Patient Safety & Medical Simulation

MMVR 2006 Tutorial

A Clinical Perspective

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IS THERE A ROLE FOR SIMULATION IN IMPROVING PATIENT SAFETY?

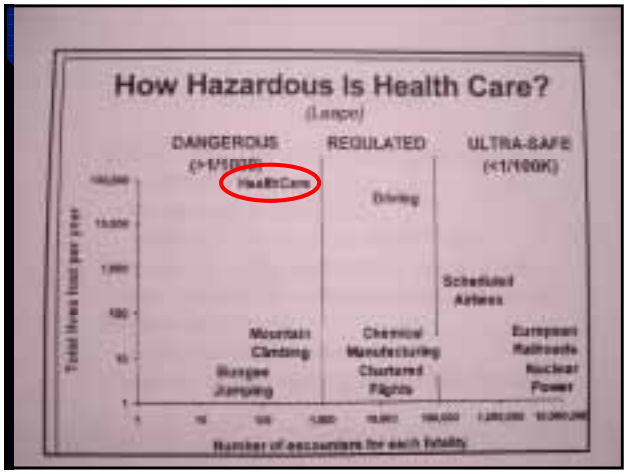
Challenges in Medical Education

- Less physician teaching time
- Less resident time (80 hr work wk)
- Fewer patient hours available for teaching
- Larger number of procedures
- Teaching high risk procedures without endangering patients
- "To Err is Human" Institute of Medicine report

Fallacies of Medical Education

- Exposure = Mastery
- Written performance translates to technical performance
- Completion of proscribed course of training = mastery of material
- Proficiency is based on numbers

End of year intern with ACLS Card soon to be only Dr. on Boat



Institute of Medicine

- IOM Report 2002 – "To Err is Human: Building a Safer Health System"
- 44,000 Americans die from medical errors every year
- Recommend that Health Care Org incorporate proven methods of training such as SIMULATION

Institute of Medicine Report

- Preventable adverse events in US hospitals result in $17- $29 B annually
- Simulation is "a procedure to mitigate injury"
- "health care organizations and teaching institutions should participate in the development and use of simulation for training"

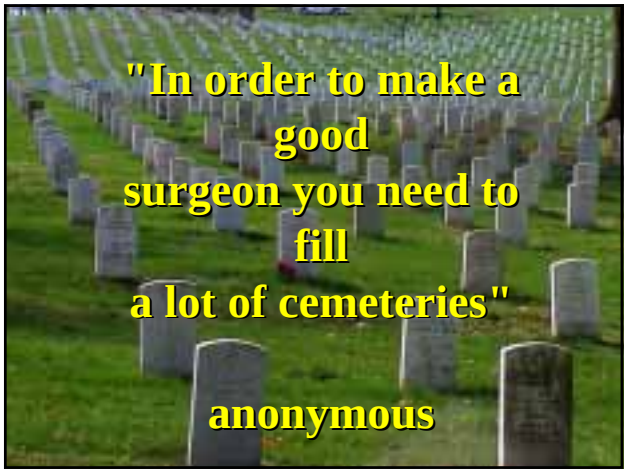
"To err is human"

It's Not Rocket Science….

…. It's More Important Than That.

Traditional Surgical Education

- Apprenticeship
- See one, do one, teach one
- Learning on patients



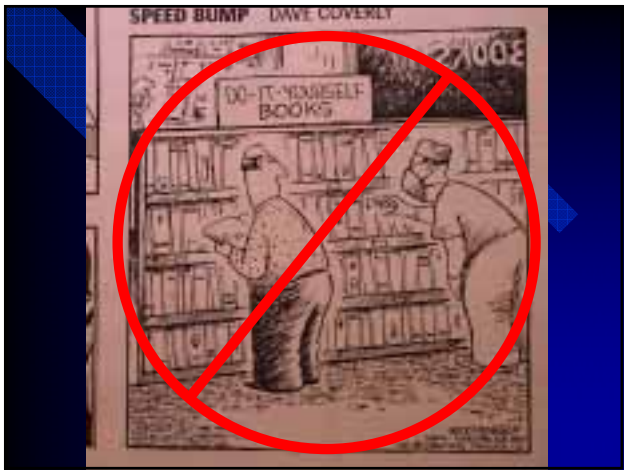
You too can be a Surgeon…..

….or at least look like one!

How Do We Train Physicians of the Future?

- Patients as "Guinea Pigs" not acceptable
- Less tolerance for error
- Training hours shortened

How do we Minimize Error?



Simulators in Medical Education

- Need a safe transition from book to patient
- Solution:

  Medical Simulators

"Proven Methods"

- Anesthesia – has established curricula for team training and crisis management with demonstrated outcome improvement after Sim training.
- In Mass. Anesthesiologists who have had simulator training receive a discount on malpractice

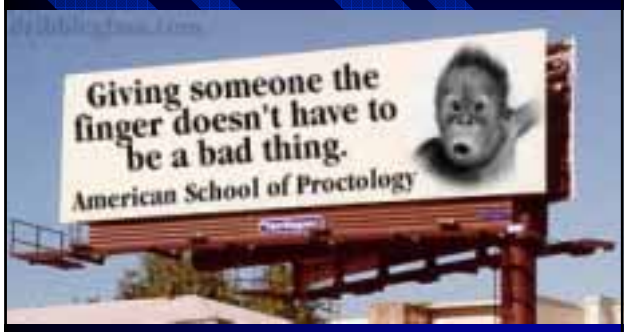
Simulation for Error Reduction

- New techniques can be practiced over and over, alone or with a mentor, without the need for animals
- Errors can be tracked while the operation continues, until error recognized … simulator rewound or restarted

Chinese Proverb

"I hear and I forget,
I see and I remember,
I do and I understand."

Train to proficiency?



Additional benefits of Simulators

- Permit learning in safe/risk free environment
  - "Permission to Fail"
- Refresh techniques for surgeons after absence (military)
- Correct for case-mix inequalities in training program

Potential of Simulation

- Allow boards to certify skill rather than oral discussion
- Permit prototyping "*in silico*"
- Testing of new devices in a simulated environment
- Patient specific rehearsal of operations

ACS Proposed uses of Simulation

- Screening for aptitude
- Provide initial training
- Promote ongoing education
- Enable periodic assessment
- Maintain proficiency through rehearsal pt specific procedures

What is Required

- REALISM – realistic organ responses, tissue-tool interaction, visual display
- AUTHENTICITY – Educational content that is clinically useful and provides validated transfer of learning
- ACCEPTABILTY- teaching physicians and specialty organizations

The Power of Simulation

Create/re-create clinical scenarios in a safe environment

"kill as many patients as you want … as long as no one gets hurt"

Where do we go from here?

End Game for Simulation: Improving Patient Safety and Quality

The Challenge

- Taking advantage of what Simulation offers to improve patient safety
- Defining the optimal role for simulation
- Use simulation to train to proficiency and to maintain skills