SIMULATION AS AN EDUCATIONAL TOOL FOR SYNTHESIZING COMPLEX
PATIENT CARE ASSESSMENT AND SKILLS

Denise Jacobson Glover
B.S.N., California State University, Chico, 1990

Theresa Dillon Lehman
B.S.N., University of San Francisco, 1978

PROJECT

Submitted in partial satisfaction of
the requirements for the degrees of

MASTER OF SCIENCE

in

NURSING

at

CALIFORNIA STATE UNIVERSITY, SACRAMENTO

FALL
2009
SIMULATION AS AN EDUCATIONAL TOOL FOR SYNTHESIZING COMPLEX PATIENT CARE ASSESSMENT AND SKILLS

A Project

by

Denise Jacobson Glover

Theresa Dillon Lehman

Approved by:

______________________________________, Committee Chair
Debra Brady, RN, DNP

______________________________________, Second Reader
Brenda Hanson-Smith, RNC, DNS

______________________________________
Date
Denise Jacobson Glover

Students: Theresa Dillon Lehman

I certify that these students have met the requirements for format contained in the University format manual, and that this thesis is suitable for shelving in the Library and credit is to be awarded for the thesis.

________________________________      __________________
Ann Stoltz, RN, PhD                               Date

Department Chair
Department of Nursing
Abstract

of

SIMULATION AS AN EDUCATIONAL TOOL FOR SYNTHESIZING COMPLEX PATIENT CARE ASSESSMENT AND SKILLS

by

Denise Jacobson Glover
Theresa Dillon Lehman

The purpose of this project is to explore the benefits of simulation in providing nursing educators with an innovative, progressive, scenario-based template to utilize in the simulation environment. The current challenges in educating novice nurses include the lack of both faculty and clinical sites, shorter patient lengths of stay, and limited educational budgets. The increasing emphasis on safety in patient care emulates the focus in other high-risk industries and significantly affects the nursing education process. Healthcare simulation mimics real life clinical experiences in a risk-free environment, where students can safely practice patient interaction, assessment skills, technical skills, communication skills and interventions. Our project included the development of a multi-level simulation scenario based on a single complex patient case, and the validation of that scenario with first semester nursing students prior to their first clinical experience. Quantitative and qualitative evaluations positively demonstrated the effectiveness of the simulation experience.

_______________________, Committee Chair
Debra Brady, RN, DNP

_______________________
Date

v
DEDICATIONS

I would like to thank my husband, Jim Lehman, and my children, Natalie and Catherine, for their unending support during my masters’ journey. They provided both emotional and physical support during my many hours either in class or at the computer. Their encouragement was essential in my success and they are greatly appreciated. I would also like to thank my thesis partner, Denise, for her knowledge, support and encouragement during our years of graduate school and in the completion of our thesis project. (TL)

I cannot thank my family enough for their support during this process! My husband, Charlie Glover, gave me his never-ending patience and understanding. Both he and my parents, Kermit and Carol Jacobson, gave me all the time, support and childcare I needed to complete this project and my Master’s degree. Thank you to my children, Jason and Evan, for many hugs, for trying to understand when Mommy was busy on the computer again, and for being my inspiration. Finally, I want to thank my thesis partner, Terry, for a great working relationship, mutual understanding and support, humor and perseverance through the many hours of our project and the years of graduate school. (DJG)
ACKNOWLEDGMENTS

We would like to acknowledge Dr. Debra Brady for her continued support during our graduate school experience. We appreciate the time spent with us, encouraging our progress through the program, advising us on our thesis project, and pushing us to become the Master’s level nurses we are today.
TABLE OF CONTENTS

Dedications.................................................................vi
Acknowledgments.........................................................vii
List of Tables..............................................................x

Chapter
1. INTRODUCTION ......................................................... 1
   Statement of Collaboration........................................2
   Purpose of the Project.............................................2
   Statement of the Problem........................................3
   Significance of the Project.......................................5
   Limitations of the Project........................................7
   Conceptual Definitions..........................................7
   Organization of the Project.....................................8

2. REVIEW OF LITERATURE..................................................12
   Theoretical Frameworks of Simulation and Experiential Learning......12
   Benner’s Novice to Expert Theory................................13
   Kolb’s Experiential Learning Model (ELM)........................13
   Theoretical Foundation for Simulation................................14
   The History of Simulation and the Patient Safety Movement...........15
   Simulation in Healthcare Education................................15
   Patient Safety During Learning....................................16
   Challenges in Nursing Education and Patient Safety..................18
   Nursing Shortage....................................................18
   Lack of Clinical Placements and Experiences........................19
   Unprepared Graduates Impacting Patient Safety.......................19
   Simulation as a Paradigm Shift in Nursing Education................20
   Simulation for Skill Acquisition and Knowledge Synthesis...........20
   Simulation for standardization of nursing curricula..................22

   viii
LIST OF TABLES

Page

1. Table 1 Quantitative Frequency and Distribution………………………….. 38
Chapter 1
INTRODUCTION

The theoretical knowledge base and skill development of nursing practice is the focus of the nursing educator’s role in preparing novice nurses for entry into practice. As the current nursing workforce ages and nurses retire, the proportion of novice nurses entering the work force will increase. A national RN survey completed in 2004 by the Health Resources and Services Administration and released in March 2006 estimates the average age of the registered nurse as 46.8. Although it appears that baby boomer nurses are working longer, the projected retirement of these nurses would leave institutions with a lack of institutional memory and knowledge transfer (Hart, 2007). Therefore, the need to educate novice nurses is clear, but the challenges are multifaceted. These include the lack of clinical sites for training of students, lack of qualified nursing faculty and clinical staff (Waldner & Olson, 2007, p. 2).

