahasarakham hospital, Mahasarakham, Thailand*

**Background:** The Department of Otorhinolaryngology at Khon Kaen University(KKU) created an innovative model for anterior nasal packing. This study aims to evaluate KKU'snasal packing model to the standard nasal packing model.

**Summary of Work:** The Department of Otorhinolaryngology set up an anterior nasal packing class to teach and compare the standard nasal packing model to the KKU nasal packing model. Medical students practiced both models. A standard questionnaire (VAS 0-10) was used to compare the models based on a list of criteria: satisfaction; confidence in the test; confidence to perform the procedure; confidence when performing with a patient; procedure adequacy; and a sense of satisfaction.

**Summary of Results:** The mean difference between the two models was not statistically significant: satisfaction was 0.48(95%CI -0.72, 1.68); confidence in the test was 0 (95%CI-1.03, 1.03); confidence to perform the procedure was 0.33(95%CI-0.75, 1.42); confidence when performing with a patient was 0.86(95%CI-0.21, 1.93); procedure adequacy was 0.57 (95%CI-0.44, 1.59); and they reported being satisfied with both models (80.95%).

**Discussion:** The standard model is three times more expensive than the KKU model. The KKU model can perform anterior and posterior nasal packing, tracheostomy and change silver tubes. The KKU model was found to be the model of choice and can potentially replace the standard nasal packing model due to greater affordability, durability and multi-functionality.

**Conclusion:** The KKU model was found to be the model of choice and can potentially replace the standard nasal packing model due to greater affordability, durability and multi-functionality.

**Take Home Messages:** The KKU model is more affordable, durable and demonstrated better performance by medical students than the standard model.

#10HH16 (133775)

# **Ensuring basic competency in chest tube insertion using a simulated scenario – an international validation study**

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*Katrine Jensen (Copenhagen Academy For Medical Education And Simulation, Copenhagen, Denmark)*

*Yousif Subhi (Copenhagen Academy For Medical Education And Simulation, Copenhagen, Denmark)*

*Hani Lababidi (King Fahad Medical City, Riyadh, Kingdom of Saudi Arabia)*

*Lars Konge (Copenhagen Academy For Medical Education And Simulation, Copenhagen, Denmark)*

**Background:** A structured training programme with a reliable and validated test is needed before performing the chest tube procedure on patients in order to ensure patient safety. Using the 'TUBE-iCOMPT' (The-Chest-Tube-Insertion-Competency-Test), to establish pass/fail standards would make the assessment tool ideal for incorporation into mastery learning programs.

**Summary of Work:** The data was gathered in Copenhagen, Denmark and Riyadh, Saudi Arabia. Validity evidence for the assessment tool was explored using the five sources of validity. Two standard setting methods were used; the Contrasting Groups Method (CGM) and a Modified Anghoff Method (MAM). Novices and experienced doctors were tested in the CGM. Each participant conducted the procedure twice and all procedures were video recorded and blinded for video-rating by two expert-raters from Saudi Arabia and Denmark, respectively. Anghoff judges have individually set the cut scores defining the pass/fail criteria.

**Summary of Results:** Thirty-four participants were assessed in the CGS, 23 were novices and 11 were experienced surgeons. Internal consistency reliability was found with a Cronbach's alpha 0.94 and with a test/retest reliability Pearson's r at 0.9 (p<0.001). Intraclass correlation coefficient, absolute agreement was found to be 0.94. Novices' mean score 50.72 (SD 13.21), experienced 74.73 (4.78) (p<0.001). The pass/fail score was 66, this with zero false negative and three false positives. Anghoff: 7 international judges participated in the MAM, their mean pass/fail score was 58.

**Discussion:** Since there is no gold standard in establishing a pass/fail standard, it is important to complement results with validity evidence, the choosing of and education of raters.

**Conclusion:** By using the two standard setting methods we have found a pass score at >62. We found the results highly generalizable, with data and raters from two international medical education centres, and with judges in the MAM study from five different university hospitals.

**Take Home Messages:** The TUBE-iCOMPT can be integrated as a test tool in mastery learning programs.

#10HH17 (134815)

### The Restructuring of Gynaecology Theatre Teaching Using an Interactive Workbook

*Rebecca Cassin-Scott\*, Chelsea and Westminster Hospital, London, UK*

*Sarah Woldman (Chelsea and Westminster Hospital, London, UK)*

**Background:** Bad surgical experience in medical school has been shown to lead to several negative outcomes, such as lack of interest in pursuing a career in a surgical specialty as found by Marshall (2014) in their systematic review(1).

**Summary of Work:** The "Theatre week and timetable" was studied for undergraduate students studying Obstetrics and Gynaecology at a London teaching hospital. A focus group and questionnaire found that little teaching was given in theatre. An introductory information booklet detailing procedures and anatomy was listed as a useful learning tool by multiple students. Theatre week was restructured with a gynaecology theatre workbook supported by tutorials.

**Summary of Results:** The results from a student cohort who received the theatre workbook indicated that 94% (15/16) students felt "part of the team" in theatre, compared to 50% pre-workbook and course restructure. Many cited the workbook as a valuable resource. 75% (12/16) of students felt that operations were explained, compared to 14% pre workbook. There was an increase (75% versus 64%) in students who felt that theatre was productive to their learning.

**Discussion:** A lack of funding towards teaching and a lack of tutors contributed towards the production of a workbook. By introducing achievable learning objectives and learning tools the aim is to encourage students to enjoy their time in theatre and consider a future in surgical specialities. Interactive videos demonstrating procedures are due to be added as links in the workbook, acting as a further resource. This has scope to be used on a wider scale.

**Conclusion:** A theatre workbook appears to have enriched the students' theatre experience both in terms of knowledge gained but also understanding of the post-operative patient.

**Take Home Messages:** • Gynaecology Surgery can be taught by a combination of in/out of theatre experience. • The creation of a workbook and tutorials surrounding this has improved student experience. Reference: (1) Marshall DC, S. J. (2014). Medical Student Experience in Surgery Influences their Career Choices: A systematic review of the literature. Journal of Surgical Education, 1-8

#10HH18 (132777)

### Learning from unsafe situations about care of chest drain system to bring the knowledge to the benefit of mankind

*Smith Soimadee\*, Vachira Phuket Hospital, Phuket, Thailand*

**Background:** Most of our medical students are interested only in chest tube insertion. They cannot detect and solve many problems associated with chest tube insertion and its drainage system. Most of them think that care of the chest drain system is a major role of nurses. Learning from many unsafe situations will show them how to bring the knowledge to save their patients and make them more realized on their duties.

**Summary of Work:** We divided the students into two groups, each group has six students who had never learned about chest drain care before. We divided them into two groups. Group 1. They all are lectured about chest drain system and its physiology as usual. After that we tested them with 10 cases with VDO and pictures presentation to see if they can identify and solve the problems. Group 2 we show them many unsafe situations about chest drain system and how to identify and solve those problems; after that we test them with the same test as group 1.

**Summary of Results:** All students in group 1 cannot identify or solve any problems. Group 2 students can explain the situations and show how to manage that problem. We do not test about memory in this study but about their understanding of pathophysiology and application to solve problems.

**Discussion:** Many problems associated with chest tube insertion have been reported to risk management committee such as chest tube displacement or dislodgement, tension pneumothorax due to clamping during transfer, spreading subcutaneous emphysema due to kinking of chest tube etc. Learning from these unsafe situations can make our medical students bring their knowledge to save their patients and realize that their duties are not finished only after insertion.

**Conclusion:** Showing many unsafe situations about chest drain system and how to identify and solve those problems are necessary for successful learning to bring the knowledge for patient safety

**Take Home Messages:** Teaching by lecturing only theory is not enough. Showing many unsafe scenarios and how to identify and solve those problems are necessary for successful learning about caring for the chest drain system.



## 10II Posters: Mobile Learning and Social Media

Location:

#10II01 (134860)

Exploring the process of web-based education for diabetic patients

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*Hossein Karimi Moonaghi*

*Nabil Zary*

*Italo Masiello*

**Background:** The number of people with Diabetes Mellitus has doubled worldwide from 1980 to 2008 and is estimated to increase to more than 550 million by the year 2030. Patient education is the process of enabling individuals to make informed decisions about their personal health-related behaviors. The main aim of this qualitative study was to explore the process of web-based education for diabetic patients.

**Summary of Work:** This study was conducted by using qualitative analysis. Data were collected via semi-structured interviews with 9 diabetic type 2 patients who had access and knowledge about using Internet. Participants were selected by considering variation based on gender, age, job and educational background and were recruited from a diabetic clinic in Mashhad (Iran).

