We Value Learning Through Simulation
As We Reach for the Future in Simulation Innovation
A MULTI-PATIENT CAPSTONE SIMULATION

Following a Pedagogy Grounded on Integrated Theory & Clinical Competencies

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Background:

Evidence-based practice within healthcare delivery, validates the value of skilled, proficient, and knowledgeable nurses who demonstrate effective leadership, skillful competencies and effectual critical-thinking patterns for a broad patient population.

Integration of Blooms Theory with the foundation of nursing education using simulation speaks to the culture of learning, based on synthesis of cognitive, psychomotor and affective learning applications as they relate leadership, safety, caring and excellence.
Introduction:

Exploration of standardized simulation applying Blooms Theory and the Social Learning Theory, facilitates opportunity to integrate, coaching and align quality learning experiences as they relate to QSEN, DECC’S and ANCC Standards of Practice for simulation.
01 Objectives
Objectives:

• Introduce a conceptual framework for a capstone simulation that integrates theory, critical thinking and clinical competencies into three simulated patient care scenarios with compromised disease conditions.

• Integrate knowledge, and theory into a capstone application using simulation to bridge the theoretical component with the clinical components of nursing process.

• Demonstrate the utilization of nursing process in a variety of roles to promote, maintain and restore the health of the clients served in a simulated critical care setting.
Objectives:

• Demonstrate integration of clinical reasoning, communication and leadership principles using simulation as an assessment instrument for skills competency, precision and understanding.

• Explore benefits of standardized simulation following Bloom's Theory Methodology

• Explore a standardized format for simulation that includes:
  • Student/faculty preparations and coaching
  • Leadership patterns, Teamwork & Collaboration using effective problem solving and communication strategies
Objectives:

Explore multiple patient care situations that provide:

• Implementation of effective critical thinking patterns
• Leadership and synthesis of knowledge focusing on point of care
• Evidenced-based practice as well as quality safety measures specific to three different patient care scenarios.
• Engaged learning activities that align with the Texas Board of Nursing for simulation Learning and Laboratory Clinical practice
02 Methodology
Methodology:

**Bloom’s Theory:**

1. Identify the psychomotor skills, precision and articulation of the required knowledge acquisition.

2. Develop an evaluation rubric that includes required skills acquisition according to the cognitive, affective, and psychomotor determinants of successful performance.

**Project Design:**

Project design integrated a Blooms Theory Methodology with inclusive concepts of Safety Culture and Social Learning. Project focus incorporated cognitive, affective and psychomotor skills acquisition. This conceptual approach was integrated into clinical preparation and application with an emphasis on prevention strategies of clinical errors, in addition to effective communication tactics for safe practice.
Methodology:

Bloom's Theory Simulation Model

**COGNITIVE**
- Course Content
- Critical thinking for mastery
- Critical content for mastery
- Problem Solving
- Scenario Development
- Pre-test Performance
- Post-test Performance
- Pre-Simulation Session

**PSYCHOMOTOR**
- Clinical Behaviors
- Skills
- Precision of Skills
- Simulation Performance
- Remediation
- Reinforcement

**AFFECTIVE**
- Debriefing
- Evaluation Outcomes
- Scenario Revision
Project Description:

• The focus of this project is to provide senior nursing students a comprehensive experience to apply advanced critical thinking patterns and key skills applications in a multiple-patient simulation.

• The students will move through three scenarios that include ARDS, Acute Coronary Syndrome and Brain Attack.

• Primary emphasis of this experience is to provide students a comprehensive clinical review that includes:
  • Multiple System Assessments
  • Leadership
  • Nursing process applications
  • Delegation and prioritization of care
  • Effective evaluation strategies
Simulation Tools:

Simulation Software:
• Sim View Sim Capture
• B-Line
• Virtual Learning Tools
• Sim-Pad Technology

Equipment:
• High Fidelity Simulators
• Mid Fidelity Simulators
• Mannequins
• Electronic Simulated Equipment
Focus of Simulation Experience:

**PRIMARY**
- Safety
- Quality of Care
- SBAR Communication

**SECONDARY**
- Integrated Leadership & Management Strategies based on critical thinking applications:
  - Prioritization of Care
  - Delegation
  - Assignment
  - Supervision
- Effective execution of Nursing Process

**TERTIARY**
- Effective on-going evaluation
- Re-evaluate plan of care based on:
  - Post-intervention
  - Assessments
  - Expected outcomes
03 Framework
Conceptual Framework for Multi-patient Capstone Simulation:

Integrated Skills Practice & Critical Thinking Applications

Comprehension
Application
Analysis
Synthesis
Evaluation
Knowledge
Framework Overview:

**Knowledge:**

Introduction to nursing foundations:

- Applications of principles in nursing practice
- Identifying trends and sequencing in nursing practice
- Utilizing critical thinking and decision making practices based on knowledge

