



Abstract #167

## Using theoretical frameworks to develop & evaluate IPE for nursing and physical therapy students




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## Objectives

- Explain the theoretical frameworks used to develop & evaluate teamwork, patient safety, & acute care clinical competencies
- Describe the team training, simulation, & evaluation methods used to conduct and validate this IPE experience
- Develop IPE experiences using a continuous quality improvement approach



## Guiding Documents

- IOM competencies
- Interprofessional Education Collaborative (IPEC)
- Quality and Safety Education for Nurses (QSEN)
- American Physical Therapy Association (APTA) Core Documents




Figure 3-1. Relationship among core competencies for health professionals.



## Frameworks & Principles

1. Patient safety principles
2. Team theory
3. Learning theory – IPEC Developmental Framework, summative vs. formative experience, debriefing methods
4. Evaluation – Validate the scenario; assess knowledge, skills, and attitudes





### 1. Patient Safety Principles

“Train in teams those who are expected to work in teams...People make fewer errors when they work in teams.”  
 IOM (2000). *To Err is Human: Building a Safer Health System*, p. 173

Teamwork is a safety net for being fallible while caring for complex patients in complex systems...



- ✓ Limited attention span
- ✓ Task-focused (especially novices)
- ✓ Behavior drifts toward unsafe space
- ✓ Varying interpretation of cues

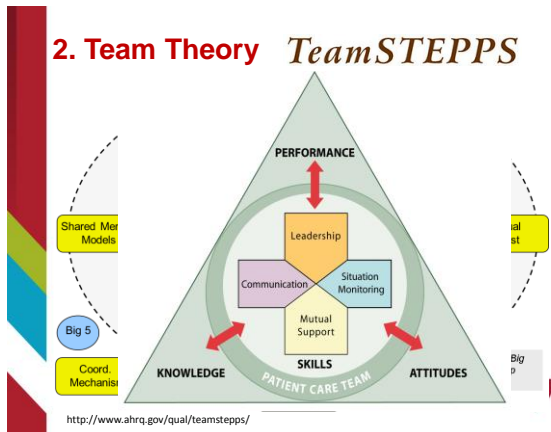
### Need for Team Training Curriculum

“...Yet members of teams are typically trained in separate disciplines and education programs, leaving them unprepared to enter practice in complex collaborative settings...Medical education emphasizes hierarchy and...individual responsibility.”  
 IOM (2001). *Crossing the Quality Chasm: A New Health System for the 21<sup>st</sup> Century*, p. 131-132

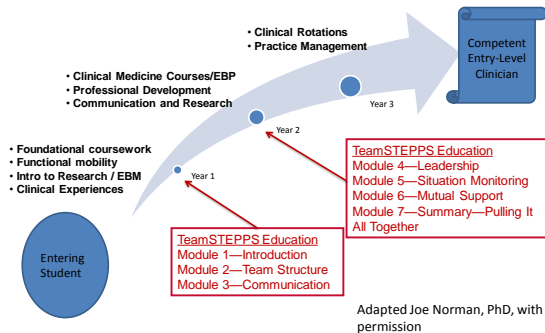
“A mandate to strengthen teamwork and collaboration skills is derived from knowledge of the relationship between quality of team communications and clinical outcomes.”  
 Cronenwett et al, (2007). *Quality and safety education for nurses*, *Nursing Outlook*, 55, pp. 122-131.