**Summary of Results:** Four core categories emerged from the data collected. 1-Seeking knowledge about diabetes: it included specific knowledge acquisition, patient's interactions and learning requirements. 2-Teaching and learning: included using different teaching methods and different ways to learn about the disease. 3- Key facilitators: included Internet and mobile use to learn about the disease 4-Barriers: included lack of Internet access, uncertainty of the Internet and lack of Persian site, but also perceived cultural barriers, such as patient's fears of the Internet, lack of time and awareness).

**Discussion:** This study provided a better understanding of patient's educational expectations and needs with web-based education.

**Conclusion:** This information is needed to design functional mockups that the researchers are going to use, through Design-based research, to design an online education material for self-care management for diabetic patients in Iran.

**Take Home Messages:** Patients with diabetes can be reached with carefully designed Internet and mobile learning services that can help improve the patients' self-care management of the disease.

#10II02 (135891)

Tablet PC assisted TBL - a pilot project

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*Ichiro Takahashi (Kyushu University, Fukuoka, Japan)*

*Kenji Tokumori (Teikyo University, Fukuoka, Japan)*

*Noriko Kitagawa (EduPlay Co. Ltd., Tokyo, Japan)*

**Background:** Kyushu University School of Dentistry runs several "Integrated Dental Courses" in the TBL format, where the readiness assurance tests (RATs) have been given with printed materials. To give more immediate and accurate feedback to the students, we planned to replace the traditional RATs with ones on a Web-based learning platform, Moodle, by using tablet PCs and verified the feasibility and efficiency of ICT-assisted TBL.

**Summary of Work:** Integrated Dental Course 2 for 2nd-year students (n = 50) is a requisite course in the winter semester on Mondays lasting 180 minutes per day. First, in the orientation, we explained the principles of TBL to the students, as well as the purpose and methods of the project. They took a demonstration RAT with printed materials and then practiced using tablet PCs. To familiarize them with TBL and allow them to compare the traditional and innovative ways, we gradually implemented ICT into the course. At the end of the course, we conducted a survey to know the students' satisfaction, specifically to the use of ICT.

**Summary of Results:** The students' satisfaction was 64% on average with percentages of pros and cons of the use of ICT, 25% and 48%, respectively. Many students pointed out that both instructor's lack of experience and frequent network disability was the main source of their dissatisfaction.

**Discussion:** The fact that percentages of pros and cons of RAT itself were nearly the same (11% and 16%, respectively) while the cons of the use of ICT almost doubled the pros suggests that the situation should improve if the technical problems were removed.

**Conclusion:** We have already set about constructing a highly secure network environment with sufficient capacity of more than 50 students.

**Take Home Messages:** You need enough practices with ICT before you start a course with it.

#101103 (132920)

### How Do Medical Students Use Mobile Devices In Problem Based Learning Sessions?

*Jasmin Farikullah-Mirza\*, Royal Manchester Children's Hospital, Manchester, UK*

*Colin Lumsden (The University of Manchester, Manchester, UK)*

*Jo Hart (The University of Manchester, Manchester, UK)*

*Jane Mooney (The University of Manchester, Manchester, UK)*

*Lucie Byrne-Davis (The University of Manchester, Manchester, UK)*

**Background:** Manchester Medical School (MMS) was the first medical school in the United Kingdom to deploy Wi-Fi enabled iPads to its students. It was therefore important to study how using iPads related to the MMS 8-step problem based learning (PBL) process and its impact on the PBL tutor-student relationship. This was the first study of its kind investigating how students use their iPads during PBL by allowing “real-time” screen-captured data to be recorded.

**Summary of Work:** An observational design involved viewing students in a real-world, real-time context. Questionnaires for students and tutors enabled evaluation of their thoughts and perceptions of iPad use in PBL. Live recordings of iPad activity during PBL sessions of MMS students (n=31) took place.

**Summary of Results:** 15/31 (48%) students used their own notes made on their iPads, 1/31 (4%) students had no iPad use at all, whilst 15/31 (48%) students relied on medical applications or Internet websites on their iPads during PBL. The most commonly used Internet sites were search engines, “Wikipedia” and “patient.co.uk”. Some students showed evidence of adapting the MMS 8-step PBL process, however, students reported this did not change the PBL tutor-student relationship. Some students reported a reliance of easy access to information and being distracted by iPads during PBL.

**Discussion:** Some students relied on ‘just in time learning’ during PBL, which resulted in the adaption of the PBL process. Other students used their iPads to both store and recall information during PBL, demonstrating a ‘transactive’ use of iPads.

**Conclusion:** We do not want to produce a generation of future doctors who are dependent on mobile technologies for learning. A balance between iPad use and reliance therefore must be obtained.

**Take Home Messages:** iPads are extremely useful for note-taking and accessing information during PBL; however, PBL tutors need to provide support about which resources are appropriate to use and the importance of PBL preparation.

#101104 (133100)

### WhatsApp use in medical Student Engagement and Education (WISE2)

*JY Derek Heng\*, National University Hospital, Singapore, Singapore*

*WH Gene Chan (National University Hospital, Singapore, Singapore)*

**Background:** The shift-based nature of an emergency medicine rotation poses a challenge as clinical cases experienced per student is shift-dependent, leading to significant variability. To facilitate asynchronous learning during non-shift hours, our department leveraged on WhatsApp, a phone-based mobile messenger app, to post clinical cases for discussion.

**Summary of Work:** Twenty students undergoing Emergency Medicine rotation in National University Hospital, Singapore were included in this pilot study. WhatsApp groups consisting faculty members of varying seniority and four students were formed. During every shift, de-identified pictures of electrocardiograms, radiographs and physical signs were posted with questions by faculty to facilitate discussion. At the end of their rotation, students answered a 14-question survey via 7-point Likert scales ranging from “1- strongly disagree” to “7- strongly agree”. Questions were arranged thematically into: ease-of-use, peer learning, facilitation of learning and engagement. Qualitative data were also collected.

**Summary of Results:** Overall, students rated WhatsApp usage positively with median scores of 6 or 7 for all themes. For ease-of-use, all students found learning during non-shift hours convenient. All but one student (neutral) were in agreement that the platform was useful for peer discussions. Regarding facilitation of learning, 85% of students felt WhatsApp enabled them to ask more clinical questions. All students would like to use it for similar purposes during other rotations.

**Discussion:** Technology should be leveraged upon to facilitate education during non-shift hours. Our results demonstrated that asynchronous learning through WhatsApp facilitated peer learning, increased engagement between faculty and students, and supplemented learning for all students.

**Conclusion:** WhatsApp is a useful tool for asynchronous learning, especially for shift-based rotations.

**Take Home Messages:** Leveraging on platforms like WhatsApp for asynchronous learning makes learning less shift-dependent and allows every student to learn from each clinical case.

#101105 (128408)

**Resolving doubts through WhatsApp improved learning of the Medicines used in Anaesthesia and Medicine of Pain**

*Inmaculada Bellido\*, School of Medicine. University of Malaga, Malaga, Spain*

*Victoria Bellido*

*Aurelio Gomez-Luque*

**Background:** New technologies have a large influence on young people social development. As more and more students are using WhatsApp applications, it may have an important impact on the individual and collaborative learning of young people. Aim: To evaluate the impact of resolving doubts through WhatsApp in the learning of medicines used in Anaesthesia and Medicine of Pain by undergraduate students.

**Summary of Work:** Prospective controlled study with students of Anaesthesia course which were invited to voluntarily participate into a WhatsApp-group to asking questions and doubts about analgesic/anaesthetic drugs and to answer them. Doubts were formulated by the students and they were most commonly delivered by other students or, in non-answer case by teachers.

**Summary of Results:** Students of Anaesthesia of Medicine Degree, N=75, 53.3% female, 21±0.9 years old, were enrolled. The 50% of the test final assessment was based on doubts formulated/resolving in WhatsApp-group. The percentage of questions answered and failed after having been reviewed in WhatsApp and those obtained in WhatsApp not-reviewed questions were compared.

**Discussion:** All WhatsApp's comments were controlled by teachers. Contributions' mean to issues raised/resolved through WhatsApp was 24.5±8 [Min 2-times/Max 61-times]. The correct-answered questions (in percentage) at the student's final assessment-test were: 69% in the question reviewed by the WhatsApp group vs. 45% in the non-reviewed by the WhatsApp-group (control) (p<0.5).

**Conclusion:** Teachers raised some questionable issues using this way. Resolving doubts through WhatsApp improved the assessment final score of questions about medicines used in Anaesthesia and Medicine of pain.

**Take Home Messages:** If you cannot against technology, at least use it to your advantage and to your students advantage. Mobile phones (in addition to conversations, photos and messages) can be a great tool of communication and dissemination.

