Simulation Innovation: The Wave of the Future

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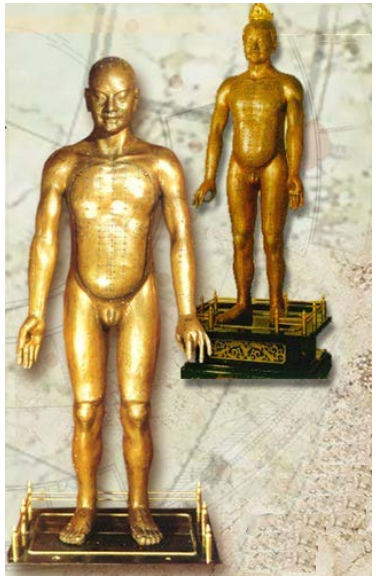
Humble Beginnings…

- 1900–1600 BC Babylonia, clay livers were discovered and believed to be used to determine the outcome of an illness.
- 960–1279 CE (The Song Dynasty in China), physicians used life-sized bronze statues to teach surface anatomy and acupuncture. These simulators had organs and holes for needle insertion.
- 1501-1600 CE Europe, Since acquiring dissected material was not easy, difficult to preserve, and illegal, wax figures were made. The Catholic Church only permitted wax body parts, rather than human dissections.



Humble Beginnings…

- 1644–1912 CE (The Ch'ing Dynasty), used female figurines carved out of ivory to meet the needs of male physicians who were not allowed to examine women.
- 1701-1800 CE, A surgeon named Giovanni Antonio Galli designed a glass uterus with a fetus to train midwives and surgeons during childbirth, which is the first documented evidence of SBT

20th Century

- in 1911, Martha Jenkins Chase, a doll maker, made a doll to train nurses on dressing, turning, administering medication, and transferring patients.
- In the 1940s, the US Army used manikins to teach medical corpsmen and nurses medical techniques

Resucitation Anne

- The story says that her body was pulled out of the Ricer Seine in the late 1880's and showed no signs of violence, thus the suicide claim. Considering the state of her skin and features, some specialists have estimated the girl to be no older than 16 years of age. The pathologist at the Paris Morgue was reportedly so fascinated by the female's beauty, he made a wax death mask.
- The pathologist wasn't the only person charmed by her calmness and beauty as numerous copies of the death mask were created, to the point where many Parisians kept it at home as fashionable morbid fixture.
- Peter Safar and Asmund Laerdal, the creators of the first aid mannequin Resusci Anne, chose the Seine woman's death mask as the face of the CPR doll. As the mannequin was used for millions of CPR courses throughout history, "L'Inconnue de la Sine" has been dubbed "the most kissed face" of all time.

High Fidelity Sim Breakthrough

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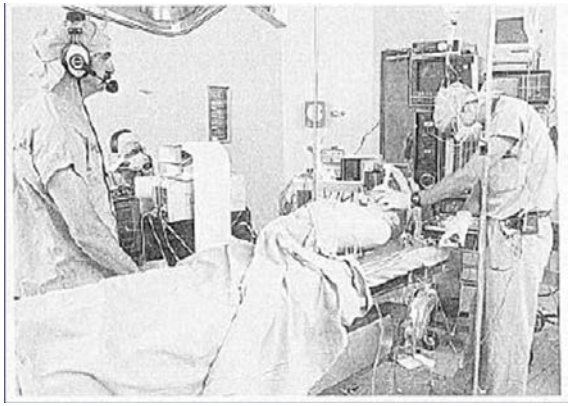
- In the 1980s, a high-fidelity (HF) simulation was resurrected from a previous failed attempt with SimOne created by Drs. Abrahamson & Denson in the 1960s. Dr. Gaba developed a comprehensive anesthesia simulation environment (CASE). Dr. Gaba went on to assist in making computerized manikins. These HF simulators were the basis for the present-day simulators.



Simulation Boom in Nursing

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- Mostly onlu used in medicine, anesthesiology
- Nursing Simulation mostly consisted of
  - Task Trainers
  - Standardized Patients

Simulation Boom in Nursing

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- Early 2000s, less than 100 US Nursing schools used High Fidelity Simulation (about 66), close to 1000 in 2010.
- Dr. Wendy Nehring and Dr. Felissa Lashley created the Critical Incident Nursing Management modeled after Dr. Gaba's Conseptual Framework in 2002.
- Dr. Pamela Jeffries 2003 grant led to (2005) Jeffries Simulation Model now NLN Jeffries Simulation Theory or Framework
- Dr. Kathie Lasater (2006/7) Clinical Judgment Rubric/Model

Benefits of Sim

- Promotes Critical Thinking, Communication Skills, Interprofessional Skills, and Self-confidence
- Simulation establishes a bridge between theory and clinical practice. Students are able to understand a skill, because they can see it and apply it on a patient simulator.
- Through simulation, nursing students may practice their abilities and clinical skills, make errors that will not be fatal for the patients, and repeat the process (more than once) leading to mastery.

