UCSF
University of California
San Francisco

KANBAR Center

Practice Makes Perfect

Using technology, simulation, and standardized patients

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None

A Question for You

Your experience…

- How did you learn the skills you use every day?
- And what about skills you only need on rare occasions?

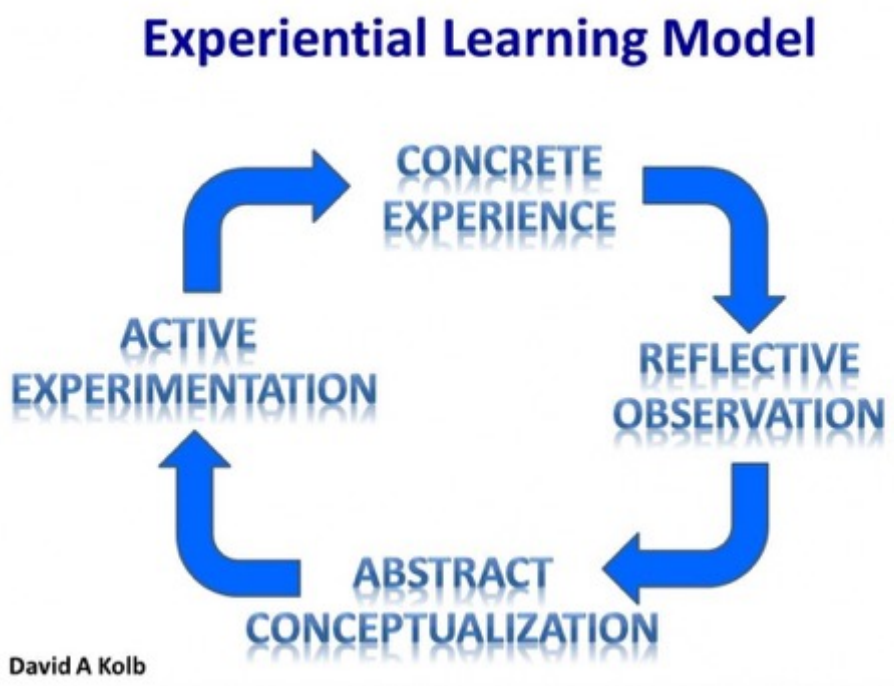
Practice makes perfect: Simulation and more

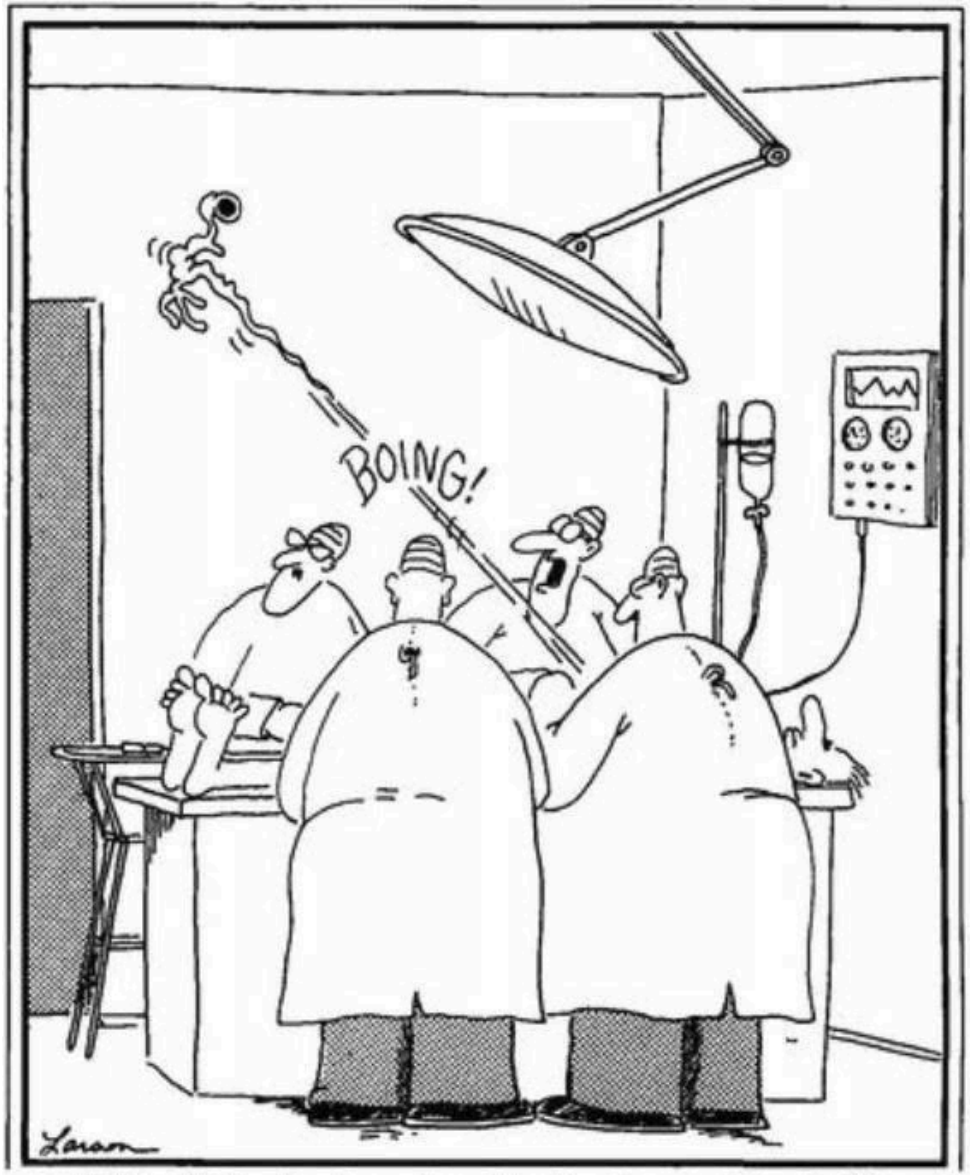
Objectives

- Understand the challenges with skill practice in health professions education
- Define simulation and identify different simulation modalities
- Describe the use of simulation and related educational strategies in HPE
- List limitations and challenges associated with simulation

Practicing Skills in Health Professions Education

- There is only so much you can read in a book
- Perfection comes from practice
- Experiential learning model