#101106 (135362)

**The Clinical and Educational Use of Mobile Devices Is Surprisingly Low Among Junior Doctors**

*Mikael Kuitunen\*, Children's Hospital, University of Helsinki and Helsinki University Hospital, Helsinki, Finland*

*Jussi Merenmies, Children's Hospital, University of Helsinki and Helsinki University Hospital*

*Risto Lapatto, Children's Hospital, University of Helsinki and Helsinki University Hospital*

**Background:** Mobile devices such as handheld computers and smartphones can be used for professional purposes and learning during specialist training. Numerous medical apps are available and searching medical databases and journals can be done easily. However, the use of handheld devices among residents has not been extensively studied.

**Summary of Work:** We studied the use of mobile devices amongst 39 paediatric junior doctors at Children's Hospital of Helsinki University Hospital by electronic questionnaires. The questions focused on the use of databases, however the use of social media was also covered.

**Summary of Results:** Median use of PubMed was 1-5 times/week, Cochrane twice/month, international journals 1-5 times/week. National medical databases were read once/day (median) and national journals 2-10 times/week. Most residents owned mobile devices but used them for medical searches only 1-5 times/week. The variation of databases use varied substantially.

**Discussion:** Although medical databases and journals are readily available, they were unexpectedly only rarely consulted. This is at variance with the extensive use of social media. Possible reasons include lack of instruction, a poorly functioning wi-fi network and the strong tradition of face-to-face senior consultation rather than medical database searches.

**Conclusion:** The use of mobile devices for medical education among junior doctors needs to be promoted. Postgraduate training of both senior and junior medical staff must include sufficient education in e-medicine to promote the paradigm shift. The infrastructure for the use of mobile devices must be a priority in health care.

**Take Home Messages:** Use of mobile devices for medical purposes is infrequent among junior doctors. An educational programme is recommended for the use of medical databases and e-learning platforms.

#101107 (130533)

**Mobile Application for Teaching and Learning in Residency Training - A Pilot Project**

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Emily Xin Rui Lim (National Healthcare Group, Singapore, Singapore)

Robert Gunawan (National Healthcare Group, Singapore, Singapore)

**Background:** Residency training involves multiple, specialty-specific administrative requirements such as evaluations and procedure logs, which are commonly submitted via multiple platforms by residents, necessitating data entry and consolidation by Programme Coordinators (PCs). PCs also spend considerable time checking and sending reminders to tardy residents. The Residency Mobile Application (RMA) aims to streamline these processes and enable residents to monitor their training progress.

**Summary of Work:** RMA allows residents to access and submit evaluations, case logs and procedure logs on their mobile devices, as well as enabling retrieval of real-time submission status by PCs. This project will proceed in two phases: Phase I involves data collection and analysis; Phase II involves implementation to selected programmes. In Phase I, we asked PCs about the time spent on administrative tasks, the compliance rate of residents to submissions of evaluations and procedure/case logs, and the consequences of implementation of RMA.

**Summary of Results:** Currently, PCs spend about 1 day per month on data entry, checking and sending reminders. For an office with 55 positions, this translates into 660 work days, or 2.9 Full Time Equivalents (FTEs), which would be saved upon full implementation. Other benefits include: savings in space needed for storage of files, increase in compliance rate of residents' submissions, and increased accuracy of data, due to minimization of manual data entry.

**Discussion:** Full implementation of RMA will translate into 5% manpower savings. These will be offset against the cost of computer network customization and recurring costs of maintaining the server.

**Conclusion:** Implementation of a mobile application will result in manpower savings, improved processes, improved residents' compliance rate in submissions, with minimization of human error during data entry.

**Take Home Messages:** RMA is a useful tool for residents to monitor their administrative and learning requirements. It will empower residents to take charge of their own learning progress.

#101108 (135314)

**Development of "Wiki" style Foundation job webpages**

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Saadia Shad (NHS Lothian, Edinburgh, UK)

Sonia Joseph (NHS Lothian, Edinburgh, UK)

**Background:** Foundation doctors complete a programme or work placements in which they regularly rotate between departments. In NHS Lothian, this can result in trainees regularly moving between hospital sites. It had been identified by foundation doctors that changeover between jobs can be challenging, as lack of familiarity with their new clinical environment leads to inefficient working practices. This takes time away from direct patient care and valuable learning opportunities.

**Summary of Work:** Foundation doctors were recruited to develop "Wiki"-style web pages for their current jobs. The content on the pages included practical information about their role, links to clinical protocols, contact information and opportunities for educational activities in the role. The resources were checked and published on our virtual learning environment. Trainees were also encouraged to review and update existing pages to ensure that the content is current.

**Summary of Results:** There has been broadly positive feedback from trainees, who have been keen to engage with the programme. Qualitative feedback from trainees confirm that they value this resource, and that it has helped them during their changeover periods. Full results to follow.

**Discussion:** Junior doctors rotate regularly between clinical areas, and need to quickly learn how to best undertake their role in their new jobs. Supporting our trainees during the changeover period allows them to undertake their work more efficiently, and allow time to explore learning opportunities in the post that helps them to cover the Foundation Programme Curriculum.

**Conclusion:** Use of "Wiki"-pages created by trainees who are in the posts helps to facilitate smooth handover, and has benefited trainees.

**Take Home Messages:** Successful implementation of trainee designed webpages to support Foundation doctors at changeover times.



#10109 (135460)

**The wiki: solving the challenge of teamwork in an online asynchronous environment**

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Camille Huser (University of Glasgow, Glasgow, UK)  
Yvonne Slater (University of Glasgow, Glasgow, UK)  
Jenny Crow (University of Glasgow, Glasgow, UK)*

**Background:** We are delivering a new entirely online and almost fully asynchronous masters' programme in Health Professions Education. We developed the use of a wiki task as part of the students' summative assessment, to encourage them to put socio-constructivism into practice. The aim was to encourage students to work together cooperatively, whilst being separated both physically and in their time of accessing the course.

**Summary of Work:** Students were split into groups. Hard-scaffolding was provided in the form of an online introductory lecture on the topic; guidance on using the wiki; a discussion forum for each group (to allow for introductions and to allocate wiki content); a word limit for the wiki; and a timeframe for completion of the task. To facilitate students' engagement with topics other than the one they were allocated, we incorporated group peer assessment of and feedback on the wikis. Provision of a rubric for peer assessment allowed groups to see the criteria by which their own wiki would be judged.

**Summary of Results:** Engagement with the task varied greatly between students. The task generated some discussion, but the forums were only used as intended, indicating that the wiki task was well understood by the students. The peer-assessment did not align fully with the teacher's marking.

**Discussion:** The wiki task engaged most of the students with the topics they were allocated, and the peer-assessment component encouraged engagement with those of other groups as well.

**Conclusion:** The wiki task was generally a success, but it could be improved to take account of the engagement of individual students with the task.

**Take Home Messages:** - Wikis are a useful tool to encourage socio-constructivist learning in fully online courses. - Peer-assessment and peer-feedback increased engagement with other groups' Wikis.

#10110 (134141)

**The Use of Apps for Clinical Skills Training**

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Yousif Subhi (CAMES, University of Copenhagen, DK)  
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Ole Graumann (CECLUS, Aarhus University, DK)  
Martin G Tolsgaard (CAMES, University of Copenhagen, DK)*

**Background:** Apps seem promising in aiding self-guided clinical skills training but their effectiveness has yet to be established.

**Summary of Work:** In a group of year-1 residents with no previous ultrasound experience, we assessed the effect of self-guided learning using apps versus textbooks on transfer test performances with real patient cases. 38 year-1 residents were randomized to self-guided ultrasound training using apps or textbooks for two hours. Subsequent performances were assessed on four patient cases, by two ultrasound experts, using an assessment instrument with established validity evidence (the Objective Structured Assessment of Ultrasound Skills - OSAUS).

**Summary of Results:** 34 participants completed the transfer tests. The app group had a median OSAUS score of 41.3% (interquartile range 38.3-47.5) and the textbook group had a median OSAUS score of 44.0% (interquartile range 34.0-54.4). Interrater reliability was ICC= 0.68. There was no significant difference in performance between groups ( $p=0.532$ ).

**Discussion:** We found no difference in ultrasound performance between participants, who underwent self-guided ultrasound training using apps or textbooks. The considerable time and monetary costs associated with development of apps for training clinical skills was not justified in our study.

**Conclusion:** App-based training of ultrasound skills is not superior to textbook based training of ultrasound skills.

**Take Home Messages:** When creating course material for clinical skills training, the choice of media may be of limited significance compared to the instructions provided.

#10111 (135182)

**What can YouTube inform us about problem-based learning?**

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**Background:** Although, students are usually introduced to problem-based learning (PBL) and the staff are trained in workshops, both may be interested in seeking information about PBL. The aims of this study were to identify and evaluate the quality of PBL resources on YouTube.