Traditionally, nursing education has consisted of face-to-face didactic lecture, experience in hands on static skills labs, and bedside clinical practice with live patients. Shim, Brock and Jenkins (2005) state that “learning by doing is a long established means for facilitating knowledge acquisition, but it isn’t always practical or cost-effective…to practice with live patients” (p. 175). In 2000 the Institute of Medicine Committee on the Quality of Health Care in America (IOM) published the report To Err Is Human: Building a safer health system. This report explored the causes of medical errors and its cost in human lives. They focused on confronting
error in medicine and charging the Healthcare system to develop new and innovative approaches to performance improvement. The challenge of providing safe patient care while allowing the novice practitioner to gain experience is at the forefront of nursing education. Teaching innovations that include simulation techniques provide novice nurses with a curriculum of standardized complex patient care experiences may better prepare them to take on the challenge of providing safe patient care.

Statement of Collaboration

This project involves the collaboration of the authors, Denise Jacobson Glover, RN, BSN, and Theresa Dillon Lehman, RN, BSN in developing and validating simulation scenarios for undergraduate nursing education. These scenarios were implemented in the Simulation Learning Center at California State University Sacramento in the Fall, 2009 semester with first semester nursing students in their N18 Therapeutic Interpersonal and Group Communication in Nursing course.

Purpose of the Project

The purpose of this project is to explore the benefits of simulation through our meta-analysis, and provide nursing educators with innovative, progressive, scenario-based template to utilize in the simulation environment. The goals in completing this project are to add to the body of knowledge of simulation in nursing education; to increase the tools available to nursing educators; and to increase the ability of the novice nurse to synthesize knowledge, assessment and skills into the care of the hospitalized patient.
Statement of the Problem

In 2000 the Institute of Medicine OM released an alarming report that indicated a large number of United States citizens are actually victims of serious medical errors by the healthcare system. In this IOM report, To Err is Human (2000), the committee estimated 44,000-98,000 lives are lost to medical errors annually. While this loss is devastating, errors also significantly affect our health care in terms of national costs, estimated at 17 to 29 billion dollars per year. (p. 1). Less quantifiable, but no less problematic, are the costs associated with loss of public trust in health care providers, decreases in health care staff morale from providing less than perfect care, and society’s loss of productivity as a whole (IOM). The report mandated immediate changes; inaction is no longer tolerable because patient safety is at risk, and the time to learn from our errors is now.

The public outcry for reform in wake of the IOM report, and the concern expressed by healthcare regulatory bodies such as the Joint Commission for Accreditation of Healthcare Organizations (JCAHO), resulted in creation of National Patient Safety Goals (Joint Commission for Accreditation of Healthcare Organizations, 2003). Numerous organizations that look at delivery of healthcare and patient safety have also become involved. The IOM drafted five principles for designing safer healthcare organizations. While many of the principles targeted the health care system itself. The last three principles target effective team functioning, anticipating the unexpected, and creating a learning environment. Interwoven within these subjects is designing for recovery, which includes “making errors visible so that
they can be corrected before causing harm” (IOM, p.176). In addition to the Joint Commission and the IOM, the Robert Wood Johnson Foundation has funded the Quality and Safety Education for Nurses Project (QSEN). The goal of the project is to prepare future nurses with the knowledge, skills, and attitudes necessary to continuously improve healthcare quality. Through this project, QSEN faculty has defined quality and safety competencies for nursing. Areas of focus include patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety and informatics (QSEN, 2009). Simulation is a training and feedback method, which lends itself to these principles; learners practice tasks and processes in teams, in lifelike circumstances using models, gaining feedback to assist with improvement of skills. It allows for training of novice practitioners in problem solving and crisis management while keeping the patient safe (IOM, p.181).

Well-educated nurses with highly developed critical thinking skills are integral to the effort to increase patient safety in the hospital environment (Fero, Witsberger, Wesmiller, Zullo & Hoffman, 2009, p. 140). Unfortunately, economic limitations in pre-licensure nursing education and hospital orientation budgets for new hires limit the clinical time novice nurses have to develop these skills. Health care institutions are expecting novice nurses to come to their first job with highly developed skills to offset the limited orientation time (Waldner & Olson, 2007). However, students may not have encountered reproducible standardized clinical experiences in which to develop these skills in the hospital environment.
Educators are acutely aware of a plethora of issues contributing to inadequate clinical exposure, including limited student placements, lack of clinical instructors, increased patient acuity, and the limited number of patients due to shorter lengths of stay (Waldner & Olson, 2007). In addition, the heightened awareness of healthcare errors makes many patients reluctant to have students “practice” on them. Nursing education is now being forced to “think outside of the box” in the comprehensive preparation of its students by incorporating simulation into the nursing curriculum. Educators need to implement reproducible standardized clinical experiences that can help the student recognize actual and potential problems and intervene appropriately to treat simulated patients, without placing real patients at risk during the learning process (Nehring, Ellis & Lashley, 2001, p. 198). Simulation labs provide the opportunity to facilitate student learning in a controlled situation, where multiple variables can be included to develop synthesis and critical thinking skills. Furthermore, scenarios may be repeated, providing all students with consistent learning experiences.

Significance of the Project

The use of computer controlled life-like mannequins to simulate real patient physiological conditions is a relatively new educational modality. Many applications of this technology are yet to be explored, including the use of a single case scenario in multiple simulations to allow students to explore the complexity of patient care in manageable increments. This approach has not been identified previously in the nursing literature. One of the major factors contributing to medical errors identified by
the IOM report (2000) was communication between healthcare providers. In this project, students practice communication and organization skills in receiving report and planning care on a single patient case prior to entering the clinical setting. This case becomes the basis for three simulation scenarios in which the students practice various aspects of physical assessment and new clinical skills on preprogrammed simulators in a mock hospital setting. In addition, the scenarios involve interacting with a real person who plays the role of the patient’s family member. Volunteer registered nurses played the role of healthcare team members to facilitate development of communication skills.

