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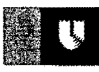

Interprofessional Training and Practice at Duke

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Duke University Health System
January 7, 2011

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Overview

- Provide an overview of "Duke Medicine"
- Describe a framework for providing safe and reliable care
- Discuss the importance of interprofessional collaboration and high-performing teams in healthcare
- Review case studies at Duke
- Share challenges and successes of interprofessional education and training for healthcare professionals

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Duke Medicine

- Duke University Health System, School of Medicine and School of Nursing
- Duke University Hospital, 2 community hospitals, primary care network, ambulatory services, home health and hospice
- Duke University Hospital
  - 1000 bed academic flagship hospital, Magnet designation
  - 8,650 nurses
  - 1,500 physicians
  - GME training for 950 residents and fellows in 74 programs
  - Over 1,600 volunteers

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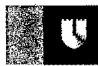
Duke Tradition



- Traditional culture of AMC
  - Described by D Kirch, AAMC President's Address 2007
  - Autonomous, expert-centered, hierarchical
  - High-achieving, competitive
  - Punitive
  - Human factors: fatigue, burn-out
- Leaders – the best and brightest clinicians
  - Medical directors
  - Charge nurses, Clinical operations directors
  - No training; figure it out
- Clinical science
  - Major research center; randomized control trials
  - Quality department responsible for "improvement"

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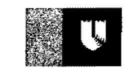
Framework for Safe, High Quality Care



LEADERSHIP	CULTURE - COLLABORATIVE	LINK TO UNIT LEVEL
• Respect is: Non-negotiable & mutual • Psychological safety is assured Everyone is fallible All concerns are important • Supportive, learning culture Management of behavioral choices Excellence is expected	• The game plan is always known Brief and re-brief • Communication is clear Closed loop SBAR — structured communication • Learning is continuous Debriefings • Conflicts are resolved - Critical Language Crucial Conversation - Situational awareness is maintained	• Testing is continuous Rapid cycle improvement Lean Six sigma • Clinical team has knowledge • Clinical • Improvement • Unit structure and resources support performance improvement

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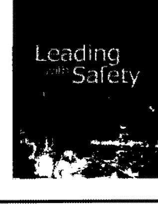
Starts with Leadership: Attributes of the Right Stuff

- Most important factor in predicting success of safety improvement initiatives was quality of leadership
- Organizations highly successful in safety were also successful in operational performance
- What does it take to be a good leader?
  - Engage at all levels of the organization
  - Understand crucial aspects of human performance and relationships
  - To continuously improve performance and achieve superior results, culture must change – meaning behavioral change



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Achieving Safe & Reliable Care

- Culture: collaboration and teamwork
  - Healthcare is highly complex
  - Clinical environment has evolved beyond limitations of individual performance
  - Effective teamwork and communication are essential, yet not taught in school
  - Many assumptions regarding effective communication and teamwork

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Joint Commission on Accreditation of Healthcare Organizations

Communication Breakdowns are frequently the root cause of... undesirable outcomes

Root Causes of Sentinel Events (All categories 1995-2004)

Root Causes of Medication Errors (1995-2004)

Root Causes of Delays in Treatment (1995-2004)

Root Causes of Ventilator Events (1995-2004)

Root Causes of Infection-associated Events (2006)

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Greenberg et al, *J Am Coll Surg* 2007
Patterns of Communication Breakdowns Resulting in Injury to Surgical Patients

- 444 surgical malpractice claims
  - 4 liability insurers
- 60 cases with communication breakdowns resulting in harm to patient
  - Pre-op, intra-op and post-op
  - 74 verbal communications (1 transmitter, 1 receiver)
  - 60 failures to notify someone, i.e. an attending, of critical info
  - 59 responsibility ambiguity
  - 35 handoff breakdowns
- "Serious communication breakdowns occur across the continuum of care."

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Communication breakdowns and adverse events at Duke Hospital

- Root Cause of Sentinel events at Duke Hospital similar to that reported to TJC
- Communication failures have resulted in harm to:
  - Patients undergoing surgery: wrong site
  - Patients on our medical floors and ICUs
    - Wrong medication, wrong procedure
  - Wrong newborn infant received vaccine
- Need for knowledge and tools to improve communication, collaboration and teamwork behaviors

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Teamwork Climate is the consensus of Frontline Care Provider assessments Related to Collaboration

- Example Teamwork Climate Scale Items:
  - In this clinical area, it is difficult to speak up if I perceive a problem with patient care
  - Disagreements in this clinical area are resolved appropriately (i.e. not who is right, but what is best for the patient)
  - The physicians and nurses here work together as a well-coordinated team

