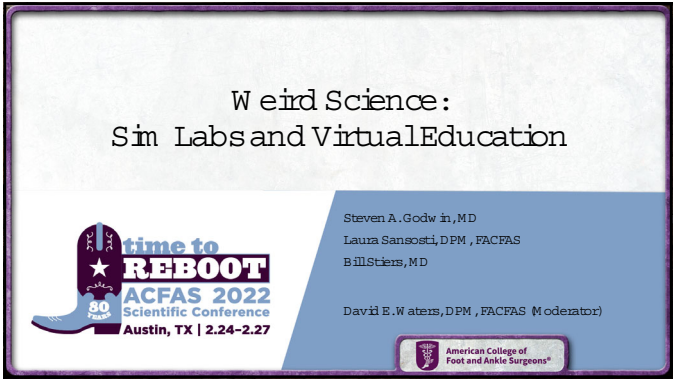




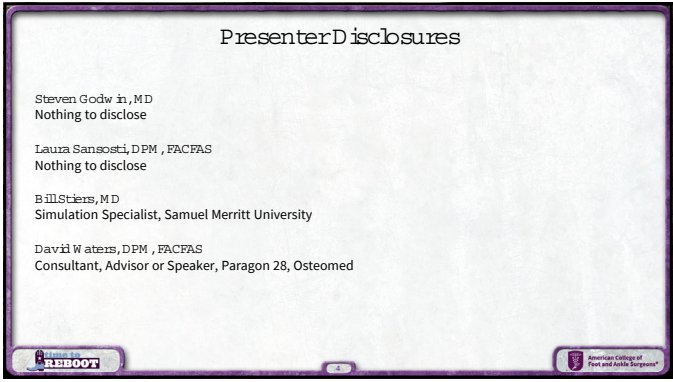
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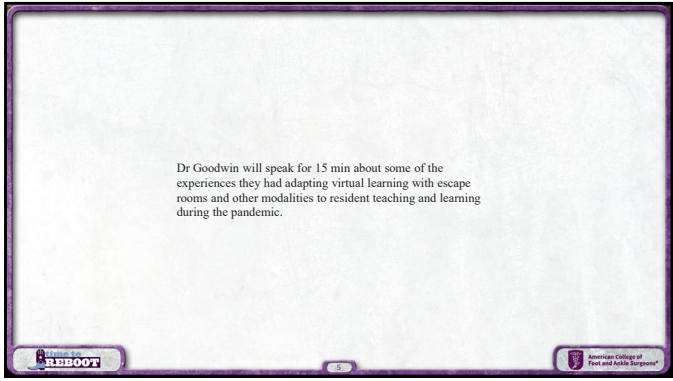
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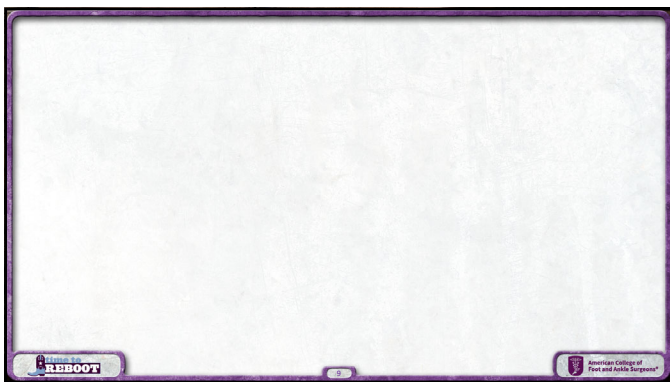
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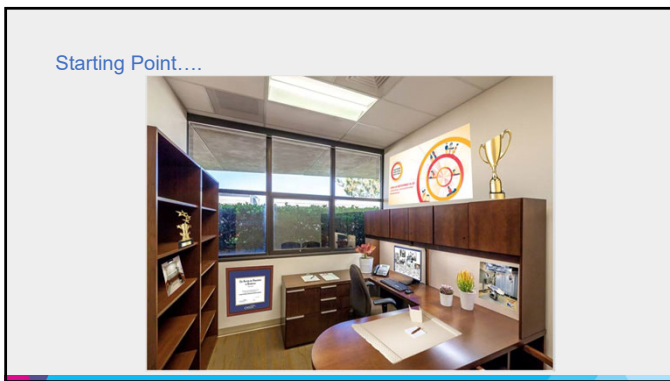


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Additional Information

- Kutzin, J. (2019). Escape the Room: Innovative Approaches to Interprofessional Education. *Journal of Nursing Education*, 59(6), 474-480. doi:10.3928/01484634-20190719-07
- Sanders JE, Kutzin J, Strother CG. Escape the Simulation Room. *Simulation & Gaming*. 2021;52(1):62-71. doi:10.1177/1046878120963591
- Kutzin JM, Sanders JE, Strother CG. Transitioning Escape Rooms to a Virtual Environment. *Simulation & Gaming*. 2021;52(6):796-806. doi:10.1177/104687812111035171

10



11

The Challenge...

