INTEGRATION OF SIMULATION INTO AN UNDERGRADUATE NURSING CURRICULUM EDUCATION

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What is Simulation?

Simulation is a teaching technique in which students make assessments, exercise clinical decision making skills and provide interventions within varying levels of fidelity.

Students practice team work and communication skills.

The scenarios are based on specified learning objectives, guided preparation and reflection to reinforce student self discovery and outcomes.
Simulation Process

- Learning in a risk free environment
- Interactive learning
- Repeated practice of psychomotor skills
- Immediate faculty feedback (prompting)
- Increased exposure to a variety of clinical events
- Teaching moments
EDUCATIONAL PRACTICES
Active learning
Prompt feedback
Teacher/student interaction
Collaboration
High expectations
Diverse learning styles
Time on task

TEACHER
Clinical Specialty
Technical Savvy
Developing
Expertise
Support—Time, Money, Mentorship

STUDENT OUTCOMES
Learning/Knowledge
Clinical Decision Making
Performance Competency
Communication Competency
Team Leadership
Professional Behavior
Patient Safety
Self-confidence

TEACHER OUTCOMES
Evidence Based Practice
Scenario Development
Guided Reflection
Self-confidence
Peer Feedback

Simulation Design Characteristics
Objectives
Evidence based practices
Fidelity in the simulation environment
Complexity
Cues
Guided Reflection

Model adapted by Kastenbaum, 2006 from Jeffries, 2005

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Benefits for Students

- Competent evidence-based practitioners - actions based on assessment and knowledge.
- Innovative Professionals - behavior is adaptive and creative.
- Experience provided – opportunity to know what to expect.
Faculty Role...Good Practice...

1. Encourages student/faculty contact.
2. Encourages cooperation among students.
3. Encourages Active Learning.
5. Emphasizes Time on Task.
Hunter College Simulation Integration

- Inter-disciplinary team to initially investigate simulation across the U.S. (UG Director; Faculty; Media/Technology Expert; Librarian; Lab Coordinator)
- Site visits to view what other facilities were doing; share experiences.
- Decide on purchase of mannequin.
- Begin process of Faculty and Administration “Buy-In”.
Process of Integration

- Purchase scenarios (NLN).
- Development of Integrating Simulation into Nursing Curriculum Handbook for Faculty.
- Development of Faculty Preparation Sheets.
- Development of Student Preparation Sheets.
INTEGRATING SIMULATION INTO THE NURSING CURRICULUM

Outline:
- Why simulation?
- What is simulation?
- Knowledge on how to implement a simulation day
- The Simulation Process Itself – a Step by Step Account
- Documentation - EHR
Instructors Guidelines for Simulation Experience

- Overview of Simulation; Time Frame
  Expectations

- For the Simulation Itself:
  - Roles during Simulation
  - Scenario
    - Clinical signs immediately visible
    - Additional Information, Medical History
    - For Simulation Technology Team/Preparation of Simman Simulator
      - Equipment List
      - Medications and Fluids
      - Documentation Forms
Instructor Guidelines

- CLINICAL INSTRUCTORS:
  - Students roles
  - Student Simulation Learning Objectives *(very important)*
  - Proposed Correct Treatment
  - Time Frame for Scenario *(based on the treatments {which are number}, developed down to minutes, what should be completed within 5 minutes; 10 minutes; etc…})*
  - Debriefing:
    - Some possible Nursing Diagnosis’
    - Debriefing Overview/Possible Discussions

- Students then document *(EHR Documentation software)*
Instructors Guidelines

- Additional information given to faculty:
  - Pathophysiology of simulation condition
  - Types related to condition (if related)
  - Indications for surgery
  - Indications of condition (pre-existing conditions)
  - Standard procedure information (i.e.: hanging blood)
  - Try to give as much information to faculty
Student Preparation Sheets

- Team approach/Roles during simulation
  (what are the various roles; random assignment)
- You-Tube videos to watch prior to simulation
- Media Center Videos/Modules to be completed prior to simulation
- Simulation Scenario
Simulation Scenario
Acute MI/Cardiac Code

3pm:

- Carl Shapiro is a 54 year-old male who travels frequently. He was seen in the Emergency Department at 12:30pm for complaints of chest pain, diaphoresis, and shortness of breath. He was treated in the Emergency Department with Aspirin and two sublingual Nitroglycerin. Chest pain improved with Nitroglycerin administration. IV was started in the ED and is infusing at 100mL/hr. Ordered lab values are pending. Physician/Nurse Practitioner wants to be called as soon as the labs are available. Patient is receiving oxygen at 4 L via nasal cannula with SpO2 values at 97%. Chest pain was last rated as a “0” following 2nd Nitroglycerin and 1 inch Nitropaste topically. He has been admitted to the Telemetry Unit.