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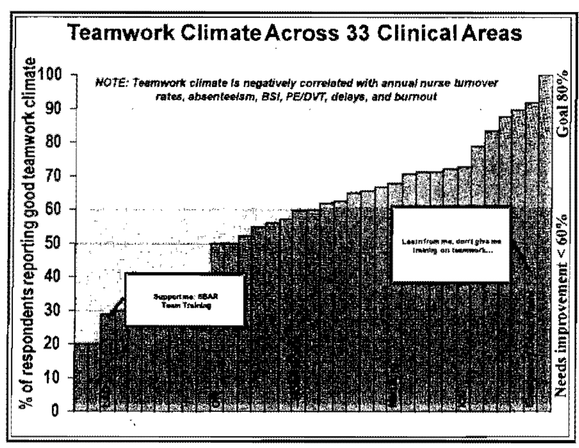

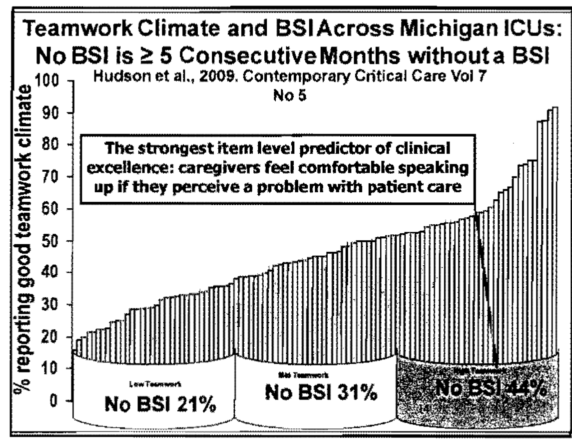

Case Studies at Duke: Interprofessional Practice and Training to improve Patient Care

- Teamwork training and handoffs
  - TeamSTEPPS in PICU
- Healthcare acquired infections
  - CA-BSIs in Critical Care Units
- Next-generation Healthcare Professionals
  - Interprofessional training, education

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Duke PICU

- Started team training in 2005, using earliest versions of TeamSTEPPS
- Transformational change model:
  - Strong leadership support
  - Trained *everyone* over a few weeks time in interprofessional groups
  - Hired consultants to train, coach and observe
  - Chose several practice changes at once: sterile cockpit for rounds, morning huddle, SBAR nursing report, structured handoffs
  - Consistent metrics measured frequently: surveys, observation, outcomes

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Duke PICU

- First 6 months…no traction
- End of year one: good results
  - Decrease in infection rates (3% to 1%)
  - Decrease LOS (0.6 days) and increased throughput (10%)
  - Work Culture survey score increased by 16%
- End of year three: fantastic results
  - Decrease in infection rates (<0.5%; >300 days with no BSI)
  - Improved handoffs (more efficient and effective)
- Consistent sustainment
  - New staff and new residents oriented each month
  - "The way we work here", not a separate initiative anymore
  - Tools and strategies are embedded into workflow

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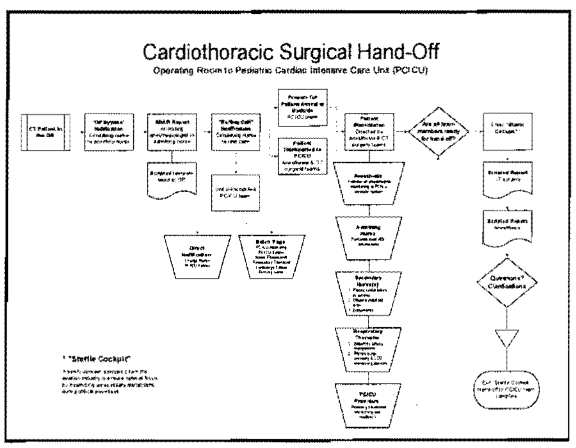