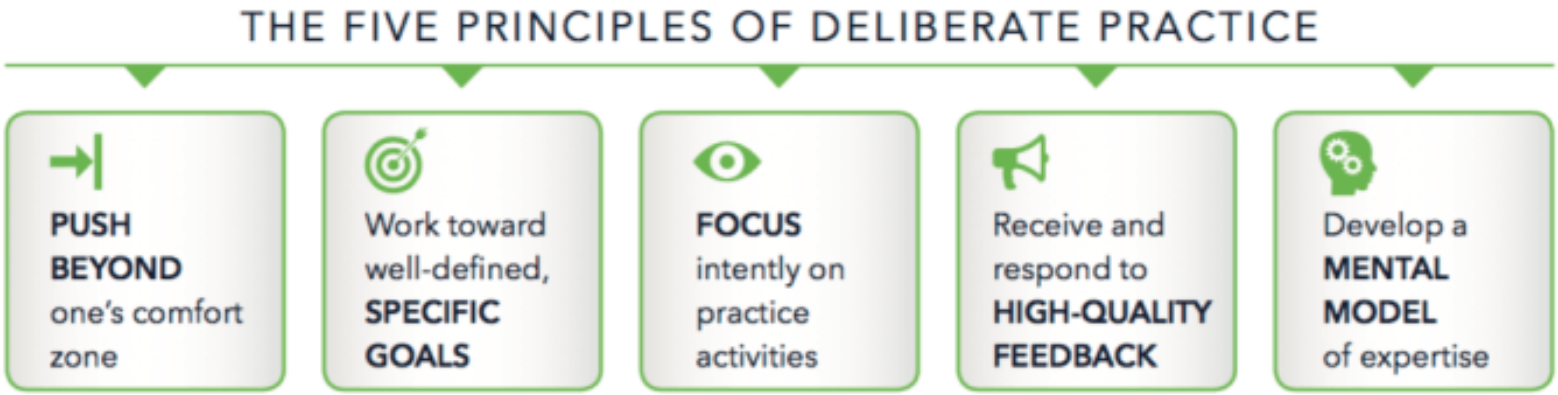




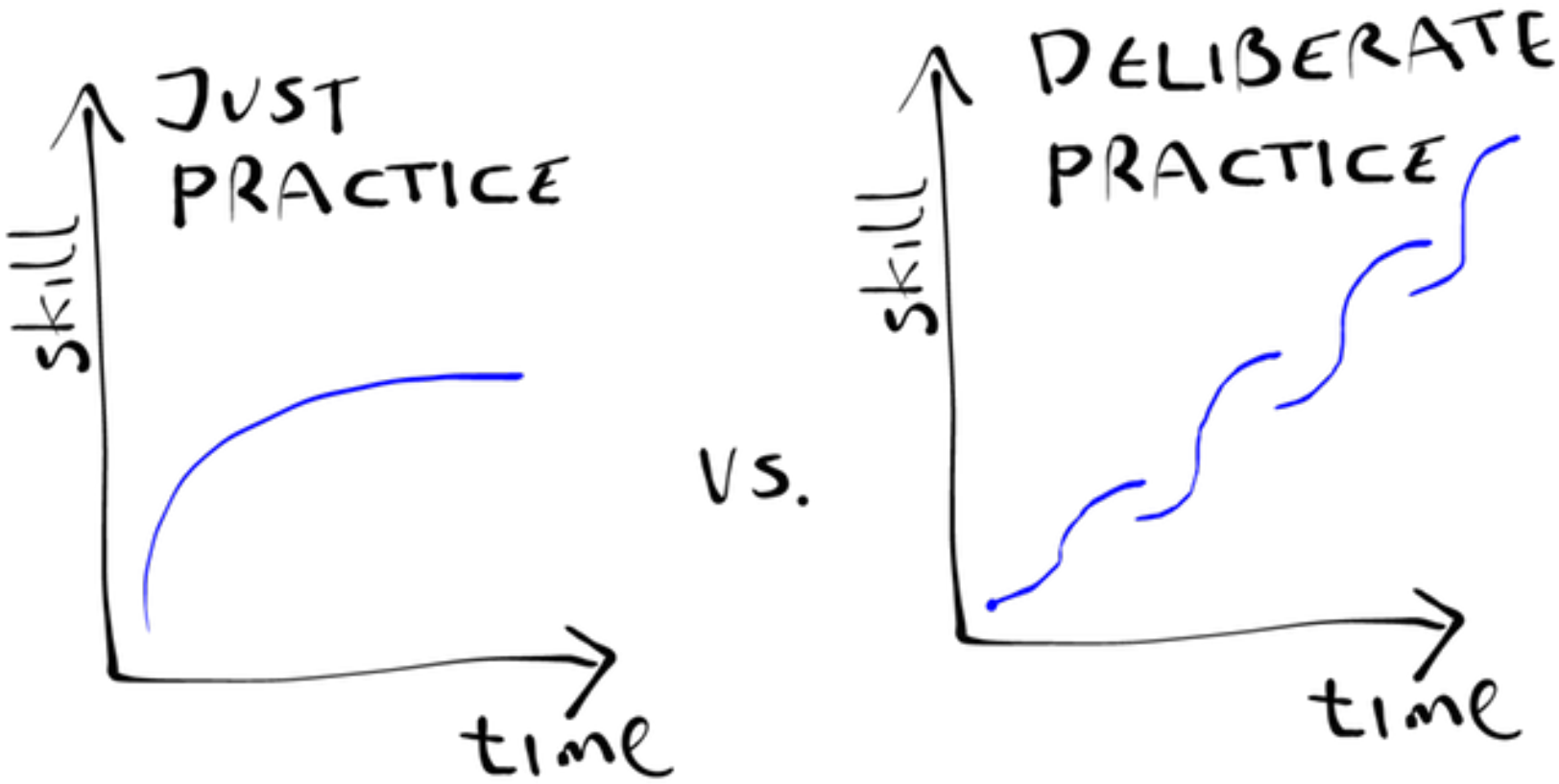
"Whoa! Watch where that thing lands — we'll probably need it."

"Correct. And in the case of a cardiac arrest, every second counts. Who can tell me why? Anyone? Clock's ticking."

Deliberate practice: Path to Expertise



Deliberate Practice



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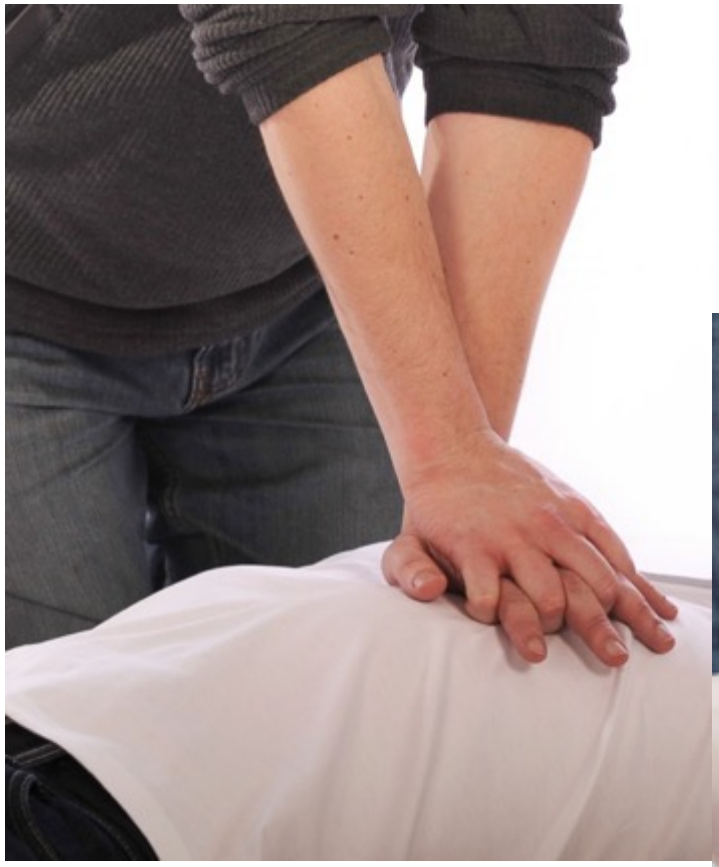
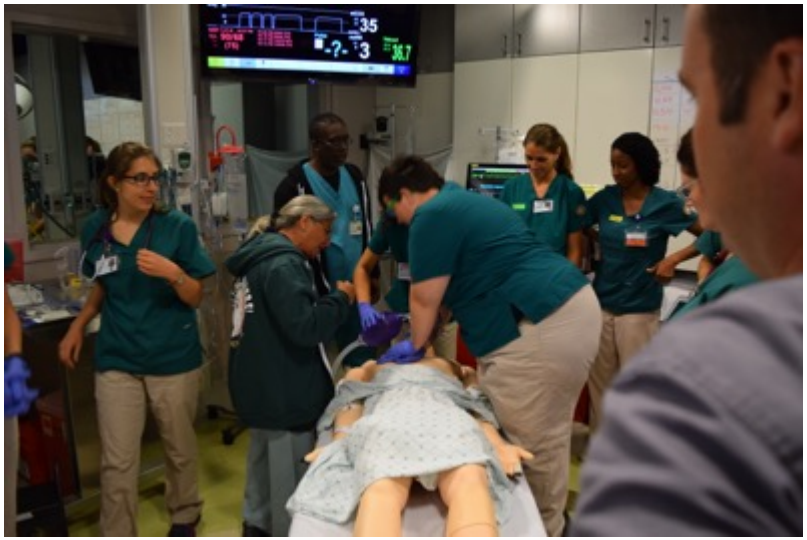
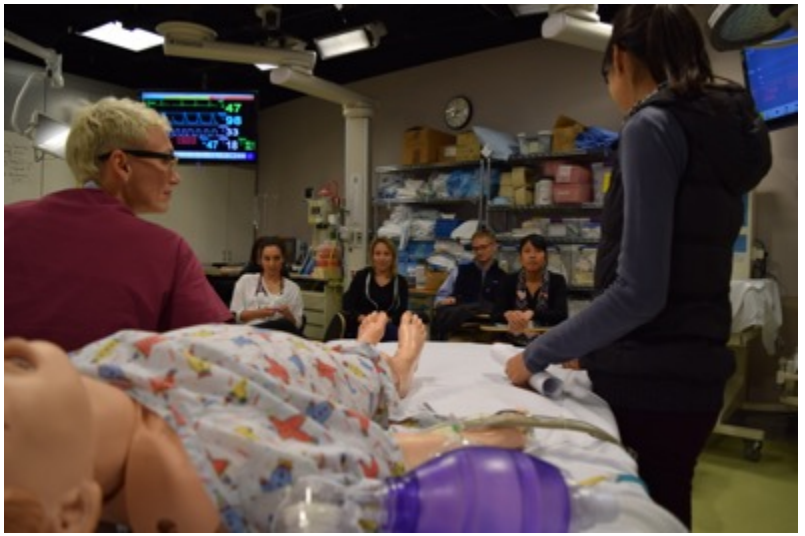
Practice on real patients…..