- Clinical signs immediately visible:
  Alert and responsive

- Does not appear to be in any acute distress
- **Additional Information, Medical History:**
- **Patient data:** Male, age 54 years old. Weight 242 lbs (110 kg.). Height 69 inches (1.75 meters)
- **DOB:** 7/19/XX
- **MR#:** PCS71900
- **Allergies:** NKA

- **Prior medical history:** Has a history of hypertension. He states he takes “water pills” for his blood pressure (he is not sure of the name of the pill) and has been trying to exercise and lose weight but admits it is very hard when he travels. He smokes less than ½ pack of cigarettes a day and drinks alcohol occasionally. He describes his work as “stressful”.

- **Recent medical history:** Recent admit from Emergency Department with chest pain, diaphoresis and shortness of breath.
Simulation Learning Objectives:
- Identifies the primary nursing diagnosis
- Implements patient safety measures
- Evaluates patient assessment information including vital signs
- Implements therapeutic communication
- Implements direct communication with multidisciplinary team members
- Demonstrates effective teamwork
- Prioritizes and implements Physician/Nurse Practitioner Orders appropriately

Pending Diagnostic Studies
Cardiac Enzymes (CK-MB { creatine kinase/MB isoenzyme being highly specific for injury to myocardial tissue; exceed normal ranges within 4-8 hours of myocardial injury and decline to normal within 2-3 days}, troponin levels); CBC, Chemistry profile
X-Ray: Chest
12 Lead ECG
After Admission to Telemetry Unit (4:00pm)

Mr. Shapiro begins to complain of nausea and has one episode of vomiting. Diaphoresis becomes profound with advanced shortness of breath. Unrelieved with increased oxygen or additional Nitroglycerin.

Results of Stat Lab:

- CK-MB – 299 IU/L
- Troponin – 3.3 ng/ml
- CBC:
  - Hct - 0.38
  - Hgb - 132 g/dl
- Potassium – 2.8 mEq/L
- Magnesium – 0.98
- Calcium – 8.7
- BUN – 88
- Creatinine – 2.3
Simulations We Use

- Junior First Semester – (Noelle) C/Section with Pre-eclampsia
- Junior Second Semester – Post-Operative Hemicolecctomy Patient (Pain management; post-op care)
- Senior First Semester – Acute MI/Cardiac Code
- Senior Second Semester – Postoperative Hip Arthroplasty/Blood Transfusion Reaction

- Will be developing more simulations for graduate students; RN Pathway; Accelerated programs
Evaluation Strategies

- **Student perceptions...**
  - Discuss ‘anxiety’ prior to experience; not truly ‘real-life’ so act differently
  - Notice how they actually ‘communicate’ or more precisely ‘not communicate’
    - Notice how they:
      - ‘talk to each other; not to pt
      - ‘giggle’
      - stumble over what to say to pt
      - don’t wash hands
      - basic assessment skills not conducted (O2 NC not in place)
Evaluation Strategies

- How did sim impact on student performance?
- Is student being a reflective practitioner (are they learning from experience and integrating it into their practice/ways of knowing?)
Debriefing Evaluation

- Main essence of our process:
  - Excellent way for students to ‘see themselves’ in action
  - What they do correctly and incorrectly
  - How they actually engage with others
  - How they speak on phone (pretend call to surgeon)
  - Discussion of proper procedure

- Our lab tech documents sim/debriefing…use his notes as part of our overall evaluation
- If necessary, bring group back for 2nd experience or a group of students who require additional assistance
- Will bring students into my office for unprofessional behavior or communication
Clinical Instructor Evaluation

- Studying our clinical instructors who are conducting simulation:
  - Their perceptions, attitudes, and concerns
  - How they felt prepared/unprepared for experience (prep sheet/handbook)
  - What could have been done differently
  - How was the debriefing process
  - Environment conducive to learning experience
  - How did they perceive their own performance (what would they do differently before/after sim exp)
Final Thoughts

The strength of simulation as a teaching strategy is that the student selects the relevant information needed to function in the scenario.

An exciting technology, but it is only a form of technology...it is still up to faculty to make this effective.
References


Thank you so much!

Please contact me if you have any questions or would like additional information:

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