Technology Now
Timely Topics for Academic Medical Centers
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Simulation in Medical Education

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Simulation is an educational strategy that relies on imitation of aspects of patient care through standardized patients, manikins, virtual reality or combinations thereof. Use of simulation benefits patients, learners, medical educators, and practicing care providers. Patient safety literature shows that simulation prepares learners for clinical practice without risk to patients. This has been studied in numerous domains, including technical procedures, clinical assessment, teamwork and communication. Simulation provides a competency based learning and assessment alternative to the unpredictable clinical arena, as it allows learners to go through a structured curriculum and undergo standardized assessment. Pedagogical theory supports simulation based on the notion that expertise is acquired through repeated practice guided by feedback and reflection. While simulation can and should not replace practice-based learning at the bedside, it is a powerful strategy to augment clinical learning that should be fully integrated into medical education across the continuum of learning to benefit learners, educators and most importantly, patients.

Potential Benefits
- Improves patient care
- Reduces errors
- Enhances clinical learning objectives with engaging role experiences: patient management, teamwork, communication, and leadership
- Procedural skill building
- Provides clinical opportunities early in medical education
- LCME/ACGME allow for simulation to substitute for certain live cases
- Able to practice high risk – low volume procedures
- Opportunity for interprofessional learning
- Improved provider ability and reduced patient safety risk
- Improved training response for learners with specificity of objectives and feedback
- Learner/practitioner safety
- Improved communication and teamwork skills

Institutional Policy Considerations
- Governance by all stakeholders including administrators of hospitals and schools
- Policies and procedures manual
- Accreditation through ACS, SSIH, additional pending

Simulation Modalities
- Hi-fidelity manikins, robust physiological modeling and multi-state cases
- Virtual reality procedural trainers
- Virtual patients
- Task trainers, cadavers, ex-vivo models
- Standardized patients (clinical actors)
- Blended approaches

Delivery Models / Methods
- In-situ - simulators brought to actual workplace
- Mobile (truck) based
- Simulation center with control room
- Computer based or on-line

Infrastructure Support Necessary
- Facility infrastructure including audio visual and information technology support
- Biomed support
- Depending on scope, replicate clinical space
- Available space (simulation center, storage, access to clinical areas for in-situ)

Education Considerations
- Ability to integrate into existing curriculum
- Simulation is only a tool to teach learning objectives
- Utilization of simulation-based exercises for summative assessment
- Can be faculty and resource intensive

Development / Adoption Considerations
- Faculty champion needed from various departments
- Administrative support
- Governance structure composed of various stakeholders including administrators
- Well organized business plan
- Carve out footprint in the curriculum
- Ongoing pedagogical and technical training and development for faculty and staff

Financial Considerations
- Start-up costs – capital purchase, maintenance, warranty, life cycle
- Opportunity for cost savings on malpractice insurance
- Funding mechanism – potential client mix of UME, GME, CME/CEU, hospitals, and collaboration with other health professional schools
- Indirect costs such as faculty development
- Cost of procedure kits
- Center growth
- Faculty, educators, standardized patients, administrative/financial, and technical staffing

Additional Resources
- International Nursing Association for Clinical Simulation and Learning (INACSL)
- The Society for Simulation in Healthcare (SSIH)
- More online resources are available by scanning the QR code above or visiting www.aamc.org/gir