Simulation Applications at Michigan Medicine and Modeling & Simulation Collaborations

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UM Medical Simulation circa 1892
Simulation in Healthcare

• Disclaimer
Michigan Medicine

Patient Care Activity FY 2016
• Patient Clinic Visits  2,320,254
• Hospital Discharges  48,793
• Surgical Cases      54,342
• Deliveries          4,400
• Emergency Dept. Visits 104,219

Michigan Medicine: Key Facts
• Licensed Beds   1,000
• Faculty Members 3,514
• Nurses          ~5,000
• Residents in Training 1,199
• Medical Students 708
• Employees       26,000
• Hosp ranked #6 and Med School #9 nationally USNWR
• $287m NIH awards
• 2.3m sf Medical School space
• Scope of simulation-based education (SBE) in clinical training in academic health systems
• Requirements for SBE on the rise
• System-based learning
• M&S groups at UM
Medical

• Patient assessment
  – Exam
  – Triage
• Management
• Procedural skills
• Team training
Surgical

- Core skills
- Laparoscopy
- Endoscopy
- Robotic surgery
- Endovascular
• Board requirement
  – Laparoscopy required and endoscopic and robotic surgery anticipated (ABS)
  – Communication, professionalism and technical skills for anesthesia (ASA)
• Utilized in essentially all medical schools and most teaching hospitals, but not required by most boards or Joint Commission
System-based learning

- New trainee
- Team training
- Medical device evaluation, testing and training
- Facility design
- New facility assessment
- System performance
M&S

- Training tools
- Preop planning
- Tissue scaffolds & implants (Oto)
- Device design (BME)
- System/safety design (CHEPS)
- Lean (Integrative Systems & Design)
- Pharmacokinetics (Coll of Pharmacy)