**Equipment:**

Knowledge development examples:

- Assessments
- Pharmacology
- Nursing basic- advanced skills
- Medication administration
- Comprehensive simulation review
- Indicators for nursing research
Framework Overview:

**Comprehension:**

Demonstrate knowledge acquisition in various capacities:

- Class discussion (pre-sim)
- Pre-test & post-test performance
- Simulation performance
- Evaluating outcomes
- Classroom dialogue
- Interpret outcomes utilizing critical thinking skills
- Prioritizing care
- Extrapolating information to make decisions upon actions based on evaluations
- Root cause analysis simulation experience
- Create new questions for future research.
Framework Overview:

**Application:**

Using critical thinking, identify problems and determine actions plans to resolve patient conditions:

- Integrate knowledge, principles, techniques and rules with applications conducive to different situations
- Root Cause Analysis to determine better outcomes
  - based on knowledge application
  - standards of practice
- Develop Nursing Diagnosis
- Nursing care plans
Framework Overview:

**Synthesis:**

- complex simulations and demonstration of higher level critical thinking
- effective communication strategies during simulation
- identifying effective plan of care in simulation practice
- post-conference simulation dialogue based on knowledge application, comprehension of prior information and evaluation of the simulation experience
- evaluating simulation operations to promote enhanced learning experiences.
Simulation Design:

Pre-Simulation Student Preparation
- Scenario Background
- Sim Questions

Pre-Simulation Briefing
- Disease Process
- Etiology
- Manifestations
- Assessments
- Nursing Process Measures

Begin Simulation
- Disease Process
- Etiology
- Manifestations
- Assessments
- Nursing Process Measures

Debriefing
- Student Reactions
- Peer Feedback
- Faculty Feedback
- Dialogue
- Summations of the experience

Provide Coaching
- Fine Tune Skills
- Guide Practice
- Stimulate Critical Thinking
- Clarify Questions

Referral & Remediation
Simulation Process:

Planning & Collaboration:
- Curriculum integration from course faculty
- Faculty participation
  - Planning
  - Simulation Process
  - Debriefing

Pre-Briefing (for three scenarios):
Discussion of Disease Process:
- Etiology
- Manifestations
- Pathophysiology
- Assessments
- Interventions
- Expected Outcomes
Simulation Process:

Provide opportunity to become familiarized with the simulation setting

- Equipment
- Medications
- Locations of needed supplies

Provide clarification of any questions
Student Simulation

Roles:

• Nursing Supervisor (Entire Unit)
• Charge Nurse
• Treatment Nurse
• Assessment Nurse
• Social Worker
• Case Worker
• Pastoral Care
• Family Members
Simulation Process:

Simulation:
- Report for three different simulated patients given
- Students divided into groups of three students
- Each group will simulate for 45 minutes and report off to next group.
- All three scenarios simultaneously going at the same time.
- Each student will care for all three simulated patients
- Simulation progresses until all students have moved through all three scenarios.
- Time frame depends on number of students simulating
  - 8 hours to provide sufficient pre-briefing, simulation, and post-debriefing and evaluation
Simulation Process:

Throughout simulation integrated coaching & teaching provided

Benefits:

• Fine-tuning skills
• Focus on safety
• Elevate level of leadership skills and critical thinking applications
• Focus on competencies as they relate to:
  ▪ Management of Care
  ▪ Safety and Infection Control
  ▪ Health Promotion
  ▪ Psychosocial Integrity
  ▪ Physiological Integrity:
    • Medication Administration
    • Reduction of Risk
    • Physiological Adaptation
Debriefing:

- Student Reactions
  - Assumptions
  - Feelings
- Peer Feedback
- Faculty Feedback
  - Investigate observed actions
  - Focus on curiosity of the observed action
  - Focus on patience and understanding
  - Get to the root of the observed behaviors
Debriefing:

• Dialogue
  • Knowledge base
  • Focus on the situation
  • Bridge in past experiences
  • Discuss limitations in simulation learning environment
• Summations of the experience
Evaluation & Referral:

Remediation:
- identify learning deficit
- clinical instructor reinforce learning
- reassess learning
- deficits identified
- refer student to simulation coordinator for further remediation
05 Performance Measures
Theory Based Critical Thinking

& Acute Respiratory Distress Syndrome Competencies:

- Physical Assessment
- Assessment of pulmonary and radial wound sites for redness, pain, swelling and drainage
- Identify symptoms of hypovolemic shock
- Interpret finding of chest x-ray, EKG and ABG’s
- Identify the need for preload replacement therapy
- ETT Tube suctioning skills
- Introduction to the Ventilator
- Understand the concept of rotating sleep surface bed
Theory Based Critical Thinking & Acute Coronary Syndrome:

- Cardiac Assessment Skills.
- Pulse Oximetry
- Analyze EKG
- Assess for thrombolytic therapy
- Administering nitroglycerine
- Metoprolol Administration
- Administration of Heparin infusion
- Foley Catheter Insertion, assessment & documentation
- Interpret EKG and lab values
- Prepare for PTCA
- Evaluate oxygenation
- Evaluate chest pain
- Assess level of consciousness
Theory Based Critical Thinking

& Brain Attack

- Defines brain attack pathology
- Analyzes neuro-assessments related to brain attack.
- Performs focused neuro assessment
- Anticipates diagnostic interventions & medications
- Safely administers thrombolytic therapy.
- Prioritizes implementation of orders
- Evaluates and monitors patient’s response to interventions provided.
- Evaluates situation and determines appropriate delegation of duties.
06 Integrated QSEN Model
QSEN-Based Framework:

- Patient Centered Care
- Teamwork and Collaboration
- Evidence Based Practice
- Quality Improvement
- Safety
- Informatics
- Professionalism
Standardized Format

Bridging Critical Thinking Patterns with Theory-Based Concepts:

• QSEN Rubric
• Integration of theoretical Knowledge
• Integrated critical thinking and a nursing process framework that includes clinical decision-making
  • Formulate an individualized patient care plan that include management of care
• Quality Based Clinical Competencies
  • Skills Performance Competencies
  • Scenario QSEN Skills Competencies
  • QSEN Competency Categories
• Prioritize the implementation and approach to nursing care according to evidence based critical pathways
QSEN-Based Rubric

Remediation:

• Nurse asks for help from team when needed assistance is required for best outcomes. Evidenced by:
  • Function competently within own scope of practice as a member of the healthcare team
• The nurse acts as a team leader in meeting all patients needs. Evidenced by:
  • Assume role of team member or leader based on the situation
• The nurse communicates professionally and respectfully with all members of the care team. Evidenced by:
  • Communicate with team members, adapting own style of communicating to the needs of the team and situation
Evidence-Based Practice:

- Nurse consults with physicians regarding assessment. 
  Evidenced by:
  - Base individualized care plan on patient values, clinical expertise and evidence 
- Nurse incorporates literacy level into the care plan. 
  Evidenced by:
  - Consult with clinical experts before deciding to deviate from evidence-based protocols
QSEN-Based Rubric
For Simulation

**Quality Improvements:**

- Seek information about outcomes of care for populations served in care setting
- Identify any gaps in the charting
QSEN-Based Rubric

For Simulation

Safety:

• Communicate observations or concerns related to hazards and errors to patients, families, and healthcare team. Evidenced by:
  • Awareness of charting discrepancies
  • Follows all the NPS Goals including two patient identifiers
  • Double check for medication administration when appropriate
• Use National Patient Safety resources for own professional development and to focus attention on safety in care settings
07 Outcomes
Outcomes:

Student Performance Measures Based On:

- QSEN Rubric
- Scenario Performance Outcomes
- DECC’s Competencies
- ANCC Essentials of Baccalaureate Nursing Education Standards.
- Simulation Evaluation Rubric
- Clinical Skills Competency Rubric

Improved:

- Clinical performance outcomes
- Critical thinking applications
- HESI Performance
- Simulation Evaluation Rubric
- Clinical skills Competency Rubric
Outcomes:

Performance Outcomes
Based on Conceptual Model:
• Knowledge
• Comprehension
• Application
• Analysis
• Synthesis
• Evaluation

Observed Improvements:
• Clinical confidence
• Competency of quality care

QSEN-Related Improvements:
• Teamwork and Delegation
• Safety
• Professionalism
• Assessment Tools
• Pre & Post Tests
Concluding Thoughts:

This capstone simulation exercise was designed for senior students preparing for professional practice. Project Outcomes demonstrated that…

**Participating Students:**

- Navigated critical thinking patterns and advanced clinical applications
- Explored Leadership and Delegation strategies in various nurse roles
- Benefited from coaching strategies consistent with evidenced based practice in nursing
- Evaluated with a QSEN based assessment tool of clinical competencies and provided remediation where needed.
- Provided positive feedback of the simulation experience
Avenues for Success

- Become a Simulation Center
- Simulation Software
- Simulation Equipment
- Remediation Framework
- Standards for Simulation

Become a Simulation Center
Credits:

Credits for Photography:

• Hutchins, Randy (Photographer). (2016, June). *Santa Monica Beach* [Photograph]. Santa Monica, CA.

• Tik, Jan. (Photographer). (2005, April 26). *Seattle Central Library* [digital image]. Retrieved from https://www.flickr.com/photos/15363357@N00/11133016 Licensed under Creative Commons Attribution 2.0 Generic license. Changes were made.
References:


Soar over the horizon with knowledge, finding new ways to use what you know.

-Shirley Hutchins