….Or fake ones?

Simulation for practice in healthcare





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What is simulation?

- "To do or make something which looks real but is not real"
  - *Dictionary.com*
- "An educational modality with which the learner physically interacts to mimic an aspect of clinical care for the purpose of teaching or assessment"
  - *Adapted from Cook et al, Med Teach. 2013*

Simulation for patient care practice: CPR

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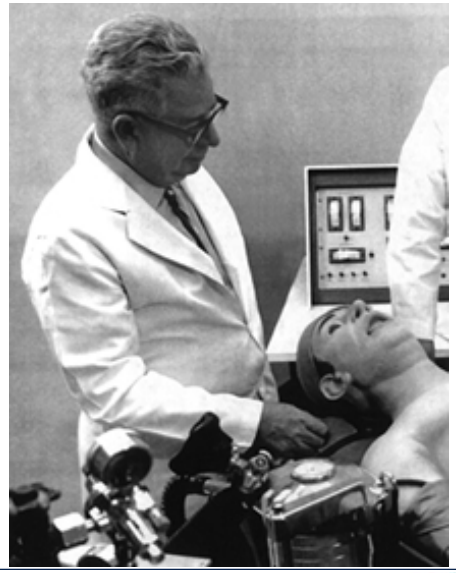
High stakes, rare events