Utilizing a variety of scenarios based on one complex patient case may help beginning students begin to interrelate new knowledge to previously experienced patient scenarios in a manner that will foster critical thinking in actual patient situations. By building new situations on a foundation of prior experience, students develop experiential knowledge and then apply it to new patient situations. Using the same case scenario, the students are able to build on a base of familiarity with the patient’s diagnosis and plan of care. They are then able to use the information gained to explore the patient’s physical illness and psychosocial issues that can arise. This exposure may prevent them from feeling overwhelmed, which can happen when practicing in a new clinical environment. Ultimately this gives the students a base for critical thinking in the clinical setting. With this project, we create a model for innovative active learning strategies that demonstrate the effectiveness of Kolb’s

Limitations of the Project

Several limitations of this project were identified. Financial support for simulation labs is not readily available; this has significant impact on schools of nursing as simulation experiences have a much lower student/faculty ratio than traditional skills labs and therefore are more expensive to offer. Hence this lab experience was offered only one day in the beginning of the semester, which limited students’ ability to repeat the scenarios to obtain better mastery of the content. Due to economic limitations, our project used a convenience sample of students for validation of the simulation scenarios, instead of the optimal double-blinded experimental design. Finally, evaluation data gathered for this project did not include information or feedback from clinical faculty on student organization, planning, or communication practices in the clinical setting.

Conceptual Definitions

According to DeYoung (2003), simulation is “the artificial representation of a phenomenon or activity. This constructed reality allows participants to experience a realistic situation without real-world risks” (as cited in Larew, Lessans, Spunt, Foster, & Covington, 2006, p. 17). Simulators can have different levels of reality called “fidelity; the more lifelike the simulator, the higher the fidelity or realism (Jefferies, 2007). Low fidelity simulation equates with the traditional skills lab that focuses on task and skill training with static mannequins or synthetic body parts. It allows
students to focus on one defined area, such as starting an IV on a simulated arm. Moderate fidelity, also called mid-fidelity, is a simulation experience that provides more realism, such as a life size mannequin with programmable breath sounds, but limited ability to respond to events. High fidelity simulation is an integrated and programmable experience that can respond to current events, and most closely mimics a human patient (Waldner & Olson, 2007). Debriefing is the phase in simulation that allows for identification of different perspectives and attitudes, links the experience to theory and skill technique, helps to develop a common set of experiences for thought, gives an opportunity to exchange feedback, and helps to reestablish a foundation of trust and purpose for those involved in the simulation session (Dreifuerst, 2009, p. 110.). Debriefing also allows students to reflect and process the emotions encountered during the simulation experience and to internalize meaning (Kolb, 1985).

Organization of the Project

A review of the relevant literature, and discussions with nursing educators identified gaps in current simulation curriculum development. Multiple search engines and web sites including, but not limited to, the Sacramento State Library, the Sutter Health Resource Library, EBSCOhost, Google, Google Advanced Search, CINAHL, e-print journals, PubMed, the American Association of Colleges of Nursing, the California Board of Registered Nursing, OVID, Metacafe, The National Institutes of Health and The Institute of Medicine were used to gather resources on the use of simulation in nursing education.
Numerous factors were involved in the choice of BJ as the model for the multi-level simulation scenario. Discussion with the nursing faculty indicated a need for an ischemic bowel and/or sepsis subject matter for use in the simulation courses for nursing students. Concern expressed by the nursing staff caring for BJ regarding numerous factors involved in her care led to the desire to practice this content in the simulation environment. The scenario created includes content to address patient safety, communication and clinical skills in assessment. This need was consistent with the focus of the first semester nursing curriculum including data collection, assessment skills and communication with others.

The design of the BJ scenario incorporates many aspects of nursing care. With the focus of the Joint Commission’s national patient safety goals (2009), contributing to safer patient care, inclusion of these goals in the simulation was essential. The focus on patient safety goals is disseminated throughout the multi-level scenarios. The goals targeted included two patient identifiers, medication safety, and accuracy in communication including SBAR reporting format. The goal to reduce the risk of infection is addressed by emphasizing hand hygiene throughout each scenario. Having the nursing student review and reconcile the patient’s hospital and home medications emphasizes reconciliation of medications across the continuum of care. The goal of patient and family participation in patient care is promoted throughout the scenario as this is identified as a weakness in the hospital environment. Lastly another major focus of the scenario was improvement of recognition of changes in patient condition and the necessity of communicating these changes with the physician.
In development of the BJ multi-level scenario, we relied heavily on the experiential learning theory of Kolb (1984) and the nursing theory of Benner (1984). The focus of Kolb’s experiential learning theory is on the initial experience of the student. The student then reflects upon the experience and conceptualizes the experience making connections and building relationships in their thought process. They are then able to draw from, and apply this experience as a foundation for decision-making during application of this learning in another situation. The BJ scenario provides this initial experience. The student is exposed first to the written history and chart information. They are then given report from a previous shift, adding to their baseline knowledge. Once this is complete, the student then progressed to the mid-fidelity station and used the previously gathered information to help with assessment of the patient and communication with the family. Finally in the high-fidelity station, the knowledge and experience they gained in the previous stations allowed the students to practice their newly learned skills. Debriefing post high-fidelity allowed for further reflective learning.

