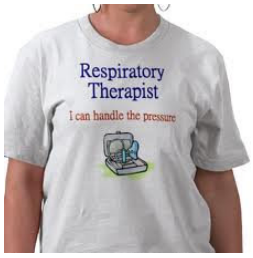
Team Based Learning (TBL) and Simulation

Pitt Community College Respiratory Care, ECU Med School, Vidant Hospital

Collaboration in Medical Education



GOALS

- Basic understanding of Team Based Learning (TBL): advantages and disadvantages
- Medical Simulation Benefits
- Interprofessional Education: The Time for Collaboration is Now

What is Team Based Learning: TBL?

Larry Michaelsen

2002

TBL OVERVIEW

- Primary learning objective in TBL is to go beyond learning facts.
- **4 Elements of TBL**
  a) **individual study**
  b) **individual test**
  c) **group test**
  d**) group activity**

1 Preparation/Outside reading

- Noninvasive positive pressure ventilation has been shown to reduce intubation rate for patients with COPD and respiratory failure.
- It reduces the work of breathing while bronchodilators work
- It is recommended if patient is cooperative and can tolerate it.

2. Individual Readiness Assurance Test IRAT

A 60 yo man with COPD comes to ED with dyspnea. He is alert, RR 22, and has little secretion. ABG: pC02 75, p02 60 pH 7.30 on 2l/min. What is the best treatment?

1. Duoneb, steroids
2. Duoneb, steroids, Bipap 12/5
3. Duoneb, steroids, intubation.

3. Group Readiness Test

Groups of 5 people

They answer the same questions.
Interacting with each other they learn from others and collaborate on answers.

3. Group Activity

The reason why bipap reduces the intubation rate is?

1. It reduces the work of breathing
2. It opens the airways
3. It eliminates air trapping

Group Activity

- Higher order questions worked on by the group. Individuals learn from each other.

TBL in MEDICAL SCHOOLS

- Increased student engagement
  Haidet et al. Adv Health Sci Ed 2004;9:15-27
- Higher Quality Communication
  Hunt et al. Teach Learn Med 2003;15: 131-9
- Increased NBME shelf examination scores
  Levine et al. Teach Learn Med 2004;16:270-5
- Improved Academic Performance
  Koles et al. Academic Med 2010; 85:1739-45

Results of TBL evaluation for M2 Brody School of Medicine

Results: All 72 students responded to a questionnaire using a Likert scale 1-5 (1 strongly disagree, 3 neurtral, to 5 strongly agree). The results (average Likert scale) are as follows:

TBL is an effective way to learn basic facts	4.1
TBL is an effective way to apply basic facts	4.2
Group functioned well	4.8
Preparing for IRAT was worthwhile	4.1
Learned more doing questions as a group than on my own	3.7
TBL should be used more	3.5
TBL helped me learn the value of collaboration in clinical medicine	4.1

The students were critical of Peer Review. Some were critical of the grading method used. To paraphrase the comment of one student, "TBL was the most beneficial experience I have had in medical school. This works wonders for me. Even though I cannot stand being in a room with 80 people, and do not find that environment conducive to my learning, I still found great benefit".

Conclusions BSOM

- Students preferred it to power point lectures
- Some students felt it was inefficient and did not promote learning to get them ready for tests
- LCME (medical school accreditation) insists on more active learning opportunities (TBL and independent study) and less power point lecture time.

Medical simulation is a branch of simulation technology related to education and training in medical fields of various industries. It can involve simulated human patients, educational documents with detailed simulated animations, casualty assessment in homeland security and military situations, and emergency response. **Its main purpose is to train medical professionals to reduce accidents during surgery, prescription, and general practice**

MEDICAL SIMULATION HISTORY

- 1930s Flight simulators
- 1990s High fidelity medical mannicans
- Now:

  Teaching skills such as CPR and intubation

  Evaluation of competency: airway, ventilator management, central lines.