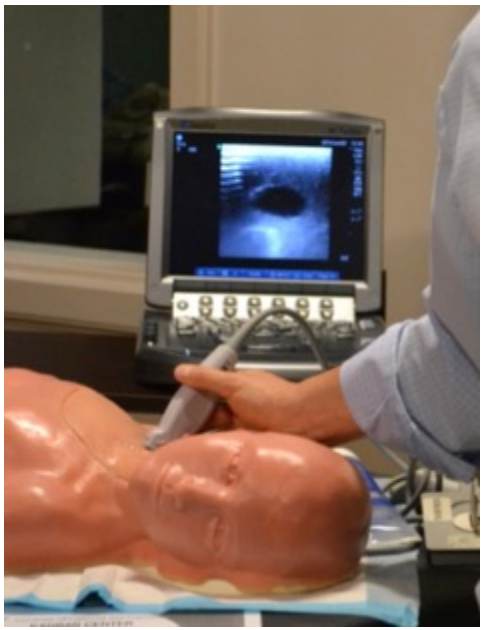


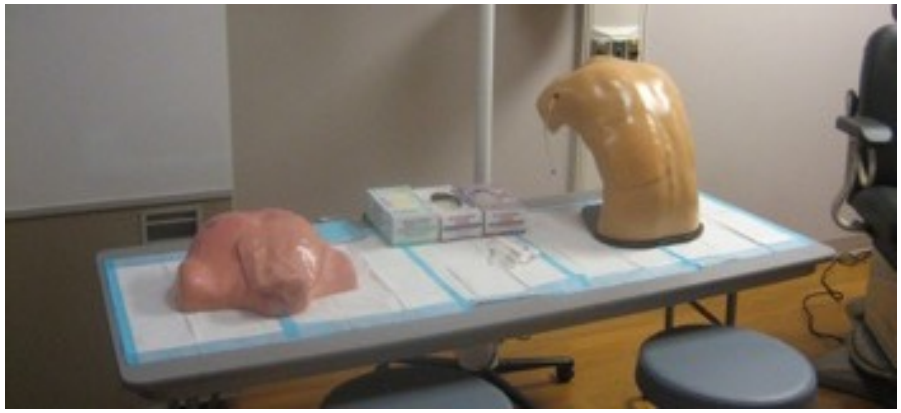
History taking and physical exam

Simulation: the mannequins

Simulation: the body parts

Partial Task Trainers





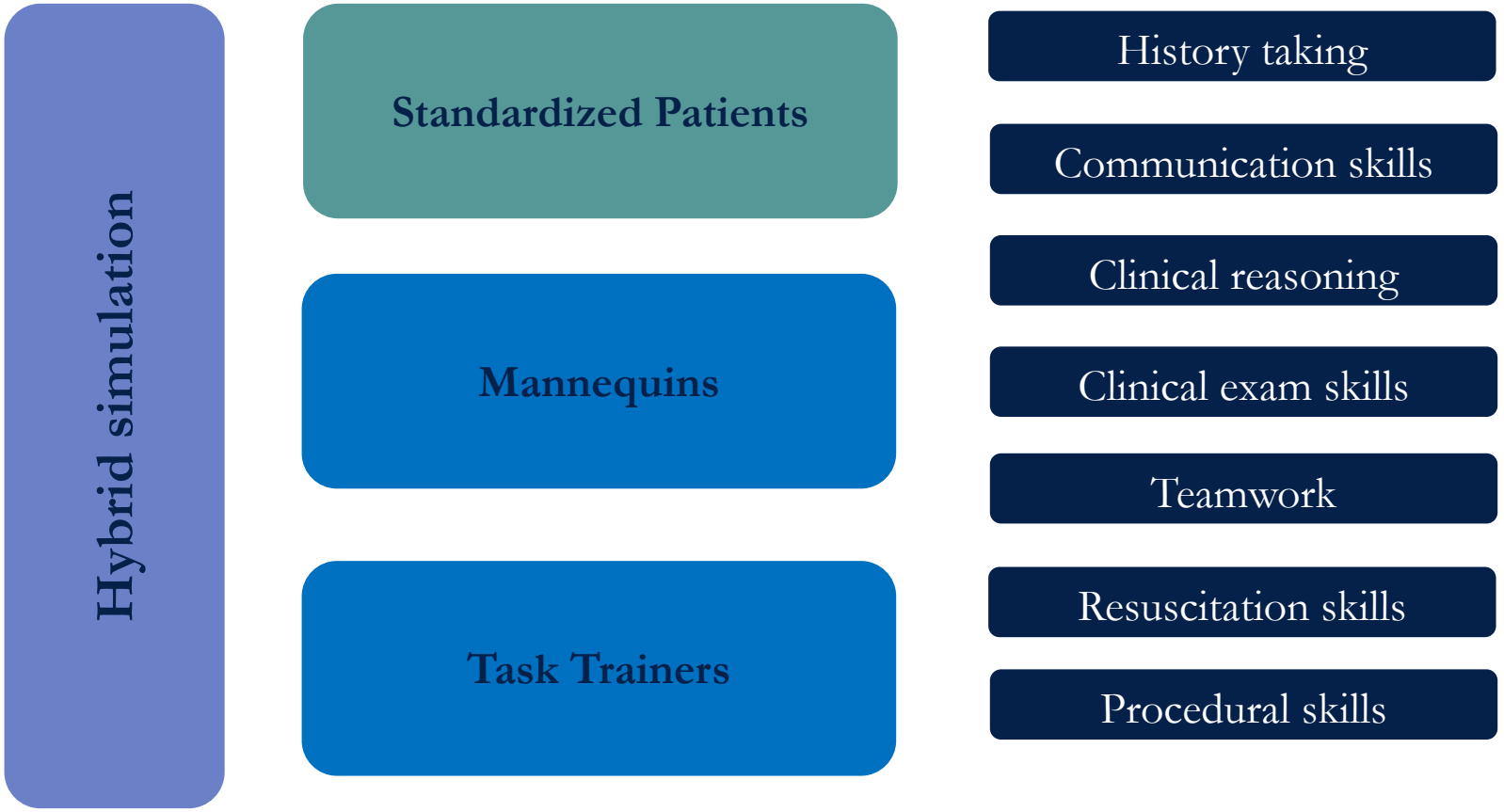
Simulation: the actors

Standardized patients

- Actors trained to portray patients, and give feedback as a patient

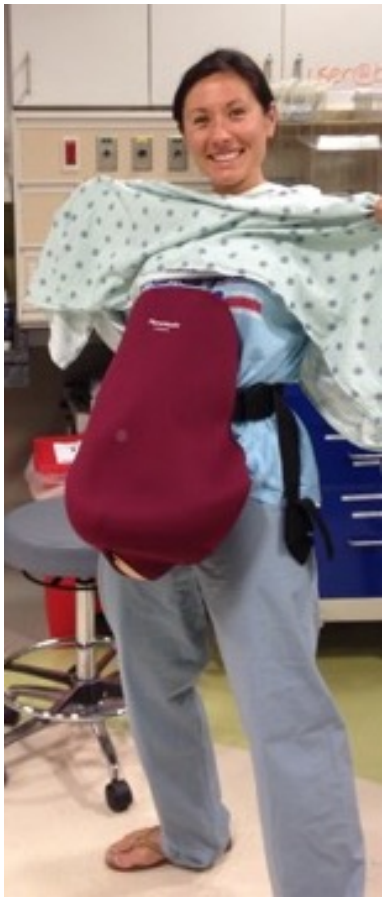
Which one is best for what?

Different types of simulation can be used for different educational objectives



Hybrid simulation

Hybrid simulation



Simulation in health professions education

From admission to post-graduation….

- Mini-medical interviews with actors (standardized patients)
- History and physical exam
- Procedures – basic and advanced
- Clinical reasoning and management
- CPR and advanced life support training
- Crisis management and team work
- Difficult conversations, ethics, etc.

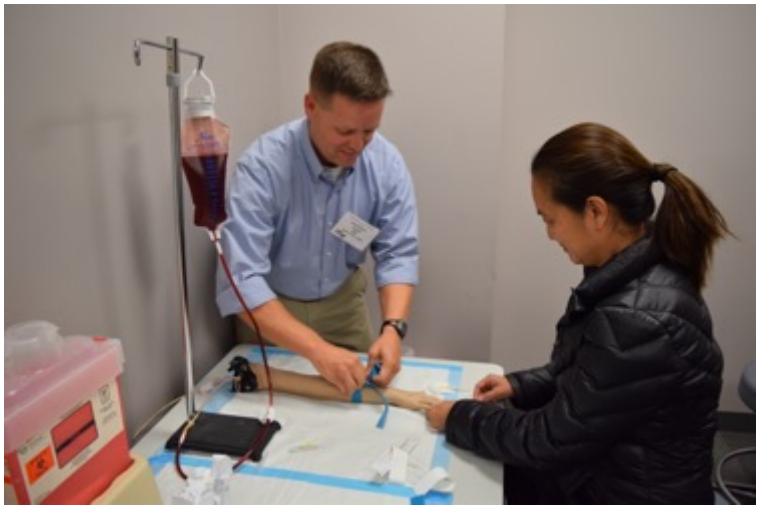
Admission interviews

“Mini-medical interview”

- Brief simulation exercise, typically with actors (SPs)
- Can encompass multiple stations / case scenarios
- Typically focused around ethical decision making, communication skills

History taking and physical exam

Procedural skills



Clinical reasoning and management

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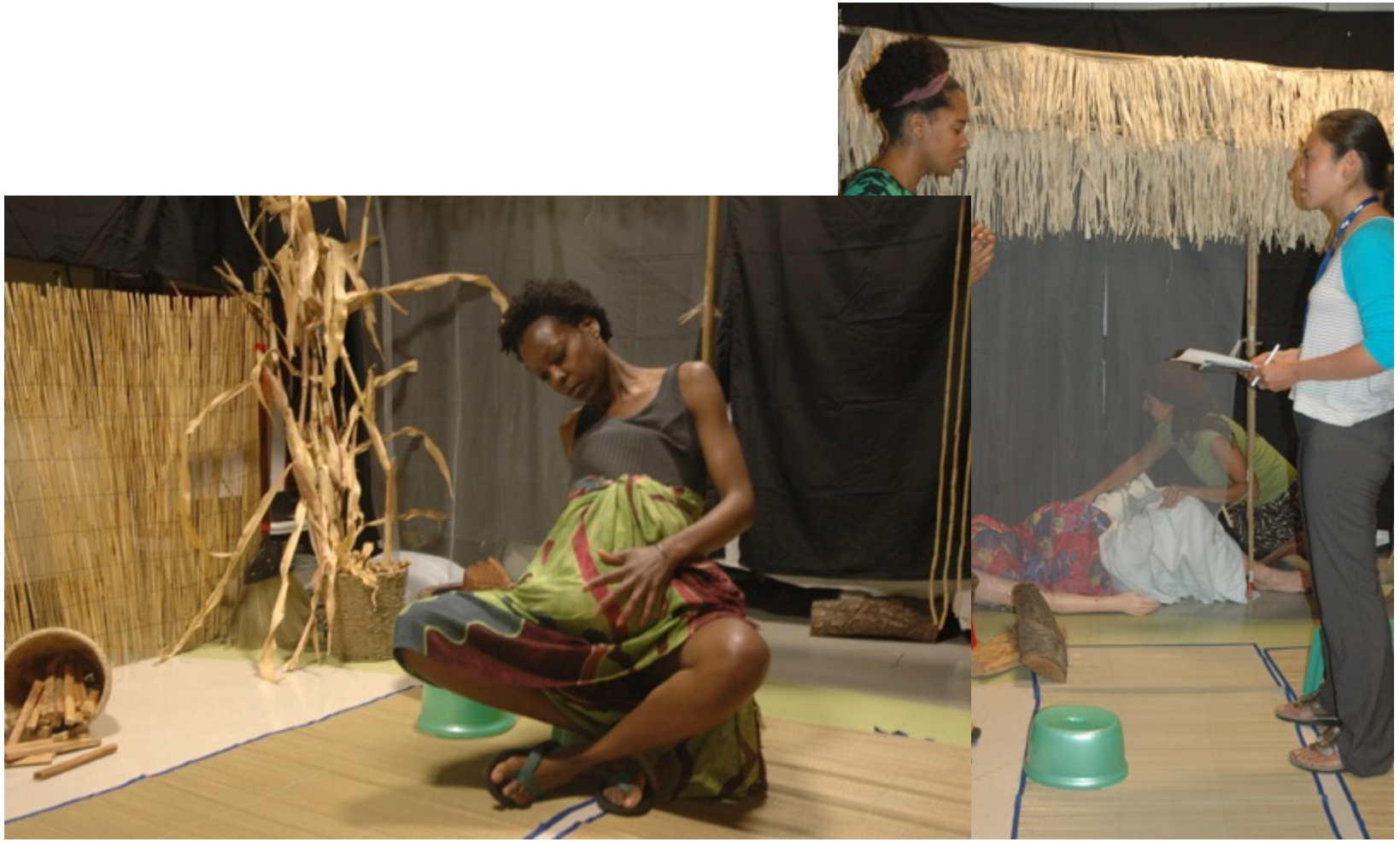
CPR and advanced life support skills