When you get to the ED, things are all wrong!
Can you identify the differences?


Click on both images

 Two side-by-side photographs of an emergency department (ED) room. The images are identical but contain subtle differences that are highlighted with red boxes. A pink button labeled "Back to office" is located at the bottom of the slide.

12

The Process

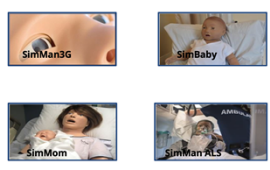
1. Image of our resuscitation room in the ED.
2. Used Adobe Photoshop to change the color and remove items from the image
3. Placed into Articulate Storyline 3
4. Highlighted changes and made them the "hotspots"



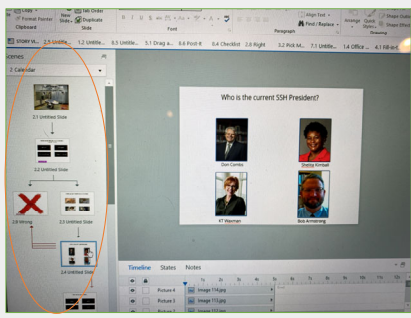
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Questions

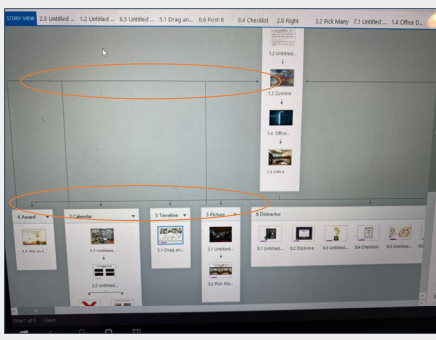
Which Laerdal simulator eyes do not close?



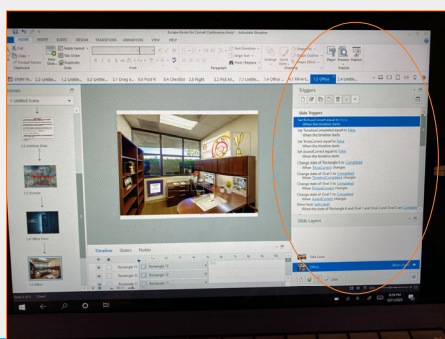
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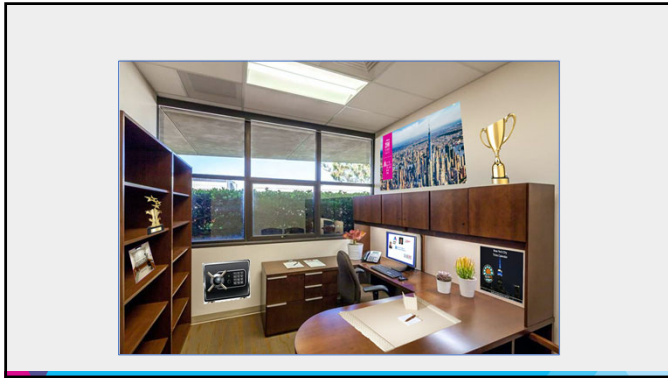


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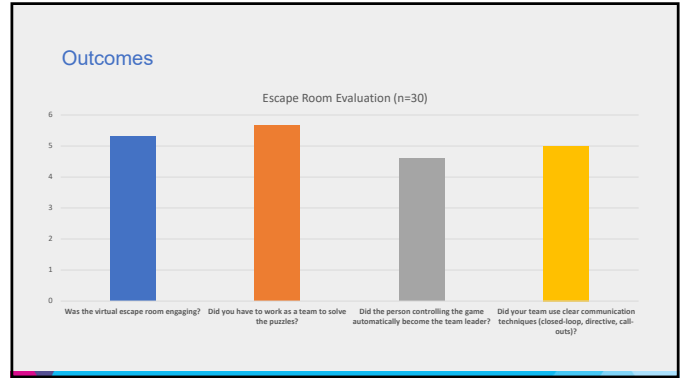
Perspective