Benner’s nursing theory of the transition from novice to expert nurse is based on the accumulation of experience. The Benner model uses skill acquisition and clinical judgment to understand the clinical picture, requiring deliberate practice within an authentic environment (National Council of State Boards of Nursing [NCSBN], 2005). The novice nurse has only abstract principles and bits of information on which to base decision-making. Through exposure to real life situations and experiences, the abstract principles transition to concrete rules. The learning process then progresses, allowing
the nurse to see the patient as a whole. In the BJ scenario, the first semester nursing student is given time to gather data from information written in the chart. They were then able to listen to the report of the off-going staff to help organize and contextualize the information they had previously gathered. Once this occurred, the student experienced the assessment station, synthesizing the patient data, physical assessments and family interaction. They used the previously gathered data and their newly gathered assessment of patient and family to care for the patient. In the high-fidelity station, they experience the patient’s condition deteriorate and practice the end-of-life discussion. The multi-level experience provides a sound basis for experiential learning and exposure to all levels of care in a safe environment. In the remainder of this project, we will share our literature review and our scenario implementation with first-semester nursing students.
Chapter 2

REVIEW OF LITERATURE

The goals in nursing education are to provide the student nurse with consistent, challenging experiences to develop accurate, rapid patient assessment, basic critical thinking, sound nursing judgment, appropriate care planning, and effective communication with the healthcare team (Benner, 1984; NCSBN, 2005; Larew, et al., 2006). The hope is that this will produce a new graduate nurse who can rapidly assimilate into the professional nursing environment, utilizing the foundation of knowledge, experience and skills they gained in nursing school.

Nurse educators have historically relied upon clinical rotations to provide rich contextual and experiential learning for students. Yet this is dependent on the nature of the clinical opportunities provided to the student (Larew et al., 2006). The challenge for educators is delivering this wide range of patient experiences with our current environmental limitations. "Innovative ways that teach students about the real world of nursing in a cost-effective, efficient, and high quality manner are needed to prepare nurses for safe and efficient practice." (Jeffries, 2005, p. 102).

Theoretical Frameworks of Simulation and Experiential Learning

Two complimentary theoretical frameworks form the basis for this project, Experiential Learning Model (ELM) developed by Kolb, and Benner’s Novice to Expert, a nursing theory showing how practice expertise develops on an experiential continuum. Experiential learning is a concept utilized by both Benner and Kolb. According to Cornell University (2009), experiential learning actively involves the
students in the whole process of teaching and learning within a real-world environment, where the realistic problems and pressures that arise further shape their learning. The process is student-focused, while traditional teaching and learning is typically “teacher-directed, content-driven, text-oriented and classroom-based” (¶ 3).

Benner’s Novice to Expert theory

Benner's Novice to Expert, first published in 1984, describes the development of nursing expertise. Benner derived her theory from practice and she believes that theory alters or extends practice (Saver, 2009). The Benner theory recognizes that a nurse must progress from viewing a situation in concrete bits and pieces to being able to observe a situation. Then, through reflection, the nurse can understand the situation as a whole. Novices need significant oversight and direction in clinical situations, while experts intuitively understand clinical nuances and are able to act effectively on their understanding (Benner, 1984).

Kolb’s Experiential Learning Model (ELM)

Similarly, Kolb's model, based on the work of Lewin, Piaget and Dewey, describes learning as a process whereby concepts are derived from and continuously modified by experience (Kolb, 1984). He developed a circular model of experiential learning, which includes four elements: concrete experience, observation and reflection, forming abstract concepts, and testing those concepts in new situations. In this model, learning can begin at any one of the four points in the circle. According to Kolb’s theory, the learner has a concrete experience, then reflects upon what they
observed, forms an abstract concept about the experience and, lastly, tests this knowledge in situations in which the concepts are applied (Smith, 2001). The marriage of Benner's nursing theory and Kolb's learning theory explain the transformation of the nurse from novice to expert: "It becomes apparent then, that the transformation from novice to expert nurse occurs when experience is incorporated into existing knowledge patterns through a process of active reflection and conceptualization of experience" (Waldner & Olson, 2007, p. 7).

Theoretical Foundation for Simulation

Simulation dovetails perfectly with Benner and Kolb’s theories. Over time, students internalize what they see and experience during simulation as reality. “This acquired knowledge becomes part of the student’s experience bank and can be called upon in the clinical environment” (Haskvitz & Koop, 2004, p. 184). Simulation is an innovative way to offer experiential learning using a constructivist framework in a safe, clinically relevant environment. It can provide an interactive, interesting experience with concurrent cognitive, affective, and psychomotor components. Reflective learning, demonstrated by “thinking-in-action, thinking-on-action, and thinking-beyond-action” (Dreifuerst, 2009, p. 113), can be fostered by facilitated debriefing strategies after simulation, which provide opportunities to develop critical thinking, and clinical decision-making, reasoning, and judgment. Guided reflection is an essential part of experiential learning, promoting insight and enhancing knowledge and skill development (Decker, 2007).
The History of Simulation and the Patient Safety Movement

Simulation has long been a strategy used by the military, aviation corporations, the space program and the nuclear energy industry to practice critical skills in a safe environment (Bradley, 2006; Nunn, 2004). Though the primary goal of health care professionals is to offer the best quality care to their patients, systematic safety education has been lacking (Joint Commission for Accreditation of Healthcare Organizations, 2003). Simulation can provide this role with regard to error management, training for high-risk low-volume procedures, and assessing competencies. Total prevention of mistakes is unrealistic, as medical personnel are human and human beings err. Therefore, "simulation can be regarded as a mistake-driven educational method". (Ziv, Ben-David, & Ziv, 2005, p 193). Simulation allows participants to learn from their mistakes in a controlled environment. Learners can see the clinical implications of their errors, and then have the opportunity to intervene and rectify them. Coupled with constructive feedback and practicing good communication skills, simulation forms patterns of acceptable behavior for safe patient care (Durham & Alden, 2008, p 6). Used in this way, simulation with effective debriefing can help to break the healthcare culture of silence and denial regarding mistakes and their implications for competence (Ziv, Small, & Wolpe, 2000).

