Development of an Innovative Interprofessional Education Program for Healthcare Delivery

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• Just a Routine Operation

• https://www.youtube.com/watch?v=JzlvgtPlOof4
IOM supports need for IPE

IOM’s “To Err is Human: Building a Safer Health System”, 1999
IOM’s “Crossing the Quality Chasm in Healthcare”, 2001

STEEEP (Safe, Timely, Effective, Efficient, Equitable, and Patient-Centered)

Aiming for improvement in health care

IOM’s “The Future of Nursing”, 2011
IOM’s “Best Care at Lower Cost”, 2012
IOM supports need for IPE

- We are behind: Healthcare [compared to business, airlines, essential services (fire, police)]
- The Landscape of Health Care has/is changing
- Linkages between IPE and IPC and Healthcare Quality
- Roles, Responsibility, Boundaries, Leadership among us
- Allied health, dentistry, medicine, nursing and pharmacy
- How to use the existing health workforce optimally?
- Common goals

- Stimulated approaches to health care
- Medical home model
- High-risk patient populations

- 1972 IOM Report
- 2000, 2001 IOM Reports
- Recovery and Reinvestment Act of 2009
- Patient Protection and Affordable Care Act of 2010

- 44,000 to 98,000 people die in hospitals each year as the result of medical errors
- Identified Types of errors
- Need to find new ways to relate to patients and each other
- Effective team development
Interprofessional Education Collaborative

Interprofessional Education Collaborative
Connecting health professions for better care

AACOM
American Association of Colleges of Osteopathic Medicine

AAMC
Tomorrow's Doctors, Tomorrow's Cures

American Association of Colleges of Nursing

AACP
American Association of Colleges of Pharmacy

ADEA
THE VOICE OF DENTAL EDUCATION

ASPPH
Association of Schools & Programs of Public Health

The University of Tennessee
Knoxville
Goals of IPE Program

• To engage graduate nursing (FNP and PNP), medical, pharmacy and industrial engineering students in IPE experiences designed to
  • enhance communication
  • promote an understanding of respective roles and responsibilities for health care delivery
  • work in team-based training sessions to solve simulated clinical care problems
  • deliver safe, high quality healthcare to vulnerable populations utilizing telehealth technology
“Consistent demonstration of core values evidenced by professionals working together, aspiring to and wisely applying principles of altruism, excellence in caring, ethics, respect, communication, [and] accountability to achieve optimal health and wellness in individuals and communities” – Interprofessional Professionalism Collaborative, 2010
Our Interprofessional Team
Team Building
TeamSTEPPS

• Consists of 4 teachable and learnable skills
  • Leadership
  • Communication
  • Mutual Support
  • Situation Monitoring

• Emphasis on Brief, Huddle, Debrief
TeamSTEPPS Skills
TeamSTEPPS

• “Poor Teamwork in the Primary Care Office”
  • http://www.ahrq.gov/professionals/education/curriculum-tools/teamstepps/primarycare/bad_combination/index.html

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• Discussion of videos
  • Students’ perspectives
TeamSTEPPS

• At Clinical sites during patient encounters, encourage to
  • Brief
  • Huddle
  • Debrief

• Challenges
  • Learning who is on the clinic team
  • How to integrate with above
  • *Not* a typical graduate rotation experience
    • Preceptors asked to allow team to struggle to solve problems, find solutions
    • Less emphasis on teaching model, more on teamwork
Preparation for Clinical Experience

- Learning module to read online prior to training
  - Pre-training survey
  - TeamSTEPPS
  - Asthma
  - Roles of Industrial Engineering

- Challenges: different Blackboard systems
  - Solution: migrate to Dropbox to ensure timely student access
Preparation for Clinical Experience

- Introduction to IE
- Introduction to TeamSTEPPS
- Overview of Asthma
  - Assessments
    - Peak Flow, O2 saturation, PE
  - Treatment Plans
    - Pt Education: 3-Zone Pt Education (Green, Yellow, Red)
    - Medications for Asthma
- Introduction to the HITS lab and telehealth equipment
- Simulations
Case Preparation

- Factors we considered when building the case
  - Pediatric Case (aged 10-12 y.o.)
  - Patient and/or Family understanding of asthma & medications
  - Socioeconomic Factors
    - Insured/non-insured
    - Access to care
    - Stability of home life (parental behaviors)
      - Mother home from rehab for pain medication addiction
      - Family doesn’t refill medications
      - Lack of understanding of how to use short-acting vs long-acting combination bronchodilators
  - Mental/behavioral health issues of child
    - Well-adjusted versus angry, non-trusting
Case Preparation