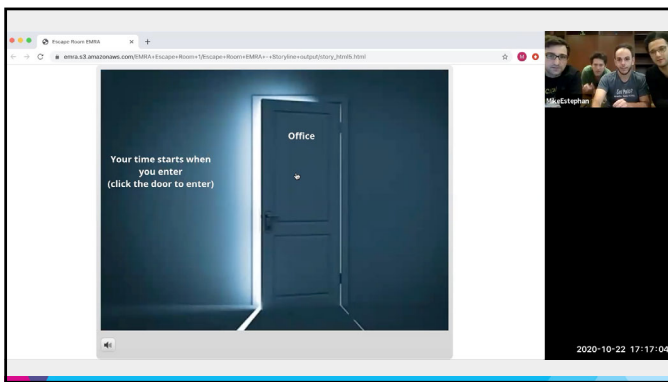
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22

Quality Improvement and Patient Safety 3- year Curriculum...

- Year 1 - 4 annual training events
- Year 2 - Complete IHI Basic Certification in Quality and Safety
- Year 3 - Documented completion of QI/PS Project

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University of Florida College of Medicine Jacksonville: Quality Improvement and Patient Safety Certificate System

Basic Required Program	Additional Resources	Longitudinal Yellow Belt Training	Faculty Development
<p>Institutional Quality Improvement and Patient Safety (QI/PS) Three-Year Curriculum:</p> <p>Overall Goal: To increase knowledge of patient safety and quality improvement concepts and principles among residents and fellows at UF Health Jacksonville through a variety of interactive workshops. Trainees have three years to complete all activities and are designed to build on foundational material and experiences.</p> <p>Annual Review Activities:</p> <ul style="list-style-type: none"> QI/PS Curriculum & RCA Wap QI/PS Operations Simulation Jan Sept Nov Jan April May Has been Completed? 	<p>Additional Resources:</p> <p>Additional IHI Directed Quality Improvement and Patient Safety Resources (see table):</p> <p>Overall Goal: To provide training programs with additional resources to augment the basic program campus curriculum regarding quality improvement and patient safety for residents, fellows and faculty.</p> <p>Links and Materials Available in the Quality Improvement and Patient Safety Curriculum Canvas site.</p>	<p>Longitudinal Yellow Belt Training:</p> <p>Intervenor 2 or 3 year Quality Improvement and Patient Safety Certificate Program:</p> <p>Overall Goal: To provide residents, fellows, faculty and staff a more comprehensive Quality Improvement and Patient Safety experience and to earn Yellow Belt certification.</p> <p>To learn of Yellow Belt training Dates, contact hschick@jax.hca.com and check in https://jax.hca.com. Registration is through https://jax.hca.com. Program participants who wish to provide a course to their entire program, should contact Susan Herndl-Hickson.</p>	<p>Faculty Development:</p> <p>Faculty Development options: via case or certificate programs.</p> <p>Overall Goal: To provide faculty with additional career value and via case Quality Improvement and Patient Safety training opportunities.</p>

The Why: As outlined by the ACCME, "graduate medical education is the crucial step of professional development between medical school and autonomous clinical practice" where physicians are developed to provide safe, equitable, affordable and quality care. Faculty of trainees are expected to have training in quality improvement and patient safety to demonstrate delivery of safe, quality, cost-effective, patient centered care and by providing practice-based analysis to improve quality of care and patient safety. Moreover, residents are expected to show competence in systematically analyzing their practice by using quality improvement methods and to further work with interprofessional teams to enhance patient safety and improve quality of care. This is often achieved by identifying system errors and implementing system-based solutions. In addition to Core Program Requirements surrounding faculty and trainee training and accomplishments to show competence in quality improvement and patient safety, the ACCME has published CME (Clinical Learning Environment Review) Pathways to Excellence to achieve safe and high quality patient care. These pathways are assessed by the ACCME CLEP site visitors by meeting with academic institutions to determine the extent to which programs and institutions are accomplishing CME recommendations. The following UF College of Medicine Jacksonville Quality Improvement and Patient Safety Basic Required Curriculum addresses specific CME pathways when completed in its entirety for trainees. Further, Faculty development programs outlined include institutional certification and training for QI/PS and for projects to contain interprofessional teams, systems thinking and the additional and goal of cultural penetration and peer-reviewed publications.