American Heart Association. | AUTHORIZED TRAINING CENTER

Teamwork

Difficult conversations, ethics, more…



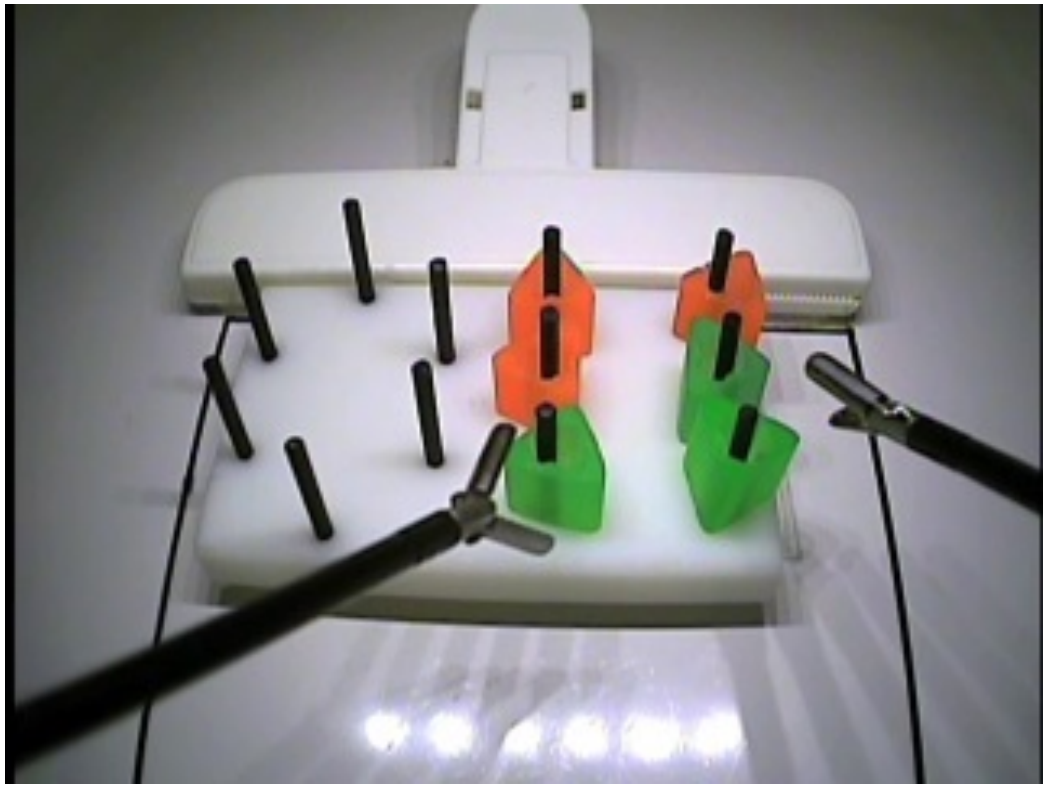
Limitations: It is simulated, not real

”Fidelity”

- Equipment
- Environment
- Psychological

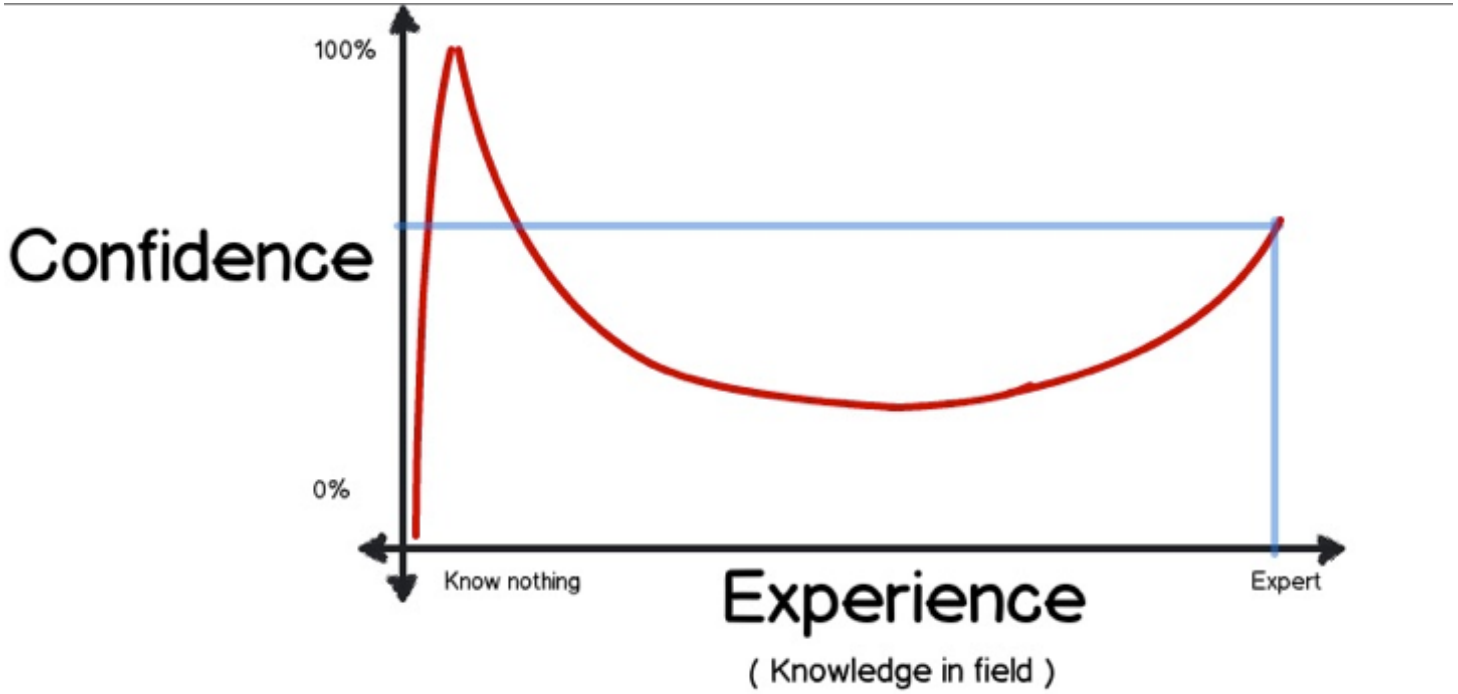
Fidelity

Or functional task alignment?



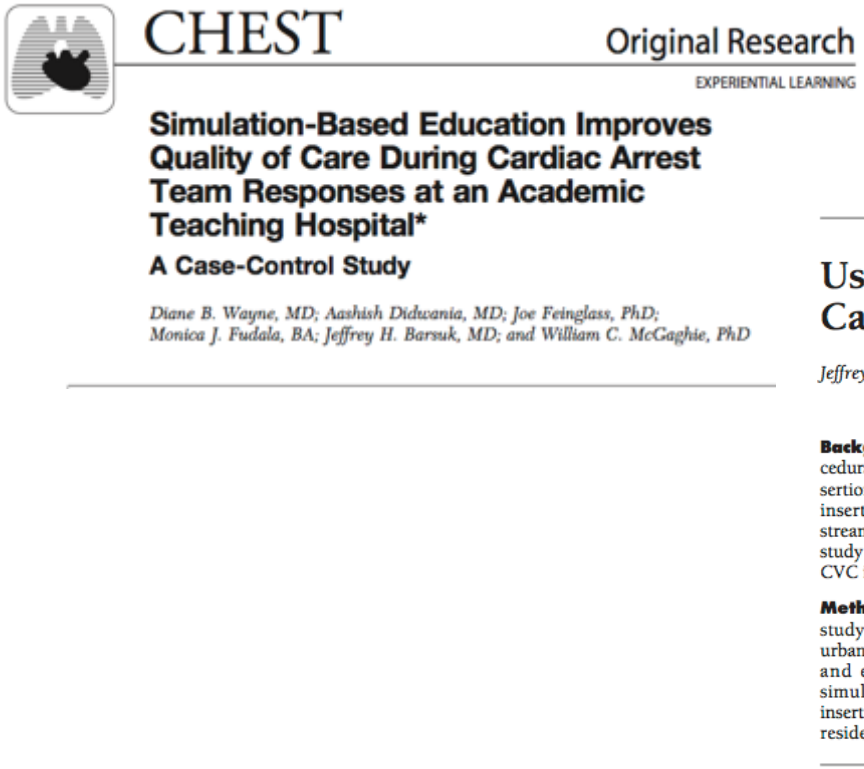
Translation to clinical practice

If you're competent in simulation, are you competent in real life?



