Interdisciplinary Education in Optimizing Management of the Critically Ill

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Overview

- Review the current landscape of education for healthcare professionals
- Describe the TeamSTEPPS approach to interprofessional education
- Discuss the impact of interprofessional education and team training on patient outcomes
- Discuss simulation as an approach to interprofessional education
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Education is Evolving

- Consistency and standardization necessary for optimal education in the medical professions
  - increasing emphasis on the educational continuum
  - ACGME competencies
  - ABP milestones
  - AARC 2015 and Beyond

- Practical implementation of standard approaches may be difficult

- Limited data regarding optimal educational techniques in many areas

\(^1\)ACGME, 2011
\(^2\)ABP, 2012
\(^3\)Barnes TA, *Respiratory Care* 2010
Interprofessional education was used in my education as a student/trainee

a) Frequently
b) Occasionally
c) Rarely
d) Never
Education Traditionally in Isolation

- Pre-clinical education in silos
  - physician
  - nursing
  - respiratory therapy
- Focus on medical knowledge and patient care
- Less emphasis on interdisciplinary education
  - teamwork
  - communication
  - professionalism
Communication and Professionalism

- Two crucial competencies\textsuperscript{1,2}
  - broadly applicable
  - vital skills regardless of discipline
  - tremendous variability within programs
  - traditionally difficult to teach and evaluate

- Include a number of specific content areas

\textsuperscript{1}ACGME, 2012
\textsuperscript{2}Barnes TA, *Respiratory Care* 2010
As a student/trainee, communication and professionalism skills were an important part of the curriculum

a) Strongly agree
b) Mostly agree
c) Mostly disagree
d) Completely disagree
Deficiencies in Professionalism and Communication

- 28-35% of programs with no curricula \(^1,^2\)
- 26-54% of residents in programs with curricula rate them as ‘very useful’ \(^2\)
- Only 30% of program directors feel they are ‘very successful’ teaching professionalism
- 67% RT programs without curricula to teach leadership/teamwork competencies \(^3\)

\(^1\) Lang, *Pediatrics*, 2009
\(^2\) Kesselheim, *JGME*, 2012
\(^3\) Barnes TA, *Respiratory Care* 2010
Opportunities in Critical Care

- Survey of PCCM program directors
  - Median of 7 fellows, 12 faculty, and 36 ICU beds
- Wide range of techniques used to teach communication and professionalism
- Almost 80% required elements of communication and professionalism not taught by all programs

Critical Care Fellows also Perceive Deficiencies

- Survey of PCCM fellows
- 133 respondents (47% current fellows)
- Fellows’ programs had a median of:
  - 10 fellows (range 2-20)
  - 16 faculty (range 2-40)
  - 46 ICU beds (range 15-94)

Turner, Academic Pediatrics, In Press
Assessment of How Communication is Taught

Proportion of Fellows

Legend:
- No mechanism
- Poorly taught
- Adequately taught
- Taught well, but room for improvement
- Taught extremely well
Assessment of How Professionalism is Taught

Proportion of Fellows

1 2 3 4 5 6 7 8 9 10 11 12 13 14

- No mechanism
- Poorly taught
- Adequately taught
- Taught well, but room for improvement
- Taught extremely well
Opportunity for Improvement

- Only half of PCCM fellows feel that education in communication and professionalism is ‘very good or excellent’

- Less than 10% fellows rate their education in these areas as ‘excellent’

- Despite perceived deficiencies, confidence remains high
One approach to this problem...

Interprofessional Education:
When two or more professions learn about, from, and with each other to enable effective collaboration and improve health outcomes

World Health Organization, 2010
Interprofessional Education

- Not enough to talk about how to work together
  - Need interprofessional learners in a class or clinical discussion
- Must immerse learners in patient care experiences
  - Simulation enhances immersion
Interprofessional Education
Benefits

- Creates an expectation of teamwork
- Allows learning in clinical context
- Builds shared responsibility
- Flattens the hierarchy (removes the ‘power gradient’)
- Creates a truly collaborative model and culture change
Dissolving the Power Gradient

- **Who?**
  - nurse, nursing student, medical student, respiratory therapy student, therapist, resident, fellow, faculty member, family member...

- **What?**
  - have the knowledge but not the confidence to report what they know
  - need to achieve ‘psychological safety’
  - MUST overcome hesitancy for patient safety

- **Goal is to include all team members in discussions and decision-making**
We use interprofessional programs for ongoing education in my institution

a) Frequently
b) Occasionally
c) Rarely
d) Never
Overview

- Review the current landscape of education for healthcare professionals
- **Describe the TeamSTEPPS approach to interprofessional education**
- Discuss the impact of interprofessional education and team training on patient outcomes
- Discuss simulation as an approach to interprofessional education
TeamSTEPPS

- Team strategies and tools to enhance performance and patient safety
- Based on more than 30 years of research and evidence
- Team training programs have been shown to improve attitudes, increase knowledge, and improve behavioral skills