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PATIENT SAFETY ESCAPE ROOM

- Grant funded multidisciplinary simulation based educational experience for learners from all departments at the UF COM-Jacksonville
- Interactive assessment of knowledge gained during the Quality Improvement and Patient Safety curriculum (QIPS)
- Simulated patient room with multiple hazards designed to challenge learners ability to identify and mitigate safety threats in real time.
- Completion of room requires the submission of IDInc report. Ensuring learners have familiarity with our institutions event reporting system.
- Group debrief utilizing "plus/delta" emphasizing team work and interdisciplinary communication

25

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Rapidly Expanding Options....

TeleSim-

Current studies being performed on TeleSim versus In-person

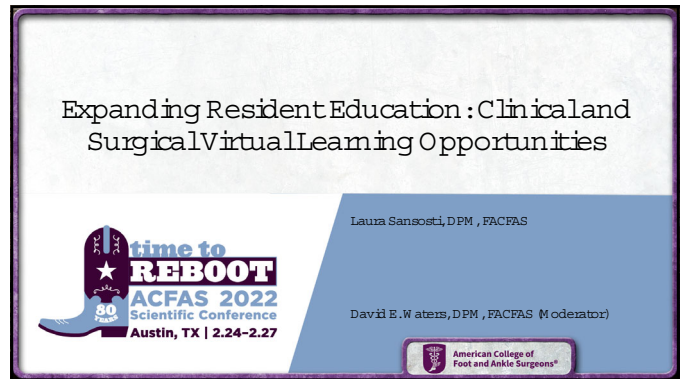
Expanding and Adapting Virtual Simulations

Example: Immertec Immersive Real-time Surgery Training

28



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Resident Learning Opportunities

- Hands-On Learning
 - Increased number of workshops, larger space, timed sessions for smaller groups
- Surgical Skills Lab at TUSPM
 - Suturing
 - Sawbones
 - K-wire drivers
 - Hardware sets
 - Arthroscopy
 - Ex-Fix

3

Resident Learning Opportunities

- Clinical Simulation Center
 - Surgical Skills Laboratory, Workshop Space
 - Standardized Patient Experiences
 - Emergency Medicine Scenarios
 - Ultrasound

<https://www.comcast.com/brands/sonosite-a-portal>
<https://www.meritline.com/Products/meritline-a-portal>
<https://www.meritline.com/Products/meritline-a-portal>

4

Virtual Learning Opportunities

- Clinical/Surgical Training
 - Headset allows a “through the eyes of a clinician” viewpoint
 - Those viewing/collaborating remotely can interact in real-time
 - Clinician Extender and Virtual Teaching

<https://myhippo.life/>

5

Virtual Learning Opportunities


- Clinical/Surgical Training
 - Faculty wear voice-activated headsets during exam, procedures, treatments
 - Residents watching remotely can communicate with faculty and hear physician/patient interactions
 - Shared controls with a co-host option gives another the ability to respond to questions in real time.
 - Can record for asynchronous review

<https://myhippo.life/>

6

Virtual Learning Opportunities

- Diminishing hands-on training opportunities for medical and nursing students is negatively impacting their ability to gain essential clinical skills, evolve their bedside manner, and build empathy.
- VR platforms have been shown to be most useful in the delivery of practical skills, surgery guidance, practice of other complex clinical procedures – increases accuracy and success rate of the clinician, increases collaboration.




<https://www.ossovr.com/healthcare-professionals>

7

Virtual Learning Opportunities


- Virtual Reality
 - Headset with hand controls
 - Content development with many of our industry partners
 - Some factor in ACGME milestones and run by physicians
 - Not as costly as would think
 - Can be used as supplemental learning when can't be in OR



8

Virtual Learning Opportunities


- Controllers generally allow for gross motor only; haptics for tactile perception and audio through headset
- Can get multiple headsets and have several in virtual OR together
- Practice and Test Modes
- Realistic Visuals
- Live Fluoro
- Builds muscle memory for positioning, etc.
- Best results when use is built into a curriculum and used in research – continuous/consistent implementation sees best gains