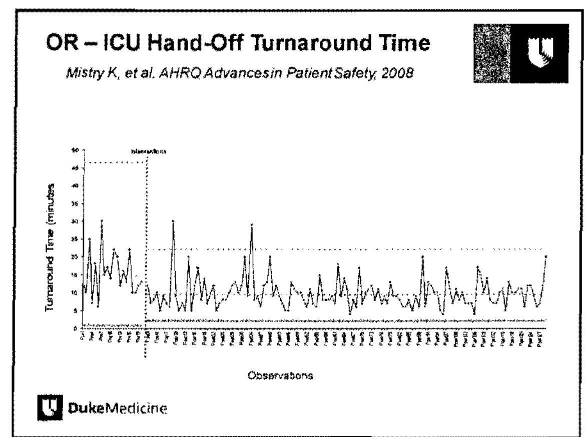
OR – ICU Hand-Off Turnaround Time
Mistry K, et al. AHRQ Advancesin PatientSafety, 2008
Turnaround Time (minutes)
Observations
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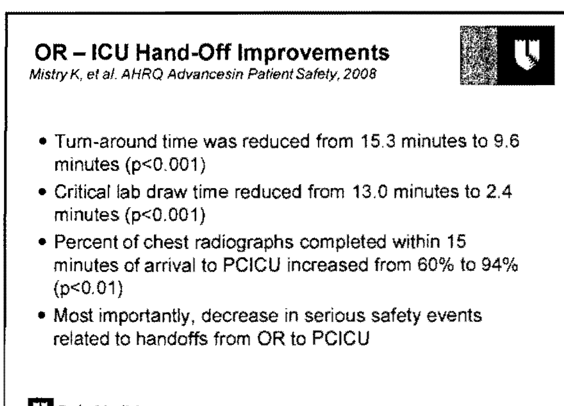
OR – ICU Hand-Off Improvements
Mistry K, et al. AHRQ Advancesin Patient Safety, 2008
• Turn-around time was reduced from 15.3 minutes to 9.6 minutes (p<0.001)
• Critical lab draw time reduced from 13.0 minutes to 2.4 minutes (p<0.001)
• Percent of chest radiographs completed within 15 minutes of arrival to PCICU increased from 60% to 94% (p<0.01)
• Most importantly, decrease in serious safety events related to handoffs from OR to PCICU
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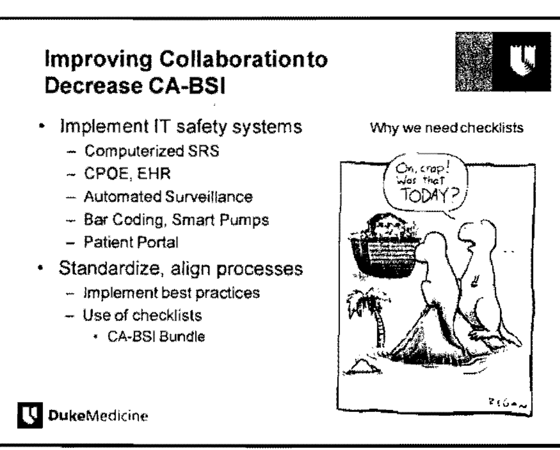
Improving Collaborationto Decrease CA-BSI
• Implement IT safety systems
– Computerized SRS
– CPOE, EHR
– Automated Surveillance
– Bar Coding, Smart Pumps
– Patient Portal
• Standardize, align processes
– Implement best practices
– Use of checklists
• CA-BSI Bundle
Why we need checklists
Oh, crap! Was that TODAY?
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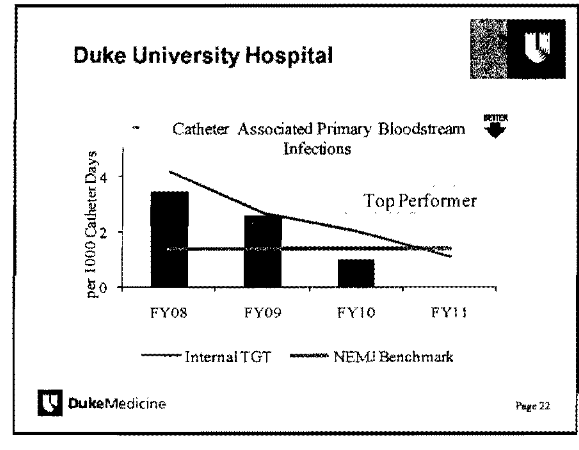
Duke University Hospital
Catheter Associated Primary Bloodstream Infections
per 1000 Catheter Days
4
2
0
Top Performer
FY08
FY09
FY10
FY11
Internal TGT
NEMJ Benchmark
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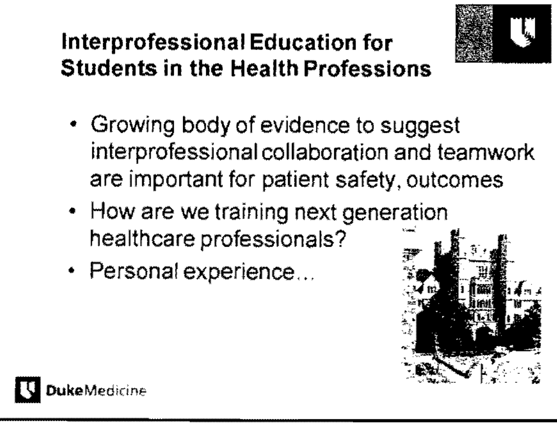
Interprofessional Education for Students in the Health Professions
• Growing body of evidence to suggest interprofessional collaboration and teamwork are important for patient safety, outcomes
• How are we training next generation healthcare professionals?
• Personal experience...
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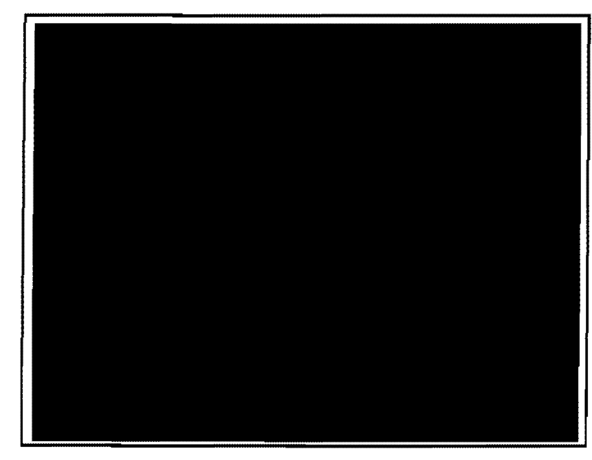