• 2 or 3 iterations (scenarios) of the simulation
  • Scene 1
    • Child having asthma exacerbation during sport earlier at school
    • Mild to moderate asthma exacerbation, afebrile
    • Insured
    • Needs education re: proper use of asthma medications
  • Scene 2
    • Child is sicker, perhaps with fever, worse vital signs
    • Uninsured, students problem solve to find affordable medications
  • Scene 3
    • Child is uninsured from troubled home
    • Problematic social interactions
    • Needs access to affordable medications
Preparation for Clinical Experience

![Peak flow meter image]

**Anatomy of an Asthma Attack**

![My Asthma Action Plan image]
Simulation
Telehealth Technology

• What is Telehealth
  • Telehealth, the application of information technologies (IT) and Communications Technology (CT) to provide health care at a distance, is becoming a vital tool in meeting health care needs.
    • Telemedicine
    • Telenursing
    • Telepharmacy

Image Courtesy: http://www.chronicpaintherapy.com/
Telehealth Technology

Equipment

- Pan/zoom camera
- Computer monitor
- Electronic medical record
- Computer connected to
  - Electronic stethoscope
  - Otoscope
  - Ophthalmoscope
  - Dermascope
Tele-health training
Why use telehealth in inner city schools?

• Reaching Underserved Populations
• Issues:
  • Lack of access
  • Transportation challenges
  • Low-paying jobs
  • Use of Emergency Department as primary care
• Demographics—Knoxville, TN
  • 42.8% student population in Knoxville considered “economically disadvantaged”
  • Between 68-100% of students receive free/reduced
  • 25/87 schools with >50% free lunch or reduced lunch
  • 11 schools where we have telehealth
Vine School Health Center—Our telehealth home

- 11 school locations (RN, LPN)
  - School nurse, trusted figure
- Nurse Practitioner at Vine Clinic (home)
- Shared patients
  - Medical record online
  - Consent form at school clinic
- Relies upon good assessment skills
- Ability to use technology
- Teamwork & collaboration
Tele-health in action
School-based Clinics
School-based Clinics

- Telehealth view of a patient’s ear.
- Patient is at a school clinic.
- Team is at the central hub clinic, Vine School Health Center.
Family Practice Site
Family Practice Site

- Interprofessional student teams work with primary care MD or FNP to see patients
- Exam rooms with HD video cameras
  - Students can observe each other in patient interactions
- Integrate care with other providers in clinic
IE student contributions

• Facility planning & design: School Clinic
  • DMAIC
• Resource planning & scheduling: Flu mist clinic
  • Flow
• How to use telehealth equipment
  • 5S (Sort, Set in Order, Shine, Standardize, Sustain)
• Poor quality audio in simulation viewing room
  • Use of Fishbone diagram: -
• Stethoscope malfunction
  • TeamSTEPPS revisited: consciously engaging all team members.
OUTCOME?

Teams and Teamwork

- Value of professional Expertise
- Leadership
- Difficult situations
- Must be clear about your and others’ role and responsibilities
- Not just a group of people put together

“The team with the fewest mistakes will win”
Evaluation: Outcomes

• Students have very favorable perceptions of their project experiences.
• Project students show evidence of interprofessional team skill development. Student assessments (TEAMSTEPPS) demonstrate student growth in team skill and the perceived value of teams.
• Project faculty and clinical nurses share in their positive view of student growth in team knowledge and skills
Project Strengths

• The student recruitment and selection process is effective.
• Students have highly favorable attitudes toward their project experiences.
• Students see the benefits of the Interprofessional team,
  • these perceptions are supported by pre/post assessment results.
• Nursing staff members at clinical sites are very supportive of the project and working with project students.
• The project director and faculty leadership team are very active and engaged with this project.
  • They seek feedback re: what is working and what needs to be improved,
  • Address improvements in their planning cycle for upcoming cohorts.
Areas for project improvements

• Better coordination with clinical sites.
• Clarification of the role of clinical staff when projects students are visiting.
• Students want more time in the project, especially the clinical aspects of the project.
• The Challenge: their availability due to academic program commitments.
Plans for sustainability

• Development of website
• Possible elective activities for students
Quick links

• Video clip “Just a routine operation”
  • https://www.youtube.com/watch?v=JzlvgtPlQof4

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• Project web site
  • http://ilab.engr.utk.edu/hits/ipe/
Thank you!