9

Virtual Learning Opportunities

- Assessments
 - One for each module; shows date, time to complete, number of hints requested, compares to peer average, your time vs. expert time, where hints were requested, shows where improvement needed
 - Mastery/proficiency scale - shows what you need to improve to hit next level, will decrease with time lapses
 - Each resident has own log in; Program admin has log in to view everyone's progress and performance, review each resident's metrics, see how active they each are.
 - Can set a curriculum requirement – ex: once a week they have to spend X amount of time



10

Virtual Learning Opportunities

Journal of Surgical Education
Volume 77, Issue 4, July-August 2020, Pages 968-977

ORIGINAL REPORTS
Randomized Trial of a Virtual Reality Tool to Teach Surgical Technique for Tibial Shaft Fracture Intramedullary Nailing

Chad DeMay MD, MS * R. Brian Zukhymki BS * Nicholas Cavallaro BS * Chad Shewell MD * Steven Zoller MD * Zach Burke MD * Samuel Clarkson BS * Howard Park MD * Nicholas Bernthal MD * Nelson F. Soodroo MD *

DOI: 10.1016/j.jse.2020.07.001

Does Virtual Reality Improve Procedural Completion and Accuracy in an Intramedullary Tibial Nail Procedure? A Randomized Control Trial

Mark B. Choudhry, Michael J. Parvizi MD, Michael Weaver MD, Krigen Koyan MD, Mark B. Cassador MD, PhD

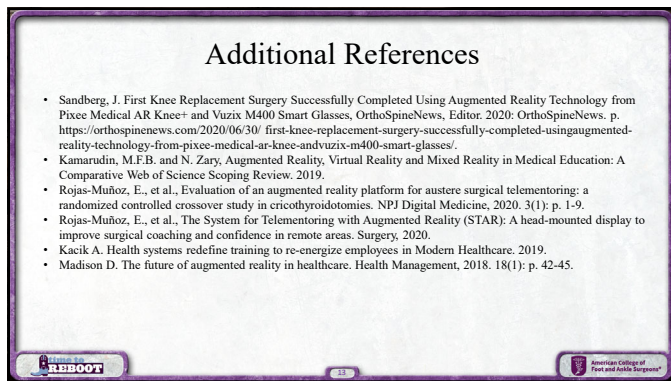
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Virtual Learning Opportunities

Study	Population	Interventions	Outcomes
Leggitt et al. 2017 ¹⁷	24 surgical residents rotate to anterior approach total hip arthroplasty	11 randomization with 12 trainees completing conventional preparation and 12 trainees completing a 6-week immersive VR training using handsets and a VR medical operating room.	VR trainees demonstrated conventional training requiring less guidance and instructor assistance, completing more key steps, more accurately handling instruments, and finishing in less overall time in a procedure-based assessment.
Walker et al. 2020 ¹⁸	107 first-year residents learning arthroscopy	Non-random assignment to one of three groups: conventional training only (Group A), the residents' conventional training with a single, non-VR supplemental session (Group B), or residents' conventional training with 10 hours of VR training (Group C, 6x residents)	VR-assisted residents (Group C) outperformed both other groups in procedure time and measures of accuracy and instrument handling in two procedure-based assessments.
Kawachi et al. 2017 ¹⁹	10 residents who had completed 1000 hip arthroscopies and 10 faculty who had completed 1000 hip arthroscopies each	All participants completed a procedure-based assessment that measured procedure time, with issues and bone abrasions, and instrument handling.	Faculty outperformed residents showing a consistent learning experience in the arthroscopy and performance in the simulation supporting the potential utility of the simulator and its potential to assist in the development of basic arthroscopy skills.
Hosner et al. 2019 ²⁰	14 first-year residents who had completed one cadaver total hip arthroscopy	11 randomization with 7 trainees completing conventional preparation and seven virtual total hip arthroscopies completing their second cadaver total hip arthroscopy	VR-assisted residents outperformed the conventionally trained residents in all steps of the OpenSurgical Competency Operating Room Evaluation in the second cadaver total hip arthroscopy.
Lynch et al. 2020 ²¹	16 senior residents and 7 faculty	11 randomization with 8 residents and 3 faculty completing conventional preparation and 8 residents and 4 faculty completing a single immersive VR training using handsets and a VR medical operating room	VR-assisted participants outperformed the conventionally trained participants in mean time and instrument handling while under simulation, supporting the potential utility of the simulator and its potential to assist in the development of basic arthroscopy skills.