Translation to clinical practice

Evidence from the literature



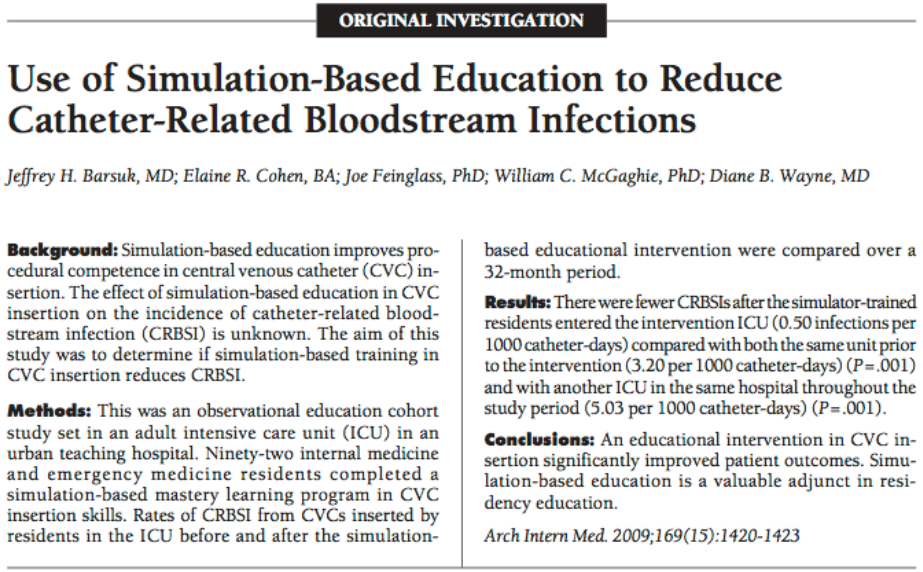
CHEST Original Research

EXPERIENTIAL LEARNING

Simulation-Based Education Improves Quality of Care During Cardiac Arrest Team Responses at an Academic Teaching Hospital*

A Case-Control Study

Diane B. Wayne, MD; Aashish Didwania, MD; Joe Feinglass, PhD; Monica J. Fudala, BA; Jeffrey H. Barsuk, MD; and William C. McGaghie, PhD



ORIGINAL INVESTIGATION

Use of Simulation-Based Education to Reduce Catheter-Related Bloodstream Infections

Jeffrey H. Barsuk, MD; Elaine R. Cohen, BA; Joe Feinglass, PhD; William C. McGaghie, PhD; Diane B. Wayne, MD

Background: Simulation-based education improves procedural competence in central venous catheter (CVC) insertion. The effect of simulation-based education in CVC insertion on the incidence of catheter-related bloodstream infection (CRBSI) is unknown. The aim of this study was to determine if simulation-based training in CVC insertion reduces CRBSI.

Methods: This was an observational education cohort study set in an adult intensive care unit (ICU) in an urban teaching hospital. Ninety-two internal medicine and emergency medicine residents completed a simulation-based mastery learning program in CVC insertion skills. Rates of CRBSI from CVCs inserted by residents in the ICU before and after the simulation-based educational intervention were compared over a 32-month period.

Results: There were fewer CRBSIs after the simulator-trained residents entered the intervention ICU (0.50 infections per 1000 catheter-days) compared with both the same unit prior to the intervention (3.20 per 1000 catheter-days) ($P=.001$) and with another ICU in the same hospital throughout the study period (5.03 per 1000 catheter-days) ($P=.001$).

Conclusions: An educational intervention in CVC insertion significantly improved patient outcomes. Simulation-based education is a valuable adjunct in residency education.

Arch Intern Med. 2009;169(15):1420-1423

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Limitations: Resource intensive

Time, people, equipment, space

- How to do this most effectively and efficiently?
- Can you learn from watching others?
- What equipment helps achieve the best learning?

UCSF Simulation Center

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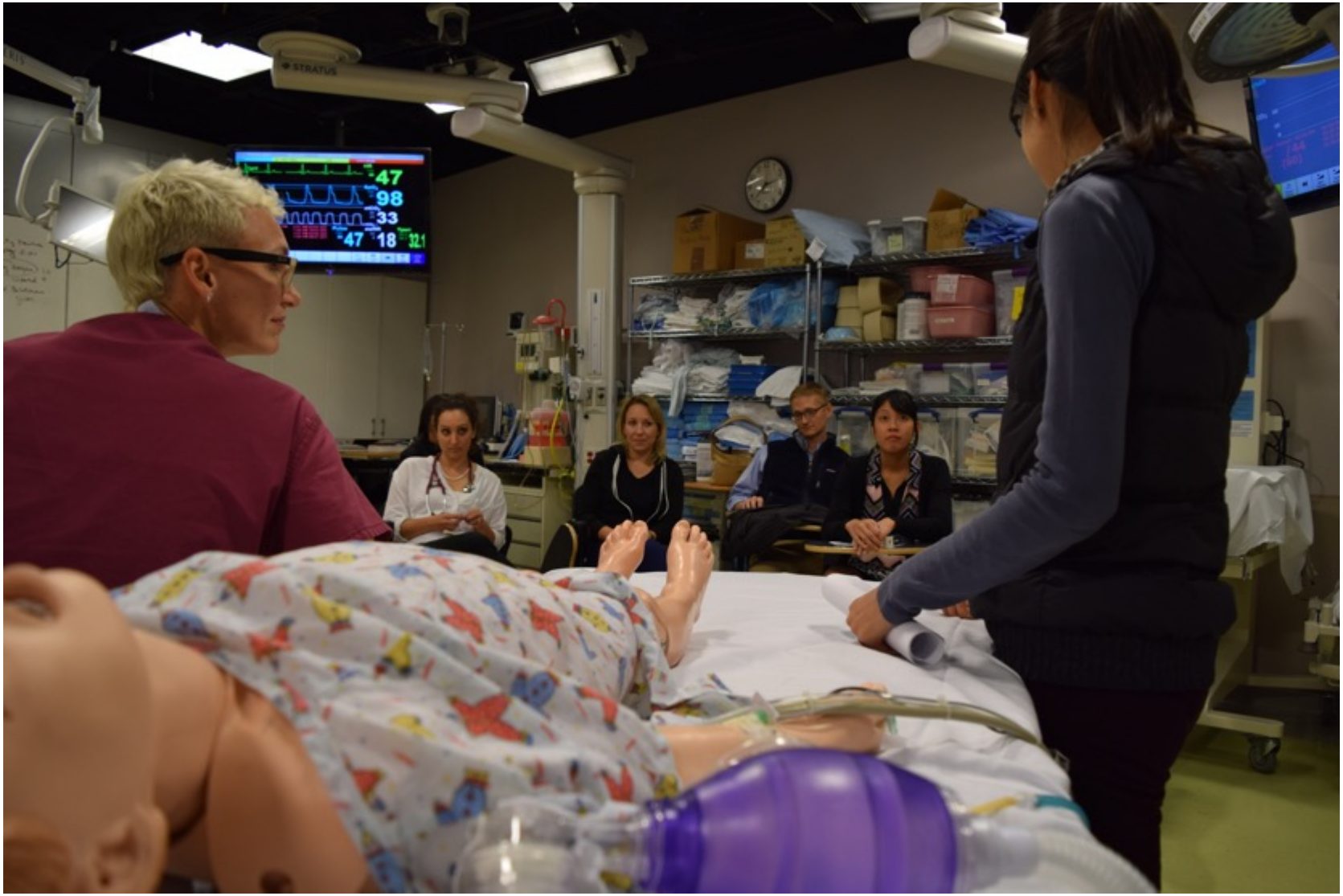

