

Sim, it's not just for the sim lab anymore!

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Topics of Discussion

- How portable simulators can be used to enhance training and education
- The utility of in-situ simulation to improve interdisciplinary collaboration and communication
- How to gain buy-in from other specialties
- The barriers to performing in-situ and multi-discipline simulation
- The feasibility of incorporating simulation into case conference
- The limitations of performing simulation outside of the sim lab

In situ - The why

- Kolb's theory of experiential learning
 - Adult learning theory
 - Concrete experiences, reflection on experiences, and active experimentation
- More closely reflects learners actual "work"

In situ - The why

- Opportunity to teach large group at once
- Opportunity for clinical teams to rehearse infrequent high-risk clinical scenarios
- Evaluate communication/teamwork

In situ - The why

- Evaluates the learner and the system
- Identify latent system errors
- Ability to test the system with planned failures
- Opportunity to build relationships

Location Examples

- In the Emergency Department/trauma bays
- On the wards
- Cath lab
- In the field
- Wilderness Medicine
- Conference room

In situ - example



In situ - example



In situ - example



In situ - example



Multidisciplinary Example



Multidisciplinary Example



How to gain buy in / Barriers

- “No industry in which human lives depend on the skilled performance of responsible operators has waited for the unequivocal proof of the benefit of simulation before embracing it”

– David Gaba

How to gain buy in / Barriers

- Collaborate with the other disciplines and staff
- Keep it brief with clear objectives for the facilitators
 - team work, procedure, system, recent error
- Use it for training of new staff
- Assure flexibility

Challenges of *In-Situ*

- Equipment
 - Wireless, one-way glass, supplies, meds
- Logistics
 - Ability to adapt, disassemble, and reschedule

Challenges of *In-Situ*

- Motivation of staff to participate
- Interruption of actual patient care
- Patient and visitor perceptions

Sim Wars



Sim Wars



Sim in conference

- Case conference / M&M
- Multi-disciplinary conferences
 - Cardiology
 - Trauma
 - Pediatrics
- Sim Wars
- Procedure days

Procedure Day



Procedure Day



Low cost chest tube model

- Materials
 - 1 gallon milk jug
 - Rack of ribs
 - Latex balloon
 - Foam tape
 - Plastic wrap
 - Chest thoracostomy supplies
 - 10 ml syringe, 25 gauge needle, #10 blade, 28 fr chest tube, 2 kelly clamps, needle driver, silk suture, 4x4 gauze pads, petrolatum gauze

Low cost chest tube model

- Construction
 - Empty and clean the milk jug
 - On the opposite side of the handle cut out a rectangular window
 - Cover the window with foam tape
 - Blow the balloon up inside the jug
 - Cut a section of ribs to fit the window cut in the jug and wrap them in plastic wrap
 - Use foam tape to secure the ribs to the milk jug over the cut-out

2 min demo

- Practice tube thoracostomy
- Equipment
 - Sterile drapes and gloves
 - Betadine or chlorhexidine
 - Local anesthetic and syringe
 - #10 blade
 - Kelly clamps
 - Chest tube
 - Needle driver and suture
 - 4x4's, petrolatum gauze and tape

Patient preparation

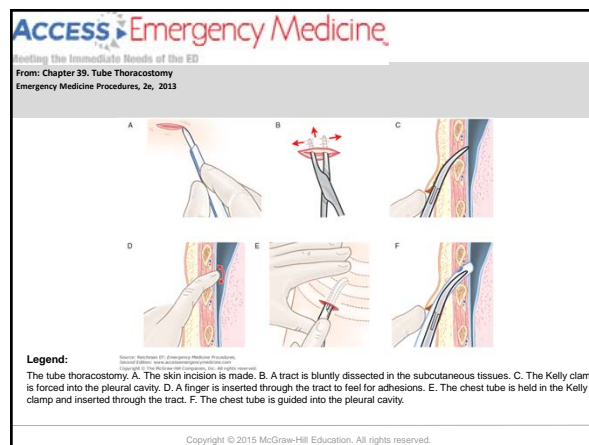
- Provide parental analgesia
- Review landmarks
- Identify the "5th intercostal space"
- Infiltrate 10-20 ml of local anesthetic into the chest wall and pleural cavity

Technique

- Make 3-5 cm incision 1 rib below
- Bluntly dissect with Kelly clamp to the rib above
- Briskly push through the intercostal muscles and parietal pleura into the pleural cavity
- Spread the jaws of the clamp to enlarge the tract

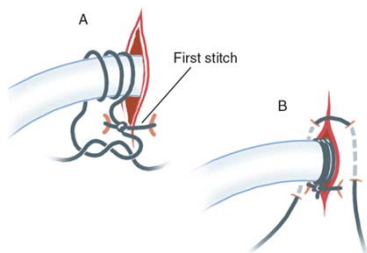
Technique

- Insert a finger and feel the lung (balloon)
- Measure the distance from the incision to the apex of the lung
- Grasp the distal end of the tube with the Kelly clamp and guide it through the tract
- Direct it posteriorly and superiorly



Technique

- Release the clamp and secure the tube



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