Simulation in Healthcare Education

Various types of simulation have been used in medical and nursing education for several decades as a training technique. As early as the 1960's, Laerdal produced the static mannequin Resusci-Annie for practicing resuscitation. The first computer
controlled simulated man was also produced in the 1960's, but it was prohibitively expensive and cumbersome to move. In the 1980's, Stanford and the University of Florida began using anesthesia simulators to practice crisis management (Bradley, 2006). Anesthesiologists and nurse anesthetist programs have been at the forefront of simulation since then, using simulation for training, crisis management rehearsal and competency testing (Jeffries, 2007). The IOM published "To Err Is Human" in 2000, and called for raising healthcare safety, accountability and reliability "to the levels achieved in other complex, risky industries" (Ziv et al., 2000, p. 490).

In 2001, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) addressed the nursing shortage in Health Care at the Crossroads, and recommended simulation as one viable strategy. The National League for Nursing has initiated several studies and promoted simulation in nursing education as an adjunct to traditional nursing education (NLN, 2009, p 113). Alinier and colleagues, in a journal compilation in 2006, stated that increasing use of technology in care and higher expectations on the part of patients have encouraged the development and use of new training tools in healthcare education. Simulation training enables experiential learning in a safe environment. The simulation experience incorporates communication, teamwork, situational awareness, decision-making and clinical skills (Alinier, Hunt, Gordon, & Harwood, 2006).

Patient Safety During Learning

The safety issues and ethical dilemma of having inexperienced nursing students placed in the clinical setting to care for complex patients without prior practice is no
longer an acceptable education model given the availability of new simulation technology. Educators have a moral imperative “to provide patients with the best possible care by the most experienced providers trained to the extent possible by modern means” (Ziv et al., 2000, p. 490). This can be accomplished by redesigning nursing curriculum with a primary focus toward patient safety and creating realistic, engaging simulated clinical learning experiences that the students value.

As the public has become aware of the safety issues in medicine and nursing, patients are increasingly reluctant to allow novice practitioners to care for them or perform clinical procedures on them. This further limits student experiences, and affects their comfort level with skills when they graduate and take on the RN role. This reluctance has also affected the educators’ comfort with having novices perform procedures on patients for the first time. "The old adage of see one, do one, teach one is no longer a viable educational method in the current medical climate" (Morgan, Cleave-Hogg, DeSousa, & Lam-McCulloch, 2006, p. 13). As educators, we have obligations and responsibilities to patients as well as our students. While our students trust us and expect us to provide them with accurate information, opportunities to practice what they have learned in the classroom under supervision, and fair methods of evaluation. We must constantly balance this need with our obligation to protect the patients from errors. “Our patients trust and expect us, as clinical practitioners, to use our cumulative knowledge and skills to provide them with the best care possible” (Haskvitz & Koop, 2004, p. 181). By focusing on synthesis of information, assessment, and skill development in a safe learning environment such as the
simulation lab, the learners' needs can be the highest priority. Then, in the clinical environment, patients can feel they are protected and the care is focused on their medical needs, rather than training students. (Ziv et al., 2000).

Challenges in Nursing Education and Patient Safety

We are facing unprecedented challenges in nursing that demand a paradigm shift in nursing education, like what is possible with simulation, if we are to realize the IOM patient safety vision. Specific issues confronting us include the combination of an aging population, aging nursing work force, and lack of nursing faculty that are creating a severe nursing shortage. In addition, there is a lack of clinical placements and variety of patient care experiences to build practice competence.

Nursing Shortage

In a presentation by Boller and Jones for the California Institute of Nursing and Healthcare (CINHC), it is reported that California ranks 49th in the United States in the number of nurses, with 544 RN's per capita here compared to the national average of 782 RN's per capita (Boller & Jones, 2007). In addition, the 131 California nursing schools only have the ability to educate half of the needed nurses, with 40% of qualified applicants denied entrance each term (Boller & Jones, 2007). To help meet educational needs, the California Board of Registered Nursing (BRN) now allows twenty-five percent of clinical hours to be in simulation (BRN, 2009). The problem is not unique to California. The University of Pretoria in South Africa reports their implementation of simulation was driven by a “shortage of teaching staff, the large
number of multicultural students, the need for small-group teaching and the call for a shift in the teaching-learning paradigm” (Treadwell & Grobler, 2001, p 476).

Lack of Clinical Placements and Experiences

Adequate clinical placements are another hurdle in nursing education. With increasing numbers of schools and limited numbers of clinical sites, competition for clinical placements is fierce. Nursing students may now attend clinical any day of the week, on any shift. The clinical area is where students practice the art and science of nursing, organizing patient care, using their assessments and evidence to make critical decisions, and communicating those decisions to the healthcare team (Clark, 2008). In addition, state nursing boards require a certain number of clinical hours for a student to graduate, so the need must be met.

Unprepared Graduates Impacting Patient Safety

Only 75% of the applicants who get into California nursing schools go on to graduate, and both employers and students report gaps in the new graduates' education. With hospitals feeling financial constraints, orientation time is limited and they are expecting new nurses to enter the workforce with “highly developed nursing competencies” (Waldner & Olson, 2007). According to the National Council of State Boards of Nursing (NCSBN), students report a lack of experience in delegation, supervision and knowing when and how to call the physician. On the employer side, the NCSBN reports that new graduates statistically make more errors, including charting on the wrong record, medication errors, contributing to treatment delays, missing or misinterpreting provider orders, making skill errors, and
failing to intervene in client elopement, falls, and avoidable patient deaths (Boller & Jones, 2007). JCAHO also states that the root cause of 90% of patient-related incidents is the inadequate orientation and training of staff (Landry, Oberleitner, Landry, & Boraziani, 2006). These errors can be significantly reduced when new nurses are more competent in clinical reasoning, communication and interpersonal relationships. (Boller & Jones, 2007). All of these skills can be practiced and developed using mid- and high-fidelity simulation (HFS). Consequently, CINHC is participating in the development of regional clinical simulation centers to teach these skills and provide standardized, validated evaluation tools (Boller & Jones, 2007).