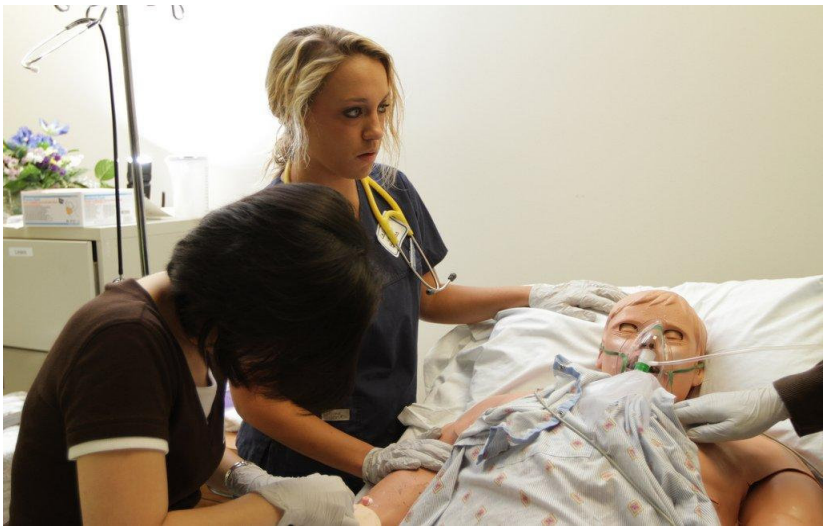
  CME

  Harvard Medical Library: sim lab

Simulation

- Patient scenario
- Team works together to evaluate the patient and take appropriate action
- Evaluation:
  How did we function as a team?
  Was there an effective leader?
  Technical procedure done correctly?

Nurse and RT find patient in respiratory distress. 02 Sat 86 and falling. They call doctor.



Residents and more nurses arrive and assess patient.

Patient has decreased consciousness, higher flow 02 therapy, Sat 84% cxray diffuse opacities.

Team inserts central line and decides to intubate the patient

Succesfully intubated, good breath sounds, end tidal C02 good

Evaluation of Team

- Initial nurse RT evaluation:
  correctly evaluated vital signs, reviewed basic patient history,

- SBAR

SBAR

Situation
Identify yourself, occupation and where you are calling from
Identify the patient by name, date of birth, age, sex, reason for report
Describe reason for phone call or current status of the patient – if urgent say so
[edit] Background
Give the patient's presenting complaint
Give the patient's relevant past medical history
Brief summary of background
[edit] Assessment
Vital signs: heart rate, respiratory rate, blood pressure, temperature, oxygen saturation, pain scale, level of consciousness
List if any vital signs are outside of parameters; what is your clinical impression
Severity of patient, additional concern
[edit] Recommendation
Explanation of what you require, how urgent and when action needs to be taken
Make suggestions of what action is to be taken
Clarify what action you expect to be taken

Team Dynamics

- Effective leader?
- Each person perform his/her role?
- Collaborate?
- Technical skills of line placement and intubation?
- Patient safety?

Combining TBL and Simulation is
REVOLUTIONARY
in education

- TBL:
  reinforce some basic educational points and begin the process of collaboration between nurses, respiratory therapists, and physicians.
- Higher order learning
- Simulation:
  put into practice what we learned in TBL in a real world scenario.
- Collaboration between a medical school, community college, and a hospital.

Interprofessional Education : The Time for Collaboration is Now L Hanyok Soc Gen Int Med

- IPE: "occasions when two or more professionals learn with, from, and about each other to improve collaboration and quality of care"
- Why is this not more wide spread?
  Structural challenges, scheduling, location, curriculum requirements
- Addresses cultural barriers: doctors, nurses, respiratory therapists come from different cultures and don't always respect and understand each other

Interprofessional Education
IPE

- IPE is widely perceived to improve communication between health professions and lead to better patient care.

A systematic review of the effectiveness of interprofessional education in health professional programs Nurse Education Today Dec 2011

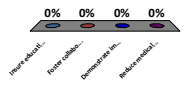
- Students attitudes toward collaboration change temporarily
- Some studies show improved decision making and knowledge
- Not much evidence that clinical outcomes are improved.

Cochrane Database Syst Rev. 2008 Jan 23;(1):CD002213.
Interprofessional education: effects on professional practice and health care outcomes.
Reeves S, Zwarenstein M, Goldman J, Barr H, Freeth D, Hammick M, Koppel I.

- Improvement:
  Emergency Dept patient satisfaction
  Reduced errors in ED
  Mental health practitioners
- Not many objective studies

What should be goals of TBL/Simulation be?

1. Insure educational competency i.e. participants learn info and apply it.
2. Foster collaboration/communication between different professionals
3. Demonstrate improved patient outcomes.
4. Reduce medical errors



Thank you
PCC RT, Vidant Nurses, ECU