**Summary of Work:** Using keywords such as “Problem-based learning”, “PBL”, “PBL student”, “PBL tutor”, “PBL tutorial”, “PBL cases”, and “PBL interaction”, YouTube were searched by researchers independently. Duplicate videos, and those in languages other than English were excluded. For each video the following information were collected: Title, URL, duration, date uploaded, number of viewers and creator. Using criteria comprising authorship, content, scientific accuracy, educational design and technical design, researchers independently evaluated each video.

**Summary of Results:** A total 859 videos were identified; and finally 164 were included in the study. Of these 79 (48%) were educationally useful and 85 (52%) not useful. The mean score was  $14.41 \pm 0.49$  for useful videos versus  $8.49 \pm 3.43$  for non useful. The number of viewers was  $3505 \pm 7628$  for useful videos versus  $3596 \pm 11838$  for non useful. Most useful videos covered more than one topic related to PBL. However, there were no videos on how to construct PBL cases or conduct a staff development and only 9 videos were on PBL in high and primary schools.

**Discussion:** The videos used a variety of techniques to engage the audience including: animations, interviews of students and PBL experts, as well as tutorials showing group interaction.

**Conclusion:** There were variations in the quality of YouTube videos on PBL and most videos were general rather than covering specific area or challenges in PBL.

**Take Home Messages:** Universities and educators should create new videos to cover these needs in PBL.

#10112 (135512)

**Analysis of YouTube videos on ileostomy and colostomy education**

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**Background:** YouTube has been widely used in sharing information and as a learning resource. The aim of this research was to identify, and analyze YouTube videos on ileostomy and colostomy that can be of educational value.

**Summary of Work:** Using key search words, “ileostomy”, “colostomy”, “stoma”, “ostomy”, “ileostomy care”, “colostomy care”, “ileostomy surgery”, “colostomy surgery”, YouTube website was searched by two researchers independently from 15 December to 30 December 2015. Based on predetermined inclusion and exclusion criteria, the videos matching the research objective were identified. The following information was collected: The title, URL, the creator, the duration of the video, and number of viewers. The videos were categorized by the researchers using standardized criteria.<sup>1</sup>

**Summary of Results:** A total of 192 videos were identified. After applying the exclusion criteria 140 videos were considered. On applying the standardized criteria 45 (32%) videos were educationally useful and 95 (68%) were not useful. The useful videos were grouped as follows: 21 on colostomy, 17 on ileostomy, 5 on ostomy, and only 2 on stoma. A further assessment of useful videos showed: 20 videos on education, 16 on care, 9 on surgical procedure, and no videos covered psychological impact.

**Discussion:** While there were some videos on colostomy/ileostomy education and care, there were no videos on psychological impact and how patients can cope with such procedure.

**Conclusion:** There were a limited number of educationally useful videos on ileostomy/colostomy that can be used by medical students, health professionals, and patients.

**Take Home Messages:** There is a need for academic institutes, societies and hospitals to create educational videos on colostomy/ileostomy that can be of value to medical students, health professionals and patients. 1 Azer SA, Algrain HA, AlKhelaif RA, AlEshaiwi SM. Evaluation of the educational value of YouTube videos about physical examination of the cardiovascular and respiratory systems. J Med Internet Res. 2013 Nov 13;15(11):e241

#10113 (133531)

**The pattern of social media use and the impact on medical students' learning**

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*Awtan Alenezi*

*Reem Als Salman*

**Background:** Social media is everywhere in the society and its usage is expanding at a fast pace all around the world, especially among students for communication, academic and other activities. At present, its use in Saudi Arabia has significantly increased. However, little is known about how much, why and how medical students use social media and the way it affects their learning.

**Summary of Work:** This study aimed to determine whether there is an association between usage of social media and academic grades and to assess the pattern, extent and reasons of its use among medical students. Cross sectional descriptive study. The study was conducted at King Saud University, College of Medicine, Riyadh, Saudi Arabia. Stratified random sampling strategy was used. In February 19 2013, the survey was uploaded on monkey survey and sent to the selected students. 400 students were included in the study and distributed among the two classes and sexes proportionate to their numbers. Golden SurveyMonkey plan was used for the data analysis.

**Summary of Results:** response rate 100%. 98% of medical students used SM and 70% of the students checked it on a daily basis more than 4 times. It was most commonly used for entertainment, staying up-to-date, and socializing with people. Overall, WhatsApp emerged as the favorite application followed by YouTube, & Twitter. There was a statistically significant association between the male students and the use of YouTube & Facebook. Also, was found among female students with Instagram, Path & Twitter. There was a statistically significant association between the grades and how many times the students checked their SM at lectures.

**Discussion:** The results of this study reveals a higher use of social media among medical students, which is alarming and a cause of concern. The results provide valuable cautionary information about the impact of checking SM during lectures and the academic grades.

**Conclusion:** it is recommended to start a course or be part of a study skills course for students to optimize their learning by introducing excellent SM learning tools. with tips on time management skills, Since most of the students use SM during the lectures, such a study skills course should inform them about the rational use of SM and self regulation.

**Take Home Messages:** Social media use is very popular among college students. WhatsApp and YouTube emerged as the most popular websites among students in general as well as for learning purpose. Excessive social media usage, especially at

lecture was found to be associated with their lower GPA score.

#10114 (136003)

**Innovative Learning and Networking Doesn't Have to Cost Time and Money**

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*Rakesh Patel (University of Leicester, Leicester, UK)*

*Richard Price (Health Education England, London, UK)*

*Susan Kennedy (Health Education England, London, UK)*

**Background:** Twitter chats are an example of a learning activity that occurs within the overlapping boundary between formal and informal education. The chats facilitate multi-professional learning between students, trainees and trained healthcare professionals which include a mix of level and specialism including doctors, nurses and educationalists. The chats enable flexible engagement with learning around the rigidity of working hours with the aim of providing better learning and patient care.

**Summary of Work:** Health Education England's (HEE) Technology Enhanced Learning (TEL) programme worked with WeCommunities to host a series of chats. Themes covered include: encouraging innovation, simulation in practice, barriers to technology and digital overload. The Twitter chats were advertised on social media to attract participants into the conversion. An expert panel discussed key issues raised by the online community. The TEL chats allow HEE to engage with learners, gather learner feedback on specific areas and to facilitate collaborative learning.

**Summary of Results:** The chats regularly attracted more than 100 medical professionals and offered: - An innovative platform for informal medical education - Gathering new ideas and learning about TEL - Online expert collaborative learning - Crowdsourcing ideas. **Discussion:** In increasingly busy and fast-paced lives we need to continue to network and engage with the medical community. WeCommunities chats allow networking to happen by facilitating multi-professional learning that can be joined from home or on breaks at work.

**Conclusion:** Innovative networking and learning solutions don't require a huge investment of time or money. They are: - Multi-professional - GPs, cardiologists, anaesthetists, nurses and midwives all learning collaboratively - Time restricted to manage commitment - Opportunity to discuss important subjects that matter to healthcare professionals in bite-sized conversations. Social media blurs the boundaries between informal and formal learning enabling individuals of similar and diverse backgrounds to connect.

**Take Home Messages:** Anyone in medical education can create Twitter chats/discussions for free, opening up opportunities for networking, collaborative learning and data gathering.

#10115 (136196)

**The use of social media platforms in medical education – a case study of ‘C21’ Facebook Page**

*Julimar Abreu\*, Cardiff University School of Medicine, Cardiff, UK*

*Thomas Stephenson*

**Background:** Social media potentially allows medical educators to share educational content, reaching students outside the traditional learning spaces. Aimed at current medical students at Cardiff University (UK), the page is used as an adjunct educational tool (not used to deliver curricular material). The page is run in collaboration between medical students and school staff.

**Summary of Work:** The aims of this study is to explore the current functions of the ‘C21 Facebook’ page. Evaluate contents shared on the page and their influence on students’ behaviours and satisfaction with the medical course. **METHODS:** All posts curated in 2014 (n=1633) were selected for quantitative analysis. User engagement data were exported from the page management insights tool and categorised according to their content. Subsequently, an anonymous page evaluation questionnaire was published on the page itself and in other relevant social media groups targeting Cardiff University medical students. A total of 86 responses were received and analysed.

**Summary of Results:** ‘Health news’ and ‘medical research’ comprised 53.6% of posts. ‘Opportunities for medics’ (10.9%), ‘events of interest for medics’ (6.0%) and ‘student news’ (9.7%) were amongst other categories. All categories were rated as ‘of interest’ by >50% of responders. Respondents were likely to study a curricular topic further due to a post (41.2%) and to attend medical school related events advertised on the page (47.6%). In addition, 61.7% of respondents reported feeling either more or much more satisfied with the medical course as a result of using the page.