The Future of Simulation

VR

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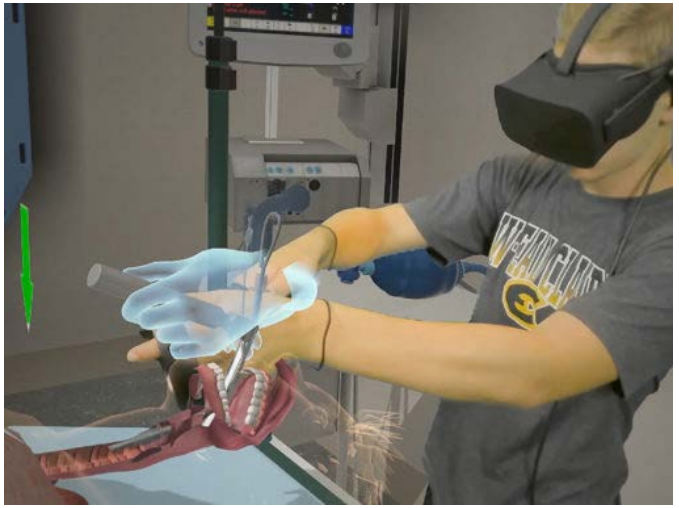
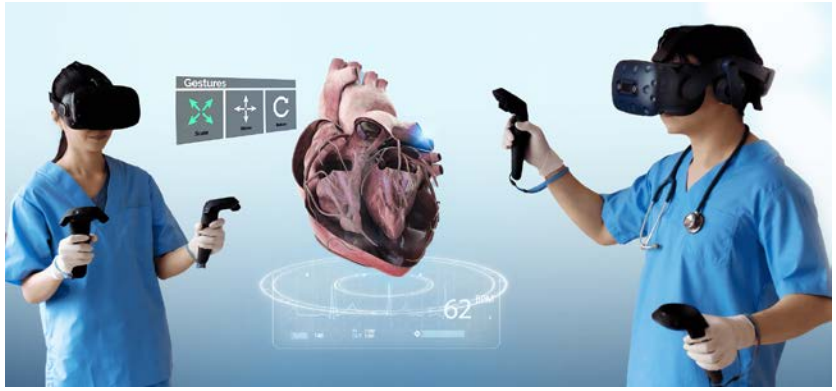
VR, XR





The Future of Simulation

Holographic Technology

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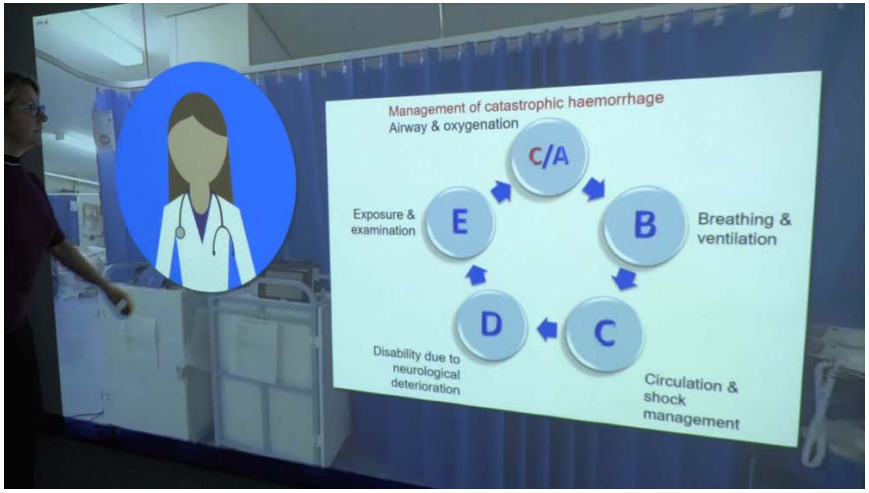

The Future of Simulation

AI assisted

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- AI-driven virtual patients
  - History & Physical
  - Therapeutic Communication/End of Life
- Adaptive Learning
  - Learn and adapt to scaffold learning
  - Predict success and design for remediation
  - Clinical Decision making and confidence

How We Are Leading Simulation at HMH

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- VR Physical Assessment
- 360 Simulation
- Virtual Escape Rooms

References

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