*Simulation as a Paradigm Shift in Nursing Education*

The question becomes, “How do educators provide a realistic experience to novice nurses, allowing them to make mistakes and learn from them, while keeping the patient safe?” The benefits of human patient simulation (HPS) are clearly identified in the medical and nursing education literature as an effective answer to present questions and represent a paradigm shift in promoting experiential learning in nursing education.

*Simulation for Skill Acquisition and Knowledge Synthesis*

Using simulation allows the practice of psychomotor and communication skills without adverse consequences, and the repetition of these skills in a controlled environment add to their expertise. This increases self-confidence and professional role development (Treadwell & Grobler, 2001; Jeffries, 2005; Kneebone, Kidd, Nestel, Asvall, Paraskeva, & Darzi, 2002; American Association of Colleges of
Nursing Commission on Collegiate Nursing Education [AACN], 2008). Practice with simulation encourages acquisition of skills through experience, at the rate of the individual learner, and may provide transfer of the learned skills to the real patient environment (Bradley, 2006).

Not only is simulation useful with the very basic skill acquisition, but also it is a way to bring awareness to the complexities of routine practice and to recognize problems at an early stage, with the intent of solving them before they escalate to adverse events. "Ensuring that things go right is as important as knowing what to do when they go wrong" (Kneebone, Nestel, Vincent, & Darzi, 2007, p. 810). Simulation-based healthcare education is a unique approach to learning. It allows and then focuses on the making of mistakes and learning from this process, which is a powerful educational experience. This learning translates into the improved skill of the healthcare worker in the patient care area; the staff have learned how to cope with those errors should they occur in the clinical arena (Ziv et al., 2005).

Waldner and Olson (2007) report that educators are acutely aware of the multifaceted problem of inadequate clinical exposure. Factors include limited student placements, lack of clinical instructors, patients refusing to have students work with them, shorter lengths of stay, increased patient acuity, the inability to standardize clinical experiences and the possibility that debriefing after patient care may not take place at all. Simulation addresses these multiple concerns because

“Faculty can use the human patient simulator in beginning level courses to illustrate pathophysiological and pharmacokinetic principles, normal and
abnormal parameters, and changes based on critical health incidents or interventions, such as drug or intravenous fluid administration. The human patient simulator will respond in ‘real time’ to the interventions just as a real person would. Principles of physical assessment can also be demonstrated on the human patient simulator to beginning nursing students.” (Nehring, Ellis, & Lashley, 2001, p. 195).

Simulation for Standardization of Nursing Curricula

Human patient simulation provides the educator with the opportunity to offer every student interactive experiences with a specific variety of standard health conditions and critical events that are central to nursing knowledge and skill development. It is programmed to replicate an actual patient scenario, preserving patient confidentiality while “maintaining the consistency of the ‘patient care experience’ from year to year” (Nehring et al., 2001, p. 195). The HPS can also be used to demonstrate one scenario with a variety of different interventions, demonstrating how patients respond differently to various approaches. On the pediatric patient, the same scenario can be applied to children of different ages to demonstrate the physiological differences between them (Nehring, et al., 2001). Bearnson and Wiker (2005) qualitatively explored the use of HPS as a substitute for one clinical day in the first year of their nursing program and had positive responses from the students. Simulation as an adjunct to traditional nursing education is increasingly being examined by nursing schools and incorporated into nursing curricula. The American Association of Colleges of Nursing (AACN) has set
forth expectations of clinical experiences for Baccalaureate nursing students, which include exposing students to new technology, incorporating practice issues to the complex patient, and helping them to gain the tools to work in the unpredictable fast-paced workplace. Simulation techniques are becoming a useful adjunct to nursing education to help with this first exposure to the patient care environment (AACN, 2008). Using simulation as an adjunct to traditional education also gives the educators much more control over the curriculum, providing a more logical progression through the experience of patient care and allows the initial practice of integration of traditional cognitive-oriented learning, knowledge and skills (Ziv et al., 2000). In specialty training, such as critical care, skills mastery requires interaction with critically ill, unstable patients that may not be readily available in the clinical setting. Simulation is one bridge between theory and practice (Rauen, 2004).

Simulation’s Advantages Over Lecture Alone

When exploring the use of simulation, its advantages must be compared to that of the traditional educational pedagogy of lecture alone. Historically, nursing education has relied on the ability to discuss a patient scenario complete with the history and symptomatic presentation of the present illness. The discussion of the patient is dependent on the talent of the instructor to "paint a picture" of the patient’s disease. Then, ideally, the students will care for a patient with this disease process in the clinical setting. If that clinical patient is not available, the connection between the didactic information and the patient in the clinical area may be lost. This is especially true when looking at higher acuity patients with more complex health care needs.
The advantage of simulation experiences over lecture-based education is documented in the literature. Recent advances in the fidelity of simulation allow the instructors to reproduce clinical events that are believable, realistic and meaningful (Bradley, 2006). Medical curricula are moving away from lecture-based education and moving more towards experiential education. This hands-on approach is more focused on students learning by doing, and knowing "how" rather than knowing "all" (Morgan et al., 2006, p. e13). Simulation also implements all of the best practices identified in adult learning theory, where we see adult learners as more self-motivated, self-directed, interactive, and interested in real life issues. These practices include student-faculty contact, cooperation, respecting diverse learning styles, active learning and prompt feedback (Chickering & Gamson, 1999).

Both students and faculty report the simulation process is superior in that it is interactive, tests skills and decision-making and enhances learning (Feingold, Calaluce, & Kallen, 2004). Rauen, in her 2004 article in Critical Care Nurse, noted the emphasis in simulation is on the application and integration of knowledge, skills, and critical thinking. Compared to a classroom setting with a written test, simulation allows learners to function in the environment that is close to the actual clinical situation and to "think on their feet, not in their seat" (p. 47).