Salas, Human Factors, 2008
Barriers to Team Performance

- Inconsistency in team membership
- Lack of time
- Lack of information sharing
- Hierarchy
- Defensiveness
- Conventional thinking
- Varying communication styles
- Conflict
- Lack of coordination and follow-up
- Distractions
- Fatigue
- Workload
- Misinterpretation of cues
- Lack of role clarity
TeamSTEPPS Components

Knowledge
Cognitions
“Think”

Leadership
Communication
Situation Monitoring
Mutual Support

Performance/Skills
Behaviors
“Do”

Attitudes
Affect
“Feel”
Essential Teamwork Skills

- Leadership
- Mutual Support
- Communication
- Situation Monitoring
Types of Leaders

- **Designated** – The person assigned to lead and organize a team, establish clear goals, and facilitate open communication and teamwork among team members.

- **Situational** – Any team member who has the skills to manage the situation at hand.
Leadership

- Develop vision for the team
- Delegate and provide role clarity
- Manage resources
- Provide team cohesion
- Resolve conflicts
- Create shared mental model

Good leaders facilitate problem solving, they don’t just hand down a solution
Shared Mental Model

- Is everyone on the same page?
- Is there a clear plan of care?
- Is the team working together towards the same goal?
Mutual Support is Essential

- Open communication is the expectation
- Driven by the leader of the team, but all members contribute to the expectation
- Must ensure that providers feel safe to speak up (trust is essential)
Components Address Specific Barriers

- Leadership
- Communication
- Mutual Support
- Situation Monitoring

Performance

Knowledge

Skills

Attitudes

Patient Care Team
Importance of Communication

- Holds a teamwork system together
- Ensures a plan is conveyed, reviewed, and updated
- Facilitated through continuous monitoring of the situation, and fostering of an environment of mutual support
Communication Challenges

- Language barrier
- Distractions
- Physical proximity
- Personalities
- Workload
- Varying communication styles
- Conflict
- Lack of information verification
Standards of Effective Communication

- Complete
  - Communicate all relevant information

- Clear
  - Convey information that is plainly understood

- Brief
  - Communicate the information in a concise manner

- Timely
  - Offer and request information in an appropriate timeframe
Communication Strategies

- Structured Communication
  - SBAR
  - Handoff mnemonics
- Call-Outs
- Check-Backs
Structured Communication

- Reduces omissions and errors
- Provides efficient information delivery
- Helps cope with fatigue and distractions
- Delivers information predictably

Include:
- Anticipatory guidance
- Chance for questions
SBAR

- Situation
- Background
- Assessment
- Recommendation

- The Headline
- The Facts
- The Evaluation
- Actions to be Taken

- Enhances Predictability
- Crisp
- Promotes Critical Thinking
ANTICipate

**ADMINISTRATIVE DATA**
- Who, What, Where

**NEW CLINICAL INFO**
- The Update

**TASKS TO BE DONE**
- ‘To Do’ List

**ILLNESS SEVERITY**
- Should I Be Worried?

**CONTINGENCY PLANS**
- Back-up Plans

- Focuses on Critical Data
- Identifies Sickest Patients
  - Talk about these patients first
- Gives Anticipatory Guidance
Call-outs

- Ability for any team member to call out critical information
  - “I’m clear, you’re clear, we’re all clear”
  - “Sats are falling: I think we have a pneumothorax”
  - “It’s been three minutes since the last epi dose”
  - “Your lecture time is up, you need to finish up”

- Quiet teams are dangerous teams
Critical Language
A PHRASE THAT STOPS THE WORK

“I need clarity.”

“I am concerned.” “This is unsafe.”
Check-Backs

Sender initiates message

Sender verifies message was received
Customer accepts message, provides feedback confirmation

Communication Loop

Closed
Components Address Specific Barriers

Performance

Leadership

Communication

Situation Monitoring

Mutual Support

Knowledge

Skills

Patient Care Team

Attitudes
Situational Awareness

- Achieve a shared mental model
  - “Is everyone on the same page?”
  - Everyone should understand what is happening

- Promotes a coordinated team effort
  - Minimizes redundancy

- Lowers stress of the team

- Tools: Call-outs, Briefings, Huddles, Debriefings
Team Events Facilitate Situational Awareness

- **Briefings** – Used for planning
- **Huddles** – Used for problem solving
- **Debriefs** – Used for process improvement

*Leaders are responsible to assemble the team and facilitate events, but remember…*

**ANYONE** can request a brief, huddle, or debrief!
Briefings

- Examples: Time-outs, morning schedule briefings

- Goals:
  1. Identify current status
  2. Establish a ‘game plan’

- Usually very quick (1-2 minutes)
Huddles

- Designed to problem solve or modify a plan
  - Often ad hoc, to ‘touch base’ on an issue
  - Used to discuss critical events
  - Should include anticipatory guidance
Debriefing

- Ask three questions:
  - What did we do well?
  - What did we learn?
  - What do we want to do differently tomorrow or next time?
Team Events: Tips for Success