Virtual Reality in Orthopedic Surgery Training

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2

Benefits of Simulated Medicine Rotation

- Creation of a “SAFE CONTAINER” for learning.
- Safe for “patients” and learners.
- No harm no foul environment. We celebrate mistakes.
- Hands-on gathering of data, interpretation, critical thinking and clinical reasoning in decision-making.
- If they are correct, the patient gets better, if not.....then reflection of decision tree. Debriefing. Why did you go left when you should have gone right?
- See themselves in video recordings of their patient encounters.
- Learn to treat patients and families.

3

Benefit of Simulated Medicine Rotation

- Delivery of consistent clinical experience to each monthly cohort.
- Hospital rotations are a “luck of the draw” as to what pathology is in house.
- Students are not simply observers doing work for residents.
- Students are placing “hands on” the patients and gathering their own facts, ordering their own studies, and interpreting information.
- Developing treatment plans, consults, and discharge plans.

4

Instructional Materials Used

- CSPM is fortunate to have enormous resources for simulation.
- Harvey Cardio-pulmonary Task Trainer by University of Miami
- Laerdal 3G High-Fidelity SimMan Manikin
- Standardized Patients
- SimIQ audio/video recording
- ONLINEMEDED.ORG
- Support Staff

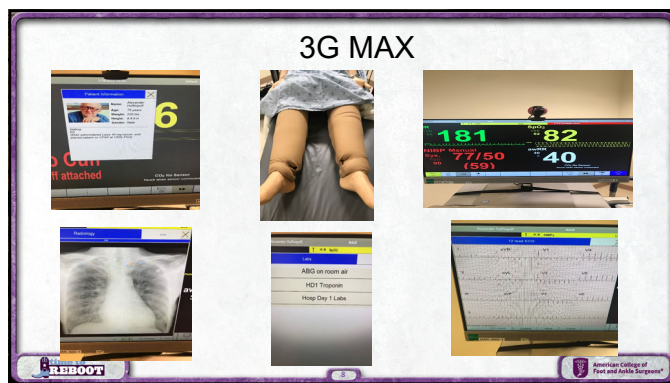
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Harvey Cardio-pulmonary Trainer

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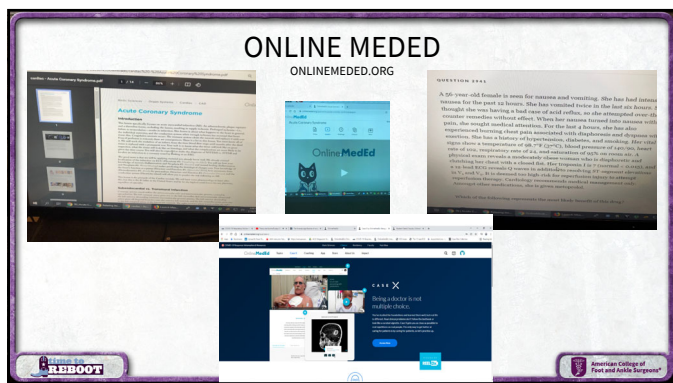
Standardized Patients

- Students learn the choreography of patient examination.
- SP are professional actors who follow a script of their complaint.
- Learners develop their skills as compassionate providers, who learn to listen first, and then guide the patient to uncover the answers.
- “Please, tell me how I can help you.”
- Practice interviews using open ended questions.
- Patients will tell us what is wrong, we just need to ask the right questions.
- The answer is not the important element, it is the question.

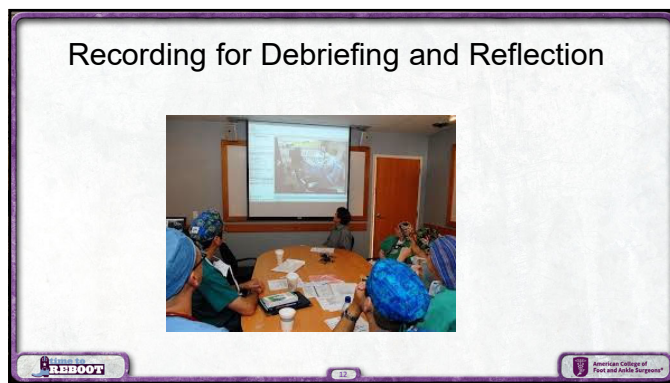
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