Adult learning is most effective when there is interaction and participation while learning, followed by relevant feedback. One main benefit of simulation learning is the ability to give immediate feedback. Simulation requires the learner to think through the data, organize their thoughts and make a decision regarding the possible
outcomes. This is more effective than lecture alone. Not only are the students taught in real time, but also they are able to practice these skills immediately, and gain timely feedback (Rauen, 2004).

Jeffries, in her work on simulation, also noted that didactic knowledge gained from simulation was retained longer than knowledge gained from lecture alone (Jeffries, 2005). Tuttle and colleagues found when training students to master technical skills, that the knowledge gained via simulation was retained longer than skills taught in lecture alone (Tuttle et al., 2007).

Another advantage of simulation over lecture alone is the ability to build team skills like trust, group competence with procedures, team behavior and communication. These skills improve performance in real patient situations and are becoming core healthcare expectations (Wallen, Meurling, Hedman, Hedegard, & Fellander-Tsai, 2007; Ziv et al., 2005; Morgan et al., 2006).

Simulation Setting and Design

In contrast to lecture format, simulations are typically held in a simulation lab designed to replicate the acute care setting. The experience should be guided by specific objectives that are attainable in the time allotted. Simulations may last 10-30 minutes, followed by a faculty-guided debriefing session that is at least as long as the simulation itself. Simulations may be videotaped and observed by the participants, or other class members may observe and give feedback. Following debriefing, faculty may choose to run the scenario again with the same students or a new set of students. Ideally, there should be no more than four students at the bedside during each
simulation, and specific roles should be assigned (Jeffries, 2007). Prior preparation will help students feel more confident as they participate in the simulation. This may include an orientation to the simulator itself as well as background information on the planned scenario. (Rhodes & Curran, 2005; Jeffries, 2005).

The most common simulation designs in the literature include one simulation scenario. There are rare reports in the literature of multi-level scenarios. Weis and Guyton-Simmons (1998) used a computer-based multi-level simulation, where students needed to meet objectives in one section before moving to the next level of the scenario. This was purely computer-based, however, and did not utilize a human patient simulator. At the University of Southern Maine, Childs and Sepples (2006) tested a multi-station simulation, but they did not use the same case across all stations. They utilized four stations, two of which were independent CD-ROM studies and cardiac case studies for student discussion. The remaining two stations consisted of a faculty-proctored rhythm identification station and a mock code with the human patient simulator. Our simulation also used multiple stations, but all were proctored by registered nurses, faculty, graduate students or senior RN-to-BSN students. Childs and Sepples’ study was also done with senior nursing students in their final clinical lab experience, while ours was done with novice nursing students prior to their first clinical experience.

*Simulation Improves Performance and Confidence*

Confidence and skill in caring for patients comes with experience. One challenge in healthcare education is providing enough experience to the student or new staff
member to improve their confidence and skill in the clinical area. There have been numerous studies looking at just this aspect of simulation in other healthcare fields. Clancy and colleagues used simulation in the training of dental students and found significant increase in confidence once the students had been involved with simulation (Clancy, Lindquist, Palik, & Johnson, 2002). There have also been studies in the medical school arena using simulation to connect technical and communication skills. Students that were involved with simulation felt it was an effective teaching tool and increased their confidence in the clinical setting (Kneebone et al., 2002; Schoening, Sittner, & Todd, 2006; Bremner, Aduddell, Bennett, & VanGeest, 2006). McGaghie and associates studied simulation in medical education. Their results showed a strong association between hours in the simulation lab and meeting standardized learning objectives. They felt the hours of practice had a functional relationship with standardized learning outcomes and performance (McGaghie, Issenberg, Petrusa, & Scalese, 2006).

In nursing education Waldner and Olson examined the connection between Benner and Kolb’s theories and students’ exposure to high-acuity situations. Benner felt that providing nursing care involves risk for both the nurse and the patient, and to be a skilled nurse, exposure to well-planned educational programs was necessary. Gaining experience provides the context for nursing students to apply, adapt and intertwine theoretical knowledge with practical knowledge to engage in a process of skill acquisition and development (Waldner & Olson, 2007, p. 5). Nehring, Ellis and Lashley have tested these theories in studies in the pilot phase of their simulation
program. They exposed students to both lecture and HPS and measured the retention of information at intervals post lecture pre HPS, post HPS and one week post HPS. The results showed statistically significant improvement in knowledge retention by using simulation (Nehring et al., 2001). Nunn has also tested the use of simulation in an intensive therapy crisis management course used to train Intensive Care Unit nurses, and the acute care skill training of general ward nurses. In both courses, the nurses showed improvement in self-confidence related to the recognition, communication and key clinical interventions for their patients (Nunn, 2004).

For students and healthcare providers who are not meeting clinical expectations, or are having difficulty applying theory to practice, simulation is useful in the remediation process. “When students are not meeting established objectives in the clinical environment, the possibility for error increases, frustration and the student’s stress levels escalate, and patient safety is jeopardized” (Haskvitz & Koop, 2004, p. 181). Where traditional remediation only increases stress and risk, simulation provides a controlled environment in which the student can repeatedly practice clinical skills and gain confidence without risking patient safety. (Haskvitz & Koop, 2004).

**Simulation Impacts Critical thinking**

As a larger percentage of individuals live with multi-system diseases processes due to advances in medical science and the baby boomers age, health care needs of consumers become more complex. Critical thinking is essential to their care (JCAHO, 2002). Critical thinking is defined as the ability to problem-solve, to reason logically, analyze information and form conclusions (Girot, 2000). Progressing through the
stages of the novice to expert requires continuous improvement in critical thinking, decision-making and nursing judgment. Nurses require exceptional clinical judgment and reasoning skills to manage the wide range of information they receive from numerous sources in our healthcare environment. Using Benner's stages as the basis for acquiring expertise, educators realize that skill acquisition and judgment only happens over time with experience and repetition. As students are exposed to real life situations, they gain more contextual rules for decision-making, but educators are challenged with limited clinical exposure and shortened patient stays. Use of the HPS gives the students a chance to experience real life patient scenarios, increasing their confidence and thus their clinical judgment (Rhodes & Curran, 2005).

Simulation allows exposure of students and novice nurses to low frequency, high-risk patient scenarios that foster critical thinking. Pamela Jefferies stated in her recent work on simulation that hospital managers and educators are under much more pressure to have newer nurses use critical thinking skills to manage complex patients in the hospital environment. She felt that HPS was an efficient way to teach content and critical thinking skills safely and in collaboration with the nursing instructor, without fear of harming the patient (Jefferies, 2007).

Weller, in 2004, showed that simulation also gives students the ability to take an active role in the management of emergent situations, which traditionally only experienced staff would have handled. This exposure increased the ability of the novice to practice critical thinking and judgment without harming the patient. The students identified a difference in knowing what they should do and actually doing it
in the simulated environment. In simulation, the students were able to overcome the obstacles standing in the way of putting theory into practice (Weller, 2004).

A review of the literature clearly demonstrates that simulation has an increasingly significant place in nursing education. It has relevance to many facets of nursing education, including skill acquisition, remediation, confidence building and team building. As the nursing education paradigm shifts to active learning with a focus on patient safety, simulation provides the optimal tool to facilitate experience-based learning in an environment where errors become learning opportunities instead of threats to patients. Simulation experiences provide a basis for critical thinking and nursing judgment that can be applied in the clinical setting. However, a clear gap in the nursing literature that needs to be explored is the use of a single complex patient case in multiple simulation scenarios with various types of simulators. Using the same case as it progresses through different scenarios and acuity levels provides the students with a firm foundation of sequential knowledge building. This improves information processing, logical thinking, and builds the basis for nursing judgment and critical thinking. It is an ideal foundation for experiential learning, which will ultimately improve the bedside skills of the novice nurse.
Chapter 3

METHODOLOGY

This simulation experience was a validation of the written simulation scenario developed and utilized in multiple stations with varied levels of simulation. As noted in the seminal text *Simulation in Nursing Education* (2007), sponsored by the National League for Nursing (NLN), simulation can be used to allow beginning students to practice skills and caregiving in a standard environment. As they progress through their program, exposure to high-fidelity simulation experiences help them develop their ability to establish priorities, make appropriate decisions and work as a team in the clinical environment (Hovancsek as cited in Jeffries, 2007, p. 4).

*Project Design*

Our project involved the development of a clinical scenario, which began with a post-operative ileus and a concerned family member and progressed to ischemic bowel and end-of-life care. In developing our scenarios, we used a template found in the NLN *Simulation in Nursing Education* (2007) and a previously validated survey tool developed by a panel of nursing educators with expertise in simulation. The varied acuity levels make the scenario applicable to all levels of nursing students. Even experienced nurses could benefit from the high-acuity portion of the scenario.

The effectiveness of the new scenario-based simulation experience was evaluated with between-method triangulation (Burns & Grove, 2005, p. 226), using both quantitative and qualitative analysis. Using both quantitative and qualitative questions
helps to test the data regarding relationships and to gather knowledge about the meaning and understanding of the area studied (Burns & Grove, 2005, p. 24). In this project, the quantitative data was used to provide data regarding the effectiveness of the simulation for synthesizing previously learned data and skills. The qualitative data collection provided students with an avenue to convey the perceived benefits and limitations of the simulation experience.

Project Validation Participants

The validation participants were a convenience sample consisting of 80 first semester Baccalaureate nursing students registered in the N18 nursing course at California State University, Sacramento in the fall semester of 2009. Students had received a one-hour orientation to the mid-fidelity and high fidelity simulators the week prior by participating in two introductory simulation cases. The students were required to participate in the simulation prior to their first clinical experience as a part of their first semester N18 Therapeutic Interpersonal and Group Communication in Nursing course. The study was a one-day simulation experience, involving multiple types of simulation including human actors and mid-fidelity and high-fidelity simulators in seven different scenarios.

Evaluation of the Simulation Experience

The authors and the nursing faculty at California State University, Sacramento developed the simulation evaluation survey. Each survey consisted of seven questions
using a 5-point Likert scale, with scores ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The survey’s higher scores indicated a greater effectiveness of simulation as a learning experience. The survey also included two qualitative open-ended questions allowing students to provide feedback regarding what was most effective in the simulation experience and what they would change. Using grounded theory, the qualitative responses were analyzed for themes.

Procedure

The simulation day consisted of seven simulated and programmed learning activities. These included one chart review and report station, four mid-fidelity stations and two high-fidelity stations. For appropriate application to first-semester nursing students, the scenario was divided into three sub-scenarios or stations. These included scenarios in the following areas: chart review, one of the mid-fidelity stations, and one of the high-fidelity stations. Students rotated through the mid-fidelity stations every 20 minutes. Two to three students at a time participated in each mid-fidelity station. They were allowed 10-12 minutes in each case experience and 8-10 minutes for debriefing on each scenario.

Students started in the chart report station, which consisted of history and physical of our case patient “BJ”. Information included presenting symptoms, current labs, medications, and orders. Students participated in learning to read the Kardex for the patient with the post-operative ileus and plan care using a worksheet.
The mid-fidelity stations consisted of single patient scenarios involving specific system assessment and family communication. These scenarios included a patient with a post-operative ileus and a concerned daughter, a recently deceased patient