Development and Standardization of Simulated Clinical Scenarios to Measure Nurse Errors

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Clinical errors are a national concern
Slow progress in identifying organizational and human factors that contribute to errors
Error measurement as progress impediment
  - Large data sets
  - One-on-one observation
  - Costly, impractical and time-consuming
Ongoing Challenges…

How best to:

- Reliably measure clinical errors
- Assess the effect of interventions to reduce errors/improve safety
Simulation

- Detect errors while they are occurring
- Shed light on factors contributing to errors
- Create permanent recordings for subsequent viewing and analysis
Purpose

- Develop and standardize *nine clinical scenarios* involving patient actors to examine the effect of a mindfulness intervention on nurse attention and error rate
- Three scenarios pre, post, 3 mo follow-up
- Report on scenario development and standardization
Approach: Development

- Nine scenarios
  - Developed by two nurse clinical experts
  - Centered on a common underlying problem: compromised oxygenation
  - Contained a number of challenging situations with potential for errors of omission or commission
Nine Scenarios: Compromised Oxygenation

- Sickle Cell Crisis
- Adult Respiratory Distress Syndrome
- Pleural Effusion
- Open Appendectomy
- Head Injury
- Pneumonia/Agitation
- Pulmonary Embolus
- Pneumothorax
- Oversedation
Assuring Quality

- Three additional nurse experts reviewed written scenarios and provided input on:
  - Realism
  - Completeness
  - Logical presentation
  - Suitability for nurses with some medical-surgical experience
Nature of Scenarios

- Each scenario involved two actors
  - Patient
  - Distractor (family member, student nurse)

- Environmental distractors
  - Phone ringing
  - Television blaring
  - Fire-alarm signaling
Scenarios played out:

- Study subject (nurse)
  - Read chart for 2 min
  - Entered patient room ‘in response to call light’
  - Began to care for patient as primary nurse away
  - Was videotaped while performing ‘assessments’ and ‘interventions;’ information from camera crew
  - Scenario ended at 10 min or when MD ‘paged’
  - Two hand-off opportunities (MD and nurse)
Standardization

- Written Instructions to:
  - Camera Crew
  - Study Subjects
  - Research Assistants
  - Patient Actors
- Scripts
- Video practice sessions
Rating by Experienced Nurses

- Experientially complete all scenarios
- Rated them for:
  - Integrity (realism, completeness, clarity)
  - Difficulty and complexity
  - Emotional reactivity (distracted, impatient, irritated, worried about performance, confusion re: what to do next)
Scenario Selection for Study

- Initial goal was to make all nine equivalent on level of challenge and emotional response
- As experienced nurses rated scenarios; research team modified to achieve equivalence (four pilot studies)
- More reasonable to work with scenarios that consistently scored as low, moderate, high
Scenario: Low Challenge

- **Diagnosis:** Over-sedation
- **Embedded Challenge:** Groggy patient on epidural pump; medication bag labeled and delivering full-strength pain medication while order is written for half-strength dosage
- **Distractor:** Family member weepy, concerned that patient is less and less responsive, “Could this be a TIA?”
Scenario: Moderate Challenge

- **Diagnosis:** Pneumothorax
- **Imbedded Challenge:** Patient only speaks Spanish; Is difficulty breathing due to exacerbation of longstanding COPD or a new acute condition?
- **Distractor:** Student nurse enters to check vital signs; wants to “help” with her limited conversational Spanish
Scenario: High Challenge

- **Diagnosis:** Pneumonia/Hypoxia
- **Embedded Challenge:** Patient fell out of bed and hit head. Is disorientation due to head injury following fall or due to hypoxia from worsening pneumonia?
- **Distractor:** Nursing assistant comes in to complain about workload and interested in leaving early; is extremely persistent
Conclusions

- Developing simulated scenarios with patient actors is challenging and time consuming.
- Error opportunities and distractions can be imbedded within each scenario.
- Rating scales are useful for determining level of challenge and emotional reactivity.
- Modifications can be made by altering clinical condition of ‘patient’ or ‘distractor’ behavior.
Best Strategy…

- Look for patterns of difficulty and emotional reactivity and embrace them
- Accept that given the ‘patient’s’ clinical condition, little can be done to greatly change scenario’s level of challenge
- May be of value to have a battery of scenarios that are consistently of low, moderate, or high challenge
Unexpected Study Outcomes

- Such scenarios may be of value for clinical teaching.
- Most all study participants expressed interest in ‘debriefing’ after study completion.
- Student participants indicated scenarios would be useful for building competence and confidence prior to graduation.
Funding Source: National Council of State Boards of Nursing

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“Do No Harm”