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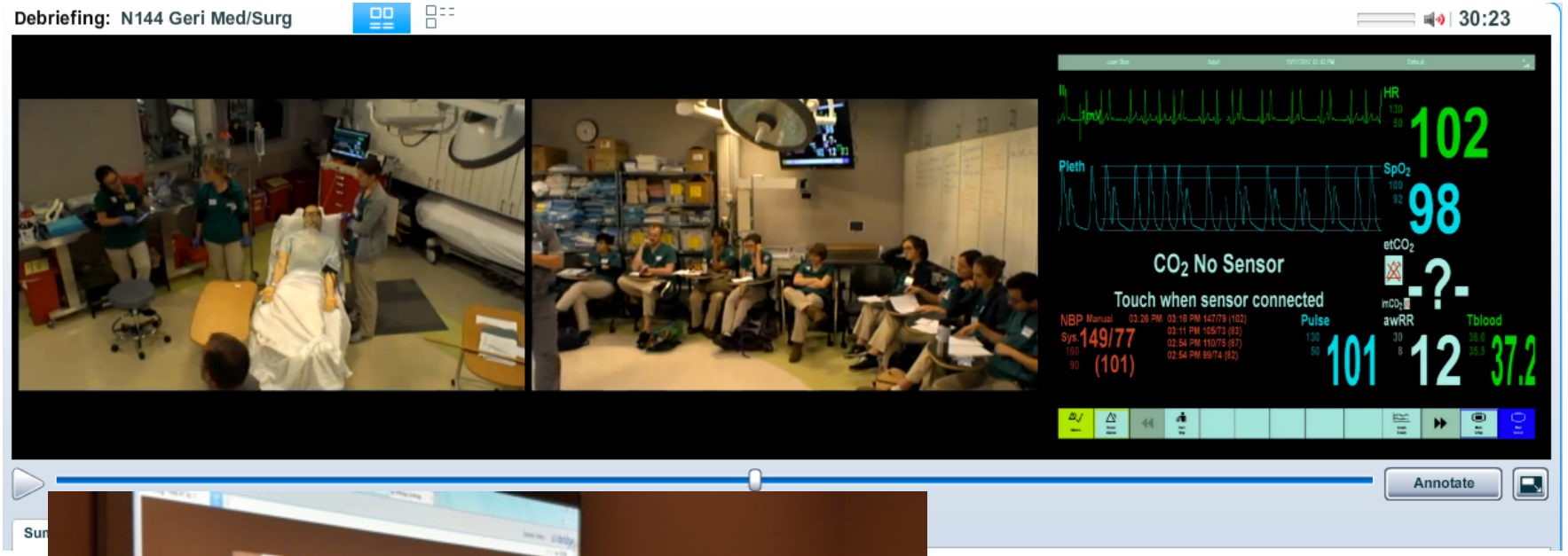

Debriefing: N144 Geri Med/Surg
30:23
HR
102
Pleth
SpO2
98
CO2 No Sensor
etCO2
Touch when sensor connected
NBP Manual
Sys.149/77
(101)
Pulse
101
awRR
12
Tblood
37.2
Annotate

Ritter

UCSF Standardized patients

- UCSF has a large SP pool: 150-200 active SPs
- Most are professional actors (supplemental income)
- For many more than “just a side job”
- Regional & national organizations

ASPE
The Global Network for Human Simulation Education

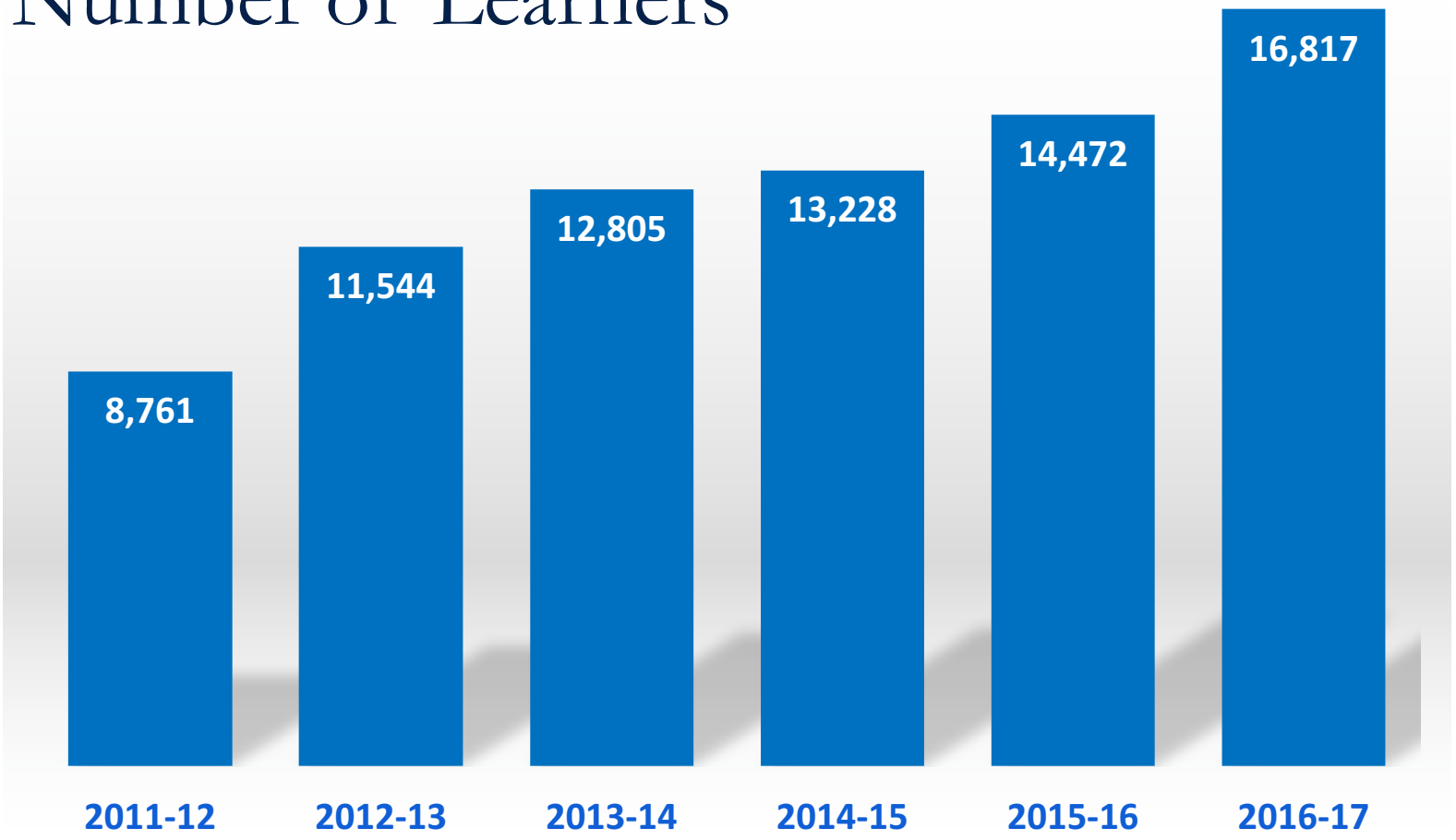
Core Curriculum

ASPE's Core Curriculum provides education on fundamental knowledge and skills for Sta
Patient Educators. The Core Curriculum is intended to inform educators on best practices
education, grounded in ASPE's standards of practice.