**Discussion:** The page functions as adjunct learning tool performing multiple academic and non-academic functions. It complements student learning, consistent with social constructivist theories of learning. The fast shifting in technology can provide innovative platforms to share educational content. I

**Conclusion:** Social media is an useful adjunct learning tool for curricular and extracurricular contents. In the case study of C21 Facebook page, students were more likely to engage further in studies of topics presented on the page as well as with other non-academic activities.

**Take Home Messages:** There is scope for the use of social media platform to innovate methodologies of delivering medical education. Social media can be a useful resource to share educational contents to medical students.

#10116 (135311)

**Social Media in Medical Education: Make the Breech assisting practical class better**

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*Saovakon Boonkumnerd (Prince of Songkla University, Hat-Yai, Thailand)*

**Background:** Currently, a class of practical training in Breech assisting uses 90 minutes for teaching, learning and practicing with manikin. Preparation of medical students before attending the class may help them learn more quickly. The social media especially Facebook is beneficial and indispensable because it is easily accessible with two-way communication.

Therefore, we have implemented Facebook to enhance learning for the 5th year medical students.

**Summary of Work:** The 5th year medical students in one rotation were randomly divided into two groups. Group 1 used Facebook to enhance learning before attending the class including slides with description and video clips. Group 2 learnt only in a class as usual. Pre-test and post-test were performed in both groups. Satisfaction test was performed in group 1. We compared pretest and posttest scores between both groups using Mann-Whitney U test and analyzed satisfaction score in group 1.

**Summary of Results:** A total of thirty-five 5th year medical students in Breech Assisting’s training class were recruited, 17 in group 1 (Facebook) and 18 in group 2. Mean GPA was 3.28 (Group 1=3.29, Group 2=3.28). Group 1 had higher median pretest scores than group 2 (17 vs.14, p<0.01). However, the median posttest scores were not different (20 vs. 20 from total 25) between the two groups. Satisfaction scores for Facebook-enhanced learning was 9.35/10. By direct observation, the medical students in group 1 learnt more rapidly than group 2.

**Discussion:** The students had high satisfaction with Facebook-enhanced learning in breech assisting class. The posttest scores were indifferent between the two groups. It implied that the Facebook had no impact on knowledge, but help the students learn more rapidly in practical skill.

**Conclusion:** Facebook is beneficial in learning for practical skill in breech assisting class.

**Take Home Messages:** Facebook will be routinely implemented for student preparation in practical skill classroom.



#10117 (134790)

### Facebook & Faculty – Supplement, Complement or Replacement?

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Tanja Pander (LMU, Munich, Germany)

Martin Fischer (LMU, Munich, Germany)

Konstantinos Dimitriadis (LMU, Munich, Germany)

**Background:** At the same time as e-learning is increasingly used in medical education, social media platforms are becoming omnipresent in student life. It seems that they are not only used for extracurricular social activities but also in a study-related manner.

However, it remains to be elucidated for what students use social media platforms in detail and to what extent the faculty can adapt and influence them.

**Summary of Work:** Using a multi-method approach we analyzed two representative Facebook groups of medical preclinical semesters at LMU Munich.

Facebook posts over one semester were extracted and evaluated by using thematic content analysis. We applied a developed coding scheme for studying the frequency and distribution of these posts.

Additionally, we interviewed students with various degrees of involvement in the groups, as well as students not registered on Facebook.

**Summary of Results:** We extracted 2414 primary posts in both groups. Main categories were: study-related (5%) and non-study-related organization (46%), medicine-specific topics, including tips and recommendations, learning strategies, technical information and distribution of learning resource (16%), advertisements (19%) and other topics (14%).

While study-related organizational topics dominated posting behavior in both groups, subject-specific posts increase from first to second preclinical year. Students evaluate Facebook as their main source of study-related information, and even unregistered students use this resource via intermediaries.

**Discussion:** Facebook seems to have evolved as the main tool for medical students at LMU to interact, especially concerning study-related content. For the moment the medical faculty has no influence on accuracy of information, professionalism and ethical issues.

**Conclusion:** Since the use of social media is not to be detained, faculties could benefit from this trend by extracting relevant information, identifying common problems and understanding semester related dynamics.

**Take Home Messages:** We conclude that Facebook can be a complement to relieve faculty as it is used to aid students' university life, mainly to discuss study-

related and non-study-related organization. Facebook groups are highly dynamic and serve as a good knowledge base for students, replacing e.g. bulletin boards and online platforms by faculty. When used as a supplement in education, quality of posts, group integrity and professionalism are issues.

#10118 (134974)

### Effectiveness of Social Media Used in Medical Case Discussion

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**Background:** Social media is the online communication tools providing channels for connecting people. Social media enables real-time sharing of text, audio, photos, and videos to both active and passive users. Social media tools have the potential to enhance medical education. The aim of this study is to determine the effectiveness of social media used in medical case discussion. In Orthopedic Department, Ratchaburi Hospital Medical Education Center.

**Summary of Work:** Line group for orthopedic case discussion was generated. Member composed of orthopedists' and post graduate students in orthopedic department. Line group was used for post graduate students to send patient's information. Patient's information such as history, physical examination including photo of affected part and x-rays were used for discussion with orthopedist. The process was administered from July to December 2015. Preintervention and postintervention surveys were done. Questionnaire with a five-point Likert scale, with 1\_not useful, 3\_useful, 5\_very useful, rating effectiveness of line group used in orthopedics' discussion. The effectiveness was compared between pre- and post- line case discussion.

**Summary of Results:** The effectiveness of social line group used in medical case discussion is shown. There is significance increase in Likert scale between pre- and post- process.

**Discussion:** Social media can augment learning medical case discussion, and help students acquire tools and skill-sets for problem solving, networking, and collaboration.

**Conclusion:** Command of technologies will be increasingly important to the practice of medicine.

**Take Home Messages:** Social media technologies can augment traditional medical education and perhaps even improve them, as well as preparing students for a future in which social media will play a significant role in medicine.

## 10JJ Posters: Student Stress

Location:

#10JJ01 (134661)

**Stress level, sources of stress and the way to reduce stress among medical students**

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**Background:** Stress is important common problem in medical education that may affect academic performance of medical students, there is no such study in Mahasarakham Hospital so this study aimed to assess stress level, sources of stress and way to reduce stress among medical students in Mahasarakham Hospital.

**Summary of Work:** Cross-sectional study was conducted in 46 fourth to sixth-year medical students, they were asked to fill out the questionnaire including personal information and Suanprung stress test (SPST-20) Ministry of Public Health, Thailand. The response rate was 76% (35 questionnaire returned, male 15, female 20). Personal data was collected. The scores were measured and categorized into mild, moderate, high and severe stress

**Summary of Results:** The prevalence of high and severe stress was 54.3 % (19/35) of medical students, most of them were 4th and 6th year medical students (47.4% and 42.1%). The major sources of stress were academic activities like examination(85.7%), study(51.4%), duty(45.7%), the other sources of stress was relationship with staffs and friends. 77.1% of them stated that Medicine rotation cause stress most compare with other rotation. Sex, grade point average, duration of sleep showed no correlation with stress level ( $p > 0.05$ ). There were many way to reduce stress such as seeing movie(71.4%), listening(80%), having party(63.6%), playing sport(38.2%) and meditation(11.8%)

**Discussion:** The result revealed more than half of medical students had high and severe stress level which may lead to physical and mental problems. This might affected daily life and academic activities such as patient care, impair learning, judgment, graduation and even suicide.

**Conclusion:** Prevalence of severe stress in medical students was high and this findings can make the staffs understand and help their students to cope with stress.

**Take Home Messages:** Stress among medical students should be explored so that we can prevent its effects

#10JJ02 (136160)

**Maslach Burnout Inventory among Medical Students in Riyadh, KSA**

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**Background:** This study aims to evaluate the use of Maslach Burnout Inventory (MBI) for assessing burnout in first to fifth year medical students and appraise the predictors of MBI scores.

**Summary of Work:** This study was approved by Alfaisal University ethics committee. The MBI questionnaire is a 22-item instrument divided into three sections: Emotional Exhaustion (EE)-Depersonalization (DP) and Personal Accomplishment (PA) in addition to respondents' demographics. The sample size of 278 was determined by Rao Soft® sample size calculator at 80% power and 5% margin of error.