- Be inclusive, allow for questions
- Ensure ‘psychological safety’
- Leave with clear expectations
### BARRIERS
- Inconsistency in Team Membership
- Lack of Time
- Lack of Information Sharing
- Hierarchy
- Defensiveness
- Conventional Thinking
- Complacency
- Varying Communication Styles
- Conflict
- Lack of Coordination and Follow-up with Coworkers
- Distractions
- Fatigue
- Workload
- Misinterpretation of Cues
- Lack of Role Clarity

### TOOLS and STRATEGIES
**Communication**
- SBAR
- Call-Out
- Check-Back
- Handoff

**Situational monitoring**
- Briefings
- Huddles
- Debriefs

### OUTCOMES
- Shared Mental Model
- Adaptability
- Team Orientation
- Mutual Trust
- Team Performance
- *Patient Safety!!*
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Interprofessional teamwork training improves patient care and safety in the ICU

a) Strongly agree
b) Mostly agree
c) Mostly disagree
d) Completely disagree
Team Training Improves Outcomes

Length of ICU Stay After Team Training

Avg. Length of Stay (days)

June July August Sept Oct Nov Dec Jan Feb March April May

50% Reduction

Team Training Improves Outcomes

Adverse Outcomes

50% Reduction

Indemnity Experience

Pre-Teamwork Training

Post-Teamwork Training

20

50% Reduction

11

Malpractice Claims, Suits, and Observations

Mann, Contemporary OB/GYN 2006
## Debriefing Improves Outcomes

<table>
<thead>
<tr>
<th>ICUs that did not DEBRIEF</th>
<th>ICUs that DEBRIEFED</th>
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<td>1. 5% culture score drop across domains</td>
<td>1. &gt;15% culture score increase across domains</td>
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<tr>
<td>2. CABS1 rate constant</td>
<td>2. &gt;10% CABS1 reduction</td>
</tr>
<tr>
<td>3. 5% increase in VAPs</td>
<td>3. &gt;15% VAP reduction</td>
</tr>
</tbody>
</table>

Team Training Improves Outcomes

OR Teamwork Climate and Postoperative Sepsis Rates (per 1000 discharges)

Teamwork Climate Based on Safety Attitudes Questionnaire
Low → High

Group Mean

AHRQ National Average

Sexton, 2006
Team Training Improves Survival

Average risk-adjusted mortality rate

Deaths per 1000 Procedures

<table>
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<tr>
<th>Quarters of Training Program</th>
<th>Deaths per 1000 Procedures</th>
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<td>3</td>
<td>12</td>
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<td>4</td>
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</table>

No. of Facilities

74  16  20  24  14

Nelly, JAMA, 2010
I wish there was more opportunity for ongoing interprofessional education in my unit

a) Strongly agree
b) Mostly agree
c) Mostly disagree
d) Completely disagree
Overview

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What is Simulation?

- Simulation encompasses a wide range of educational techniques
  - high-fidelity simulation
  - low fidelity mannequin based simulation
  - standardized patients
  - role playing
  - online interactive learning
  - COMBINED experiences
Benefits of Simulation

- Structured education
- Increase exposure to rare situations
- Deliberate practice
  - safe environment
- Improve technical and nontechnical skills
- Ideally are interprofessional
Interprofessional Simulation

- Engages learners from different professions in interactive experiences

- Key objectives often non-technical:
  - teamwork
  - communication
  - professionalism

- Ultimate goal is to improve outcomes
Simulation is an effective way to teach technical and procedural skills

a) Strongly agree
b) Mostly agree
c) Mostly disagree
d) Completely disagree
Simulation is an effective way to teach teamwork and communication skills

a) Strongly agree
b) Mostly agree
c) Mostly disagree
d) Completely disagree
Simulation Improves Outcomes

- Recent systematic review/meta-analysis
  - 10,903 studies
  - 609 eligible studies (35,226 trainees)
  - 137 randomized
- Large effect for improving outcomes in:
  - knowledge
  - skills
  - behaviors

Cook, JAMA, 2011
### A Knowledge

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Simulation Improves Teamwork

- 239 multidisciplinary staff
- 2 day interprofessional seminar
  - video
  - role play
- Improved team process skills, task management, situation awareness

Haller, J Interprof Care, 2008
Simulation Improves Teamwork

- 40 critical care teams
- 10 hours study session
  - pre-intervention assessment
  - 2 post-intervention assessments
- At 3 months, improved
  - teamwork (p=0.002)
  - leadership (p=0.002)
  - clinical management (p=0.003)

Frengley, Crit Care Med, 2011
Interprofessional Simulation Improves Survival

Summary

- Communication and professionalism often under-emphasized in education
- Interprofessional education can directly address this issue
- TeamSTEPPS is one interprofessional approach to teach and reinforce these critical concepts
- Simulation is one way to learn and practice these concepts to improve patient outcomes
Thank you!

TEAM BUILDING
Sometimes, the most important lesson you can learn is that you're not a very good team.

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