Simulation

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Intended Learning Outcomes

• Understand the variety of simulations used in health professions education
• Define the necessary components of a well-constructed simulation
Why are simulations useful?

• Learner-centered activity, experiential
  – Confidence
  – Competence
  – Safe for all parties involved
• Reproducible, standard setting for a team
• Rare clinical scenarios or procedures
• Training and rehearsal
• Formative and summative assessments
Simulations vary by domain

• Skill domains
  – Task trainers, surgical trainers, standardized patients

• Cognitive domains
  – Problem-based, patient-based, “table-top” exercises

• Affective domains
  – Teamwork, leadership, communication
Common elements

• Intentional **outcomes** that can be measured
• Fidelity: high versus low. Does it matter?
• Deliberate practice
• Reflection/de-brief
• Feedback

Outcomes

• Clear metrics or rubrics
  – Time on task
  – Accuracy
  – Communication
  – Patient outcome
• Transferable
• Persistence or retention
Common elements

• Intentional outcomes that can be measured
• **Fidelity**: high versus low. Does it matter?
• Deliberate practice
• Reflection/de-brief
• Feedback

Fidelity

05.01 Simulation
High versus Low

• Assumptions about high fidelity simulators center around authenticity
  – Task is similar or as close to real-world as possible
  – Higher authenticity means ‘better’ transfer
• When each is compared to a no-intervention group, both hi/low sims show impact on performance
• However, when compared to one another there is minimal advantage

Norman, Dove, and Grierson. Medical Education. 2012. 46(7):636-647
Go High or Go Low?

• Consider cost, access, intended outcomes

• Progressive fidelity
  – Low: Novice and High: Expert

• Be creative! Use easy to obtain items
  – Butcher, craft stores, gelatin

• Too much cognitive complexity can distract from the task

Common elements

- Intentional outcomes that can be measured
- Fidelity: high versus low. Does it matter?
- Deliberate practice
- Reflection/de-brief
- Feedback

Deliberate Practice

• Goal is to develop expert performance
• Identify recognizable components of desired task or cognitive activity
• Consciously practice, repeat, practice, repeat
  – “10 years, 10,000 hours”
• Establish connections, memories, automaticity

Ericsson KA. Acad Med 2004;79 (Suppl 10):70-81
Common elements

• Intentional outcomes that can be measured
• Fidelity: high versus low. Does it matter?
• Deliberate practice
• Reflection/de-brief
• Feedback

Reflection on performance

- Purposeful review of thoughts, process, outcomes
- Supportive environment
- Identify opportunities for improvement
- Debriefing the team
Common elements

• Intentional outcomes that can be measured
• Fidelity: high versus low. Does it matter?
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Feedback

• Variety of sources both during and after
  – Haptics
  – Participants, observers, patient, equipment data
• Videotaping, audiotaping
• Checklists or global rating scales
Summarize...

- Sims vary
- High/low
- Formative
- summative
On-line resources