**Summary of Results:** Test reliability coefficients (Cronbach alpha) were 0.66 for EE, 0.58 for DP and 0.72 for PA. Minimum acceptable value for reliability coefficient is 0.5, thus the coefficients indicated acceptable reliability. 276 students entered into final data analysis of whom 54% males and 46% females. 17.4% of students had high EE burnout level with 70.8% females and 29.2% males ( $p < 0.001$ ). DP was also significantly higher in females (53.5%) than males (46.5%) with  $p = 0.016$  whereas PA (64.9%) high level was almost equal among both genders. Additionally, there was a non-statistically significant decline observed in EE, DP, and low scores of PA as the school years progressed from one to five ( $p = 0.710$ ).

**Discussion:** The main findings indicated high DP and PA burnout levels among all participants with a significant increment burnout level in EE and DP scales in female medical students consistent with previous studies of medical students.

**Conclusion:** There is a high prevalence of burnout amongst medical students in DP and PA with female predominance.

**Take Home Messages:** Awareness about burnout signs and developing a medical school culture in which medical students can discuss their burnout concerns is vital.

#10JJ03 (133993)

**Burnout among clerkship medical students: Brazilian experience of a four year assessment**

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**Background:** Burnout is a stress-syndrome characterized by emotional exhaustion, depersonalization and low personal gains related to work or care-giving activities. It is known that medical students, residents and practicing physicians are prone to burnout and at least half of them are affected by that problem during medical education.

**Summary of Work:** Using the 22-item self-report Maslach Burnout Inventory-Human Services Survey (MBI-HSS), validated to Brazilian culture, 5th and 6th year medical students at clerkship were interviewed from 2009 to 2012 totaling 1144 valid questionnaires. MBI-SS on its three dimensions -emotional exhaustion, depersonalization and personal accomplishment- is a gold standard method for burnout diagnose. Obtained score was categorized in three levels of burnout -low, moderate and high- and statically analyzed into its three domains and also age, gender and year of graduation.

**Summary of Results:** Moderate and high scores were mostly found on emotional exhaustion for all groups categorized by age, gender and year of graduation, although depersonalization, as the second most expressive domain, presented statistically difference between groups, being 6th year students responsible for the highest scores ( $p < 0.001$ ). For personal accomplishment the only statistical difference was observed in gender category and men presented higher scores than women ( $p < 0.005$ ).

**Discussion:** Literature average on burnout symptoms of medical students is around 50%. Present study observed a higher prevalence of those symptoms, especially on emotional exhaustion domain. Possibly these results are influenced by final application for residency programs that our students are also focusing on.

**Conclusion:** Clerkship may have negative impact on mental health of medical students, associated to burnout syndrome in its different levels, mainly at last year of graduation

**Take Home Messages:** Due to burnout syndrome's high prevalence during clerkship, it is important to focus on that problem and develop interventions in order to attenuate suffering during medical graduation

#10JJ04 (132590)

**The Prevalence of Psychiatric Disorders in Fourth Year Medical Students Accessed by Using the Mobile LINE Application Video Call**

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**Background:** Psychiatric disorders are a common and untreated problem among medical students due to certain stigmas. This study aims to evaluate psychiatric disorders in medical students using the mobile LINE Application video call, replacing a routine face-to-face psychiatric interview.

**Summary of Work:** This descriptive cross-sectional study included fourth year medical students. Participants agreed to fill out a form regarding basic demographic data and made an appointment for a LINE video call interview. LINE video call allows for a virtual face to face interview. Participants described their uneasy feeling for the first 20 minutes. The next 10-40 minutes included questions for the diagnosis of psychiatric disorders following the Diagnostic and Statistical Manual of Mental Disorder V (DSM V). Later they fill out the feedback form regarding interview satisfaction. The results were evaluated by a certified psychiatrist.

**Summary of Results:** We found that six students (33.3%) presented psychiatric disorders (95%CI =12.2-72.5). They were diagnosed as follows: 1 had Attention-Deficit/Hyperactive Disorder; 1 had Major depressive disorder; 1 had Obsessive-Compulsive Disorder; 1 had Adjustment disorder; 1 had Enuresis; 1 had Obstructive Sleep Apnea; and 2 had Trichotillomania. All reported being satisfied with the LINE interview.

**Discussion:** As a previous research of psychiatric video call interview is qualified, This study was directly interviewed by the psychiatrist which found all varieties of psychiatric disorder in medical students. Video call is a user friendly device, further set this device as a medical student consultation may destigmatize and enhance the psychiatric supporting system.

**Conclusion:** The prevalence of psychiatric disorders accessed using Line App video call was 33.33% and 100% of the participants were satisfied by interview conduction.

**Take Home Messages:** Advances in information technology has allowed researchers to access data quickly and efficiently through mobile devices. Applications, such as LINE, should be further explored to improve psychiatric consultation such as their use in the psychiatric consultation of medical students in this study.

#10JJ05 (134452)

Faculty members' experiences with plagiarism

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Ali Reza Shahriari, Aja University of Medical Sciences, Tehran, Iran

**Background:** How faculty members perceive plagiarism? Plagiarism has been considered as an important and somehow prevalent type of academic misconduct requiring constant attention in the academia. perspectives of faculty members as academic leaders and role models is important if we want to gain a better understanding and control of this phenomenon. This paper investigates faculty members' perspectives with plagiarism.

**Summary of Work:** Using phenomenological methodology we conducted interview in-depth with twelve faculty members from different medical sciences universities in Iran. All of interviews were tape recorded and transcribed for analysis based on Colaizzi method.

**Summary of Results:** Finding included seven main categories: academic misconduct as a whole, lack of integrity and honesty in knowledge production, plagiarism as a process or a product, consequences of deficiencies in publication ethics, approaches to detect plagiarism, accountability of all parties, and evaluation and appraisal strategies. Some subcategories were also identified in this research.

**Discussion:** Findings indicate that plagiarism is an important every day encountered issue in academic life. To address plagiarism participants proposed different strategies including creating and nourishing a culture of academic integrity, intensifying disciplinary measurements for research misconduct and improving ethical training.

**Conclusion:** Faculty development and improving professionalism were also suggested as beneficial strategies in addressing plagiarism.

**Take Home Messages:** Cultures of academic integrity, training on plagiarism and intensifying rules and effective academic retributions have crucial impact on reducing plagiarism.

#10JJ06 (133339)

Students' mental health of two different educational models medical schools

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**Background:** Some studies have shown several factors related to the medical training that affect the quality of life and mental health of medical students. This study aimed to identify damage to the medical students' mental health, their defensive strategies, sources of pleasure/displeasure, professional motivation during medical training and also to match them with educational model.

**Summary of Work:** The authors conducted a qualitative study in February/2014 applying focus groups and a semi-structured questionnaire on socio-demographic characteristics, psycho-emotional aspects and educational process developed by the authors and addressed to all students of the third semester from two medical schools of the same public university in northeast Brazil: School A with Traditional educational model, and School B with Problem-Based Learning (PBL) educational model. The authors conducted a content analysis with the psycho-dynamic interpretation on two focus groups (eight people randomly selected among the students from these two schools) and a descriptive analysis of questionnaire data.

**Summary of Results:** Each of the two surveyed population had 45 students. Only 38 students from School A (Traditional model) and 40 students from School B (PBL model) answered the questionnaire. From the total students (n=78): 52.6% (male), 23 years old (on average), 92.3% (single). The focus groups revealed that the motivations, sources of stress, psychological symptoms were similar in both groups, but the stress was lower in PBL model students.

**Discussion:** Some studies showed that the PBL model student closer contact with professors during mentoring promotes psychological support.

**Conclusion:** The educational process was psychological stress factor for both groups. The two schools had no psycho-pedagogical support service that could be implemented to reduce the stress of their students.

**Take Home Messages:** This academic community and similar ones should reflect on their role in the promotion, maintenance and prevention of psychological disorders identified in this research.



#10JJ07 (135471)

**Relationships among emotional intelligence, ego-resilience, coping efficacy, and academic stress in medical students**

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**Background:** The purpose of this study was to identify the causal relationship between emotional intelligence, ego-resilience, coping efficacy, and academic stress.

**Summary of Work:** Participants were 424 medical students from four medical schools in Korea. We examined their emotional intelligence, ego-resilience, coping efficacy, and academic stress using a t-test, an analysis of variance, correlational analysis, and path analysis.

**Summary of Results:** First- and second-year students scored higher on academic stress than did those from third- and fourth-year students. Further, coping efficacy mediated the relationships between emotional intelligence, ego-resilience, and academic stress. Academic stress was directly influenced by coping efficacy, and indirectly by emotional intelligence and ego-resilience.

**Discussion:** Our findings may help medical schools design educational programs to improve coping efficacy in students, and to reduce their academic stress.