Modules Include:

- Foundations of SP Methodology – Best Practices and Essential Skills
  - History of SP Methodology
  - Case and Checklist Development
  - Training Standardized Patients
  - Feedback Techniques
  - Techniques to Debrief SPs
- Foundations of SP Methodology – Best Practices in Administration
  - Recruiting, Interviewing and Maintaining
  - Strategic Management of an SP Program
  - Designing Policies and Procedures
  - Knowledge Management & Data Considerations

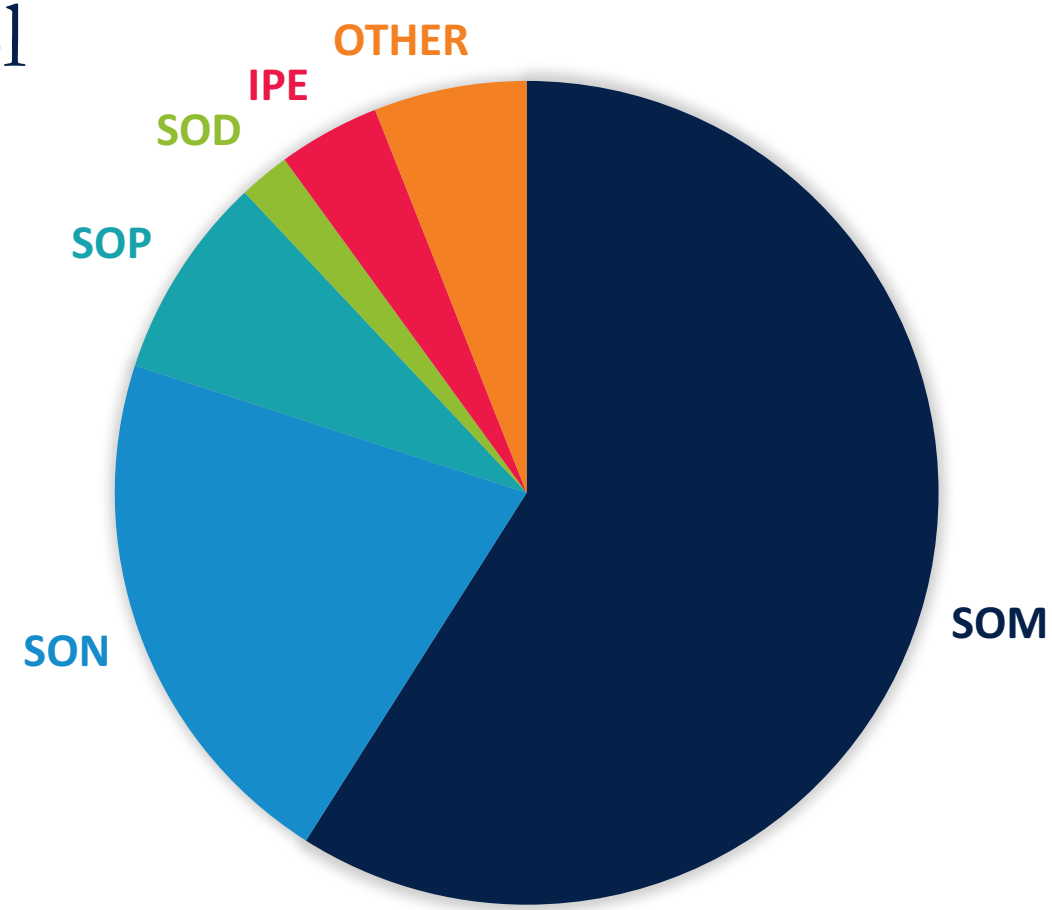
Number of Learners



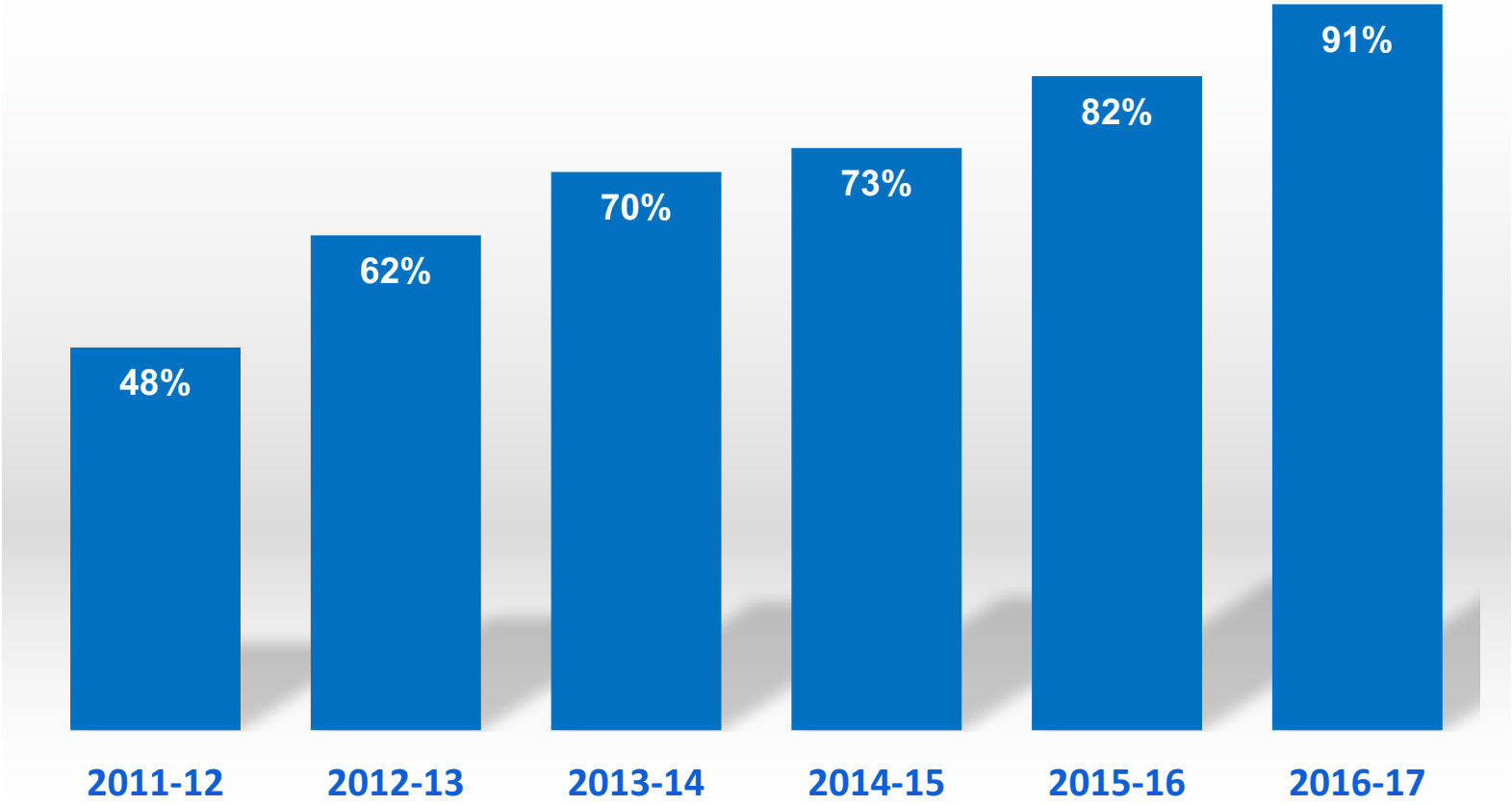
Learners by School

SOM School of Medicine
SON School of Nursing
SOP School of Pharmacy
SOD School of Dentistry

IPE Interprofessional Education



Utilization



Affiliated programs

- UCSF Benioff Children's Hospital "Mock Code" Program
  - Every unit in the children's hospital
  - Interprofessional
  - More than 60 sessions per year

Summer Intern Program

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UCSF Simulation and the community

Outreach, research, education

- *Connections within UCSF:*
  - Faculty development, simulation fellowship, research
- *Connections with other simulation centers:*
  - UC consortium, membership in California Simulation Alliance
- *Connections with community:*
  - American Heart Association CPR training (in partnership with UCSF PD)
  - Summer intern program and other outreach

Summary

- Simulation refers to a variety of educational strategies to help learners in the health professions acquire patient care skills
- Powerful strategy to allow for repeated practice, feedback, gradual increase in mastery
- Allows for exposure/experience with low frequency, high stakes events
- Safe for patients, safe for learners
- Can prepare for, but can't replace real life practice

Questions?

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