Interprofessional Education

- 2007 grant funded interprofessional, inter-institutional study
- Duke/UNC SoN and SoM
- Using TeamSTEPPS in lecture, ARS, role play and high fidelity simulation

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TEAM TRAINING EVALUATION KIRKPATRICK'S EVALUATION MODEL

Level 4 – Results: whether the training has affected process or outcomes such as increased production, improved quality, reduced adverse events, decreased costs, or return on investment.	• Healthcare acquired infection rates. • AHRQ Patient Safety Indicators. • Adverse drug events. • Length of stay. • Patient satisfaction. • Staff satisfaction. • Nurse turnover rates.
Level 3 – Behavior: whether participants change their behavior back in the workplace as a result of training.	Observation of teamwork behaviors during routine patient care.
Level 2 – Learning: whether the training results in an increase in knowledge, skills or attitudes.	• Teamwork knowledge test. • Survey of attitude towards teamwork • Survey of self-perceived communication skills
Level 1 – Reaction: how did participants react to the training?	.Post-training reaction survey

Teamwork Knowledge Results

Knowledge test results

12, 10, 8, 6, 4, 2, 0

Simulation, Role play, ARS, Lecture

Training condition

Pre-test
Post-test

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Teamwork Attitude Survey Results

Pre-to-Posttest GLM Analyses of Variance

	Evaluation Measure		F	df	p
1	CHIRP Attitudes – All Four Cohorts	Time	48.71	1, 370	.000
		Time x Cohort	.325	3, 370	.808
2	CHIRP Attitudes – Small (A/B) v Large (C/D)	Time	48.52	1, 372	.000
		Time x Cohort	.068	1, 372	.794
3	CHIRP Attitudes – Sim versus Role Play	Time	26.03	1, 126	.000
		Time x Cohort	0.779	1, 126	.379
4	CHIRP Attitudes – ARS versus Lecture	Time	29.27	1, 244	.000
		Time x Cohort	.273	1, 244	.602

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Conclusions of Study

- Training significantly improved student
  - knowledge of TeamSTEPPS curriculum
  - attitudes toward interdisciplinary teamwork
- No significant difference between four different educational delivery methods
- Students reported positive experiences and asked for more opportunities for interdisciplinary education

Hobgood, Frush, et al. Teamwork training with nursing and medical students: Does the method matter? Results of an interinstitutional, interdisciplinary collaboration. QSHC. 2010 Apr 27.

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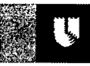
Interprofessional Education



- Duke interprofessional sessions during Capstone
  - Scheduling difficulties: evening sessions
  - Team based learning; key interaction of medical and nursing students in small groups
- UNC Interprofessional Teamwork and Communication (IPT) Course
  - Semester long course; SoM, SoN, SoPh
  - Lecture, simulation, TBL; Faculty development
- Emory
  - Interprofessional team training: SoM, SoN, PA, PT
  - 460 students, 88 facilitators
  - Communication, Role Identity, Team Identity

Summary

- Growing evidence to link effective teamwork behaviors and collaboration with good patient outcomes, safe patient care
- Duke, others' experience supports focus on inter-professional training in healthcare
- Important to understand culture survey results and assess need for teamwork training
- AMCs have great opportunity to "mold" behavior and create new norms, rather than changing old patterns
- Challenges to IPE in healthcare professions include scheduling logistics, faculty development and role models