**Conclusion:** This showed that coping efficacy play an important role in academic stress.

**Take Home Messages:** Coping efficacy is important factor in reducing academic stress.

#10JJ08 (131522)

**Positive attitude and stress in medical students of Vachira Phuket Medical Education Center**

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**Background:** To graduate medical degree need for endurance and stress coping. Positive attitude and stressful management were importance for medical students to pass these situations. We studied for factors that effected to positive attitude and stress in our medical students for early detectable and management.

**Summary of Work:** Modify questionnaires from Positive attitude quotient by Roger Fritz and self stress assessment by department of mental health of Thailand together with personal data were collected in our medical students 4th – 6th year at Vachiraphuket medical education center. Analyst personal data , positive attitude and stress level with chi-square. (p=.05)

**Summary of Results:** 24 male and 48 female medical students had normal and severe stress. Severe stress factors were female (p= .005), financial problems (p < .001), studied in 4th or 6th year (p < .001 ). Medical students who had some activities were decrease stress eg. Sport (p= .01), positive attitude (p= .001), meditation (p= .01) and trusted consultants (p= .001).

**Discussion:** Male may had stress solving and more activities better than female. Financial problems was an new evidence in our medical students. Adjusted for new situations in 4th or 6th year may effected these severe stress. Positive attitude, some activities and trusted consultant can decrease stressful in medical students.

**Conclusion:** Positive attitude can decrease stress in medical students. Sports, medication and trusted consultants can helps our medical students for reduce stressful especially in 4th or 6th year. Closely monitor in female and financial problems in medical students and coaching them for these activities were benefit for their learning activities.

**Take Home Messages:** Positive attitude screening may help us for monitoring stressful medical students. Activities such as sports, meditation and monthly visit trusted mentor teachers were benefit in medical students to endure and graduated.

#10JJ09 (136040)

**Undiagnosed ADHD in Medical Students: A Call for Solutions and Interventions**

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**Background:** Attention Deficit Hyperactivity Disorder (ADHD) is known to last well into adulthood in many cases. With it being associated with learning disabilities, we ask the question of how many medical students have ADHD symptoms and unknowingly suffer due to it.

**Summary of Work:** A total number of 166 medical students spread across years 1 through 5 were given a questionnaire. The prevalence of ADHD symptoms among students was estimated using the Adult Self-Report Scale-V1.1 that has a 5 item Likert scale with specific criteria indicative of ADHD. Additionally, we evaluated student knowledge and perception towards the disorder itself. Those who fulfilled the criteria of ADHD were also asked about their opinion on seeking professional psychiatric help.

**Summary of Results:** A total of 25% of students fulfilled the diagnostic criteria for ADHD. Of these students, 46% stated that they would prefer not to seek help due to it being too difficult to find a psychiatrist (70%), and not wanting anyone finding out that they went to a psychiatrist (54%). An acceptance rate of 89% is shown towards ADHD as a disorder and 72% stated that they are knowledgeable about ADHD.

**Discussion:** A larger amount of students at Alfaisal University have ADHD symptoms compared to other parts of the world. Although literature shows that ADHD is well understood and accepted in Saudi Arabia, the stigma attached to visiting psychiatrists to seek help is a hurdle.

**Conclusion:** ADHD symptoms were seen in a quarter of students, though many rather not seek professional help due to stigma or a lack of availability of psychiatrists.

**Take Home Messages:** It is the responsibility of not only the university, but health-care authorities to make access to psychiatrists easier and slowly but surely work towards removing the stigma associated with mental disorders and treatment. A screening tool could be implemented to help diagnose adult ADHD followed by adequate intervention.

#10JJ10 (135972)

**The Effect of Stress, Anxiety, and Depression on Academic Performance among Medical Students**

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**Background:** Many studies documented that stress among medical students ranges from 12% to 73%. High levels of stress can negatively affect cognitive functioning and learning, eventually compromising patient care in terms of poor communication, diminished quality of care and committing medical errors. The aim of this study is to assess the prevalence of anxiety and depression among medical students in Riyadh, Saudi Arabia, and to assess any correlation with (a) academic year, (b) academic grades {GPA}, and (c) regularity of course attendance.

**Summary of Work:** A cross-sectional study was conducted among medical students at Alfaisal University in 2016, via an online survey, which included a validated questionnaire. Analysis was done using SPSS v.21.

**Summary of Results:** Primary results showed that most (61%) respondents were females, the majority being from year 1 of medical school (30%).

Approximately 21% reported being diagnosed with anxiety and 20% with depression. The majority (48%) have a cumulative GPA of 3.00 to 3.49, and one third attributed a decline in their GPA over the years due to depression/anxiety. Students reported that their depressive/anxious status is mostly affecting their knowledge/retention, OSCE performance, and overall performance in exams. Students suggested academic support, better organization of course work, and counseling as strategies to help them with depression/stress and anxiety management.

**Discussion:** Depression and anxiety are prevalent among medical students, and a correlation between these feelings and poor academic performance has been reported by the students. Introducing interventions in the form of counseling or modifying a work-heavy curriculum may be beneficial.

**Conclusion:** Medical students throughout years 1-5 reported depression and anxiety symptoms, and attributed poor academic performance to these symptoms.

**Take Home Messages:** Steps should be taken to integrate intervention through counseling or referrals in order to resolve depression and anxiety symptoms.

#10JJ11 (135522)

**Addiction among Medical Students: A Literature Review**

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**Background:** Among addiction in young people, evaluation of addiction among medical students is particularly important not only for their own health but also for public. We performed a literature review to analyze the types of substance use and addiction among medical students.

**Summary of Work:** We reviewed literature from 1997 to 2015 using Keio PubMed of Keio University with the following search terms: [("Students, Medical"[Mesh]) AND ("addictive" or "addiction")]. We included quantitative studies about addiction among medical students written in English whose full text was available in the database of Keio PubMed.

**Summary of Results:** We identified 91 articles and 18 were finally included in the review. They were originated from 13 countries. Seventeen studies were surveys by a handed self-report questionnaire, and the newest one was a survey via e-mail. The median of sample size was 274 (from 80 to 2021). Twelve studies referred to alcohol, twelve smoking, five cannabis, three hallucinogen, seven the other drugs, and two internet. The newest three studies examined mental disorders as well, with two aiming at internet and with one aiming at substance. Most studies suggest that medical students are not at less risk of addiction than chronological peers, and that intervention, support and systematic education are needed, while only one study demonstrated specific way of intervention.

**Discussion:** The current study indicated that internet addiction has emerged and addiction of medical students is changing, while they are consistently not at less risk of addiction than general, and support and education are crucial in planning preventive and interventional strategies for addiction among medical students.

**Conclusion:** In addition to conventional addiction related to substances, we noted the advent of internet addiction disorder (IAD) among medical students in the literature.

**Take Home Messages:** More attention should be paid to the fact that medical students are at risk of addiction, and that support and education are needed.

#10JJ12 (135775)

**Effect of long study/work hours at the university campus on academic performance**

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**Background:** A lot of research has been done on impact of long working hours in the context of medical staff and firefighters. However there is paucity of literature on dilemma of students studying and staying at university for extensive hours. The aims of this study is to investigate the effect of staying at university for long hours on medical students' academic performance, whether beneficial or detrimental.

**Summary of Work:** This study is being conducted in two parts: Part-1 involves evaluating students' perceptions on this matter via a survey. Part-2 involves testing student with multiple-choice questions for cognitive domain; containing simple algebraic, reading comprehension, and pattern recognition questions. These tests will differ in questions for each sitting, but will have the same difficulty level. In addition, we will collect data on the factors that may influence students' performance, eg number of sleep-hours per day.

**Summary of Results:** Preliminary results from the survey indicate that students spend seven hours on average at university, whereas the average study time is five hours. 60% of respondents stay late at campus every day, however only 25% stated that it had a positive impact on their GPA.

**Discussion:** Majority of respondents have high cumulative-GPAs (3.01-3.5), yet many claimed that spending more than 10 hours/day at university negatively impacted their academic performance. The reason being that students' are extremely exhausted when they get home after such long hours, and so fall behind on studying.

**Conclusion:** Though majority of students stay late at campus, they perceive it to be detrimental to their performance.

**Take Home Messages:** It is more beneficial to manage time and strike balance between on-campus and off-campus life.

#10JJ13 (133599)

**Interest in a psychological coaching program among French medical students during their first academic year**

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**Background:** French medical students have to pass high selective exams during their first academic year. They are submitted to a high amount of stress and chronic sleep restriction, generating anxiety, fatigue, sleepiness, and affecting academic achievement. The aim of the study was to monthly evaluate the psychological profile of medical students and the efficiency of a prevention program based on sleep medicine consultations (SM), relaxation (TOP) and hypnosis (H).

**Summary of Work:** 152 students (73 males and 79 females), aged 17 to 24 years old, were involved. Their participation in the prevention program was entirely free. Psychological feelings, diurnal sleepiness, fatigue and anxiety (state and trait) were evaluated by Bond & Lader visual analogue scales (BLVAS), adult and paediatric sleepiness scales (ESS and PDSS), the Chalder fatigue questionnaire (CFQ) and Spielberger questionnaires (SQ-A/B) respectively. Here we only present the results of the first evaluation.

**Summary of Results:** Female students did not feel as strong, quiet and relaxed as their male counterparts. Their anxiety-trait score was also higher. PDSS showed a better correlation with fatigue level ( $r=0.55$ ) than ESS ( $r=0.45$ ). Compared to the other students, the 24 students who decided to benefit from SM  $\pm$  H did not feel as quiet, relaxed and happy. Sleepiness score was higher (according to PDSS only). Identically, the 38 students who decided to join the TOP did not feel as pleased, quiet, relaxed and happy. Fatigue and anxiety (state and trait) scores were higher.

**Discussion:** The main outcome is that the students who decided to join the prevention program had significantly particular psychological traits compared to the other students.

**Conclusion:** The efficiency of this program will be secondary evaluated.

**Take Home Messages:** Simple psychological evaluations seem to be able to detect vulnerable medical students who may benefit from a special medical follow-up in order to maintain their psychological well-being during their first academic year.

#10JJ14 (134091)

**More than stigma: the barriers to medical student mental health help-seeking behaviour**

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**Background:** Medical education exposes students to unique stressors. Multiple barriers obstruct medical students seeking help, including lack of time and perceptions of academic vulnerability or stigma. Medical students tend to self-care for their illnesses rather than use formal support services. Little research exists into the barriers affecting medical students' choice of support services.

**Summary of Work:** We conducted 2 focus groups ( $n=12$ ) with undergraduate clinical students exploring factors affecting help-seeking behaviour. Discussions were recorded, transcribed verbatim and loaded onto NVivo for detailed analysis. Common themes were identified by 4 researchers working independently and then consolidated.

**Summary of Results:** Key Themes: 1. Factors influencing the decision to seek help: "My need for help?" "Whether I trust this help?" "What have I heard about this help?" 2. Availability of services and logistics. Are there too many sources? When and where are they available? 3. Conflicting views on stigma and confidentiality. Some students preferred complete confidentiality; others favoured controlled sharing of information. The impact on careers of help seeking was either feared, regarded as fallacy or dismissed.

**Discussion:** The focus groups revealed variability in students' awareness and evaluation of services. Medical students displayed marked differences in their perceptions of the impact and importance of confidentiality and stigma of seeking help. Trust and peer experiences strongly shaped these perceptions.

**Conclusion:** The results suggest a complicated picture of factors influencing help seeking. They point to a need to address attitudes regarding stigma and confidentiality, the logistics of service provision, and highlight the importance of trust. The results have informed an online questionnaire survey which will be used to evaluate the importance of these issues quantitatively.

**Take Home Messages:** Service provision must take into account multiple factors that adversely impact medical student help-seeking behaviour.



#10JJ15 (134987)

**Daytime sleepiness and sleep deprivation in medical students**

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**Background:** Adequate amount of sleep is an important issue that may influence daytime sleepiness in medical students.

**Summary of Work:** We conducted a multicenter longitudinal study in Brazil, comparing the same undergraduate students from the first to fourth year (Time 1) versus students from third to sixth year (Time 2) of 22 medical schools, from 2011 to 2015. The students responded questionnaires in an electronic platform, which included the Epworth sleepiness scale (ESS), and other three questions: 1) the average hours of sleeping during weekdays, 2) the average hours of sleeping during the weekend, 3) how many hours of sleeping per night they considered sufficient.

**Summary of Results:** One hundred and eighty-six students completed the questionnaires. There were no statistically significant differences between Time 1 and Time 2 in all the comparisons (Wilcoxon paired test,  $p > 0.05$ ). The mean  $\pm$  standard deviation were:  $10.2 \pm 4.0$  versus  $10.8 \pm 4.3$  in ESS,  $6.3 \pm 1.6$  versus  $6.2 \pm 1.0$  hours in the Question 1;  $9.3 \pm 1.9$  versus  $9.2 \pm 1.7$  hours in the Question 2 and  $8.1 \pm 1.1$  versus  $8.1 \pm 0.9$  hours in the Question 3.

**Discussion:** Scores 10 or higher in ESS are considered pathological. We observed that medical students presented excessive daytime sleepiness. The main cause of daytime sleepiness seems to be sleep deprivation, since sleep hours during the weekdays are lower than what they consider sufficient, and substantially lower than during the weekends. In addition, there was no change in sleep hours during the years of medical course, when we compared the first three years with the last ones.

**Conclusion:** Excessive daytime sleepiness in medical students is an important issue and seems to be due to sleep deprivation.

**Take Home Messages:** Educators may consider interventions to improve time management of their medical students, in order to get better performances on learning and better quality of life.

#10JJ16 (132474)

**Stress level assessment of medical students' course and correlation with the PBL methodology and learning style**

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**Background:** Student enrollment in university life is almost always accompanied by some degree of stress. When teaching methodology is very different than the student was used to, associated with different learning styles that it may have, may further alter the emotional balance of the individual.

**Summary of Work:** Objectives: to establish the level of stress of medical school student at a college that uses an active methodology (PBL) observing whether there is stress in relation to the individual learning style than the teaching method that the student will be inserted. Methods: students were interviewed in the first semester of the course. Inventory of Stress Symptoms for adults LIPP (ISSL) questionnaire was used to assess the level of stress in medical student and a Honey-Alonso Learning Styles questionnaire to analyze the learning style was used too.

**Summary of Results:** 53 students answered the questionnaires, with a median age 20.0 (17-29). From these, 75.5 % had a component of stress, most of them (33) in presence of stress in their stage of resistance prevailing physical symptoms. 26 students (49.1%) had a reflexive learning style and 13.2% were active, pragmatic or had more than one style. There were no statistical difference between learning style and presence of stress or relation between median age and stress ( $p = 0.139$ ).

**Discussion:** Stress is a very important finding in medical students as in older doctors. These could lead in the future in a burnout syndrome and may prejudice the patients, no matter the learning style and should be prevented.

**Conclusion:** Although there were a small number of cases for comparison, we observed a high number of stress in medical students, due to probably many different factors, from a new methodology to learning style and other confusing factors.

**Take Home Messages:** Faculty may take a special care with new students to help them psychologically for their studies.

#10JJ17 (132434)

**Characteristics of medical students who repeat the same grade: report from a Japanese Medical School**

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*Yasuyuki Suzuki (Gifu University Medical Education Development Center, Gifu, Japan)*

**Background:** Previous studies show that medical students who repeat a year (holdovers) have the characteristics of the difficult learner. In Japan, the number of holdovers has increased in the last decade, however, it is unclear what their characteristics are.

**Summary of Work:** A cohort of 1293 medical students in a national medical school from 2001 to 2014 were investigated for the ratio of holdovers, ages at admission, types and scores of admission test, hometown, and academic performance at secondary schools. Data was retrieved from academic affairs section after anonymizing.

**Summary of Results:** Three characteristics were found. (1) Ratio of holdovers was highest in the group of 23 – 29 years at enrollment (5-11 years after graduation of high school). (2) Distance from hometown is associated with the ratio of holdovers. (3) Academic performance at secondary schools was significantly lower in the holdovers. Scores of admission test did not have a significant relationship with the grade repetition.

**Discussion:** We clarified three risk factors of holdovers: higher age at enrollment, distant hometown, and lower academic performance at high school. Elderly students may have a difficulty in memorizing a large amount of knowledge. Holdovers from distant hometown may suggest the lack of family support. Assessment of academic (and social) performance at high school would be more important rather than a single high-stakes admission test.

**Conclusion:** Higher age at enrollment, distant hometown, and lower academic performance at high school would be the major risk factors for holdovers. To prevent repetition of academic years, we need to reform admission test and student support.

**Take Home Messages:** Higher age, distant hometown and lower academic performance at high schools are the risk factors of holdovers.

## Session 11: Plenary

Wednesday 31 August 2016: 1045-1230 hrs

### #11A Plenary: Professionalising teaching innovation in the digital age

Location: Auditorium



**Diana Laurillard** \* (*London Knowledge Lab,  
UCL Institute of Education, UK*)

As educators in the digital age we need to optimise our use of digital methods to improve the quality and reach of our teaching, and improve students' learning outcomes. How do we build that new knowledge, and share what we discover about the new digital pedagogies now open to us? Educators can no longer work in isolation given the challenges we face. Can we use the technology to become more professional in building our collective knowledge? The presentation will propose some new design tools to support educators, and a new approach to professionalising teaching.