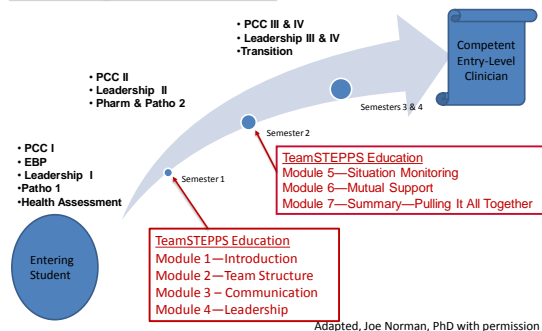
## 2. Team Theory *TeamSTEPPS*



## Team Training as a Curricular Thread UNMC PT Curriculum

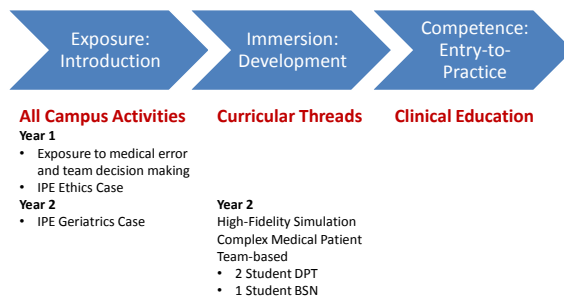


## Team Training as a Curricular Thread Nursing Curriculum

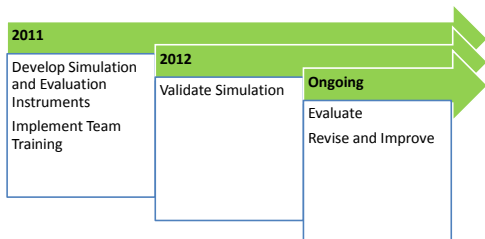


## 3. Learning Theory: Using IPEC Developmental Framework

Interprofessional Education Collaborative Expert Panel. (2011)



## Our IPE Evolution



## IPE Sim Scenario



- Complex Medical Patient with TBI**
- Collaborative Goals:** practice clinical skills and team skills, patient safety
  - Nursing Clinical Goals:** assess lung sounds, skin, physiological stability; maintain integrity of lines
  - PT Clinical Goals:** mobilize patient within physiologically safe limits

## Detection and Mitigation of Errors: Target for Teamwork

- Pre-sim video clip in class
- Embedded errors in the scenario



## Debrief to Learn from Experience

Debriefing methods

- Team... evolution from faculty led to student led
- Individual student self-reflection via video
- Formative real-time coaching "voice of God"



## 4. Evaluation

- Validation of the scenario
- Assessment of student
  - Knowledge
  - Skills (Performance)
  - Attitudes
  - Satisfaction
- Faculty debrief and analysis of student assessments

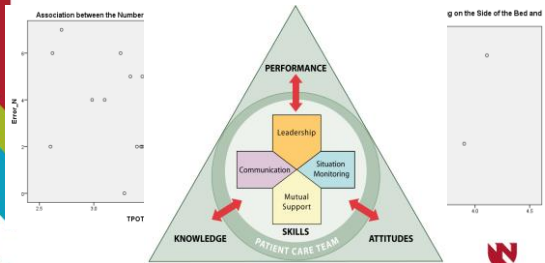


## Validation of the scenario

Association between Interprofessional Teamwork Skills and Performance

$r = -0.541, p = 0.006,$   
95% CI: [-0.775, -0.176]

$r = 0.725, p < 0.001,$   
95% CI: [0.455, 0.873]



Zhang C, et al., 2014



## Student Assessment Methods

### Performance Checklist

- Technical skills
- Decision-making
- Professionalism
- Team Behaviors



### Knowledge of Team Skills & Medical Error

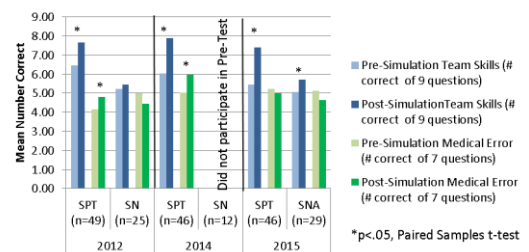
### Attitudes toward Teamwork

### Attitudes toward Interdisciplinary Education (IEPS)

### Student Satisfaction



## Team Skills and Medical Error Knowledge

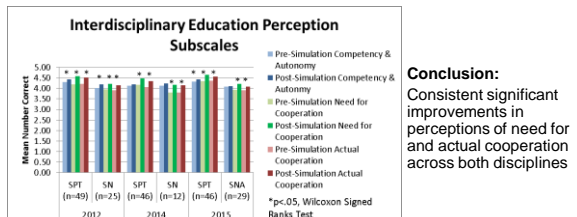


\*p<.05, Paired Samples t-test

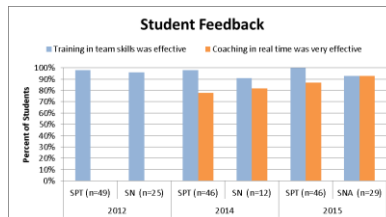
### Conclusions:

- ✓ PT students receive 8 hours of training in team skills and a pocket guide summarizing the TeamSTEPPS skills
- ✓ Team training for nursing students is approximately 2 hours and has evolved over time
- ✓ We note the need to revise presentation of medical error training

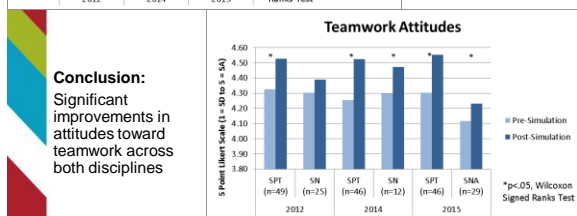




**Conclusion:**  
Consistent significant improvements in perceptions of need for and actual cooperation across both disciplines

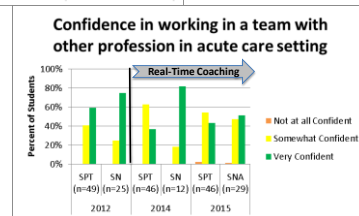


**Conclusion:**  
Training in team skills and evolution to include real time coaching is effective



**Conclusion:**  
Significant improvements in attitudes toward teamwork across both disciplines

\*p<.05, Wilcoxon Signed Ranks Test



**Conclusion:**  
Real time coaching may result in more realistic student perceptions of skills

## Summary

IPE challenge is to design immersive experiences that are meaningful and reflect real-world clinical situations. Use a CQI approach...

- Develop curricular threads
- Support faculty collaboration
- Schedule synergy
- Validate scenarios...are you achieving your objectives?
- Conduct ongoing student assessment of knowledge, skills, and attitudes using theoretical frameworks
- Conduct ongoing faculty debriefs

## Questions?

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## References

Agency for Healthcare Research and Quality. TeamSTEPS: Strategies and tools to enhance performance and patient safety. Available at <http://teamsteps.ahrq.gov>.

Bainbridge L, Nasmith L, Orchard C, & Wood V. (2010). Competencies for interprofessional collaboration. *Journal of Physical Therapy Education*, 24(1), 6-11.

Cronenwett L et al (2007). Quality and safety education for nurses. *Nursing Outlook*, 55, 122-131.

Gaba DM. (2004). The future vision of simulation in health care. *Quality and Safety in Health Care*, 13(2); i2-10.

Gordon JA, Oriol NE, Cooper JB. (2004). Bringing good teaching cases "to life": A simulator-based medical education service. *Academic Medicine*, 79:23-27.

Institute of Medicine. (2000). *To Err is Human: Building a Safer Health System*. Washington, DC: National Academies Press.

Institute of Medicine. (2001). *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, DC: National Academies Press.

Institute of Medicine.(2003). *Health Professions Education: Bridge to Quality*. Washington, DC: The National Academies Press.

Interprofessional Education Collaborative Expert Panel. (2011). *Core competencies for interprofessional collaborative practice: Report of an expert panel*. Washington, D.C.: Interprofessional Education Collaborative.

## References

Kigin C. (2009). A systems view of physical therapy care: shifting to a new paradigm for the profession. *Physical Therapy*, 89(11):1117-1119.

McFadyen AK, Maclaren WM & Webster VS. (2007). The Interdisciplinary Education Perception Scale (IPEPS): an alternative remodelled sub-scale structure and its reliability. *Journal of Interprofessional Care*, 21(4):433-443.

Robertson J & Bandal K. (2008). Bridging the gap: enhancing interprofessional education using simulation. *Journal of Interprofessional Care*, 22(5):499-508.

Rosen MA, Salas E, Silvestri S, Wu TS, Lazzara EH. (2008). A measurement tool for simulation-based training in emergency medicine: the simulation module for assessment of resident targeted event responses (SMARTER) approach. *Simulation in Healthcare*, 3(3):170-179.

Salas E, Sims DE, Burke CS. (2005). Is there a "big five" in teamwork? *Small Group Research*, 36:555-599.

World Health Organization (WHO). (2010). *Framework for action on interprofessional education & collaborative practice*. Geneva: World Health Organization.

Zhang C, Miller C, Volkman K, Meza J, Jones K. (2014). Evaluation of the team performance observation tool with targeted behavioral markers in simulation-based interprofessional education. *Journal of Interprofessional Care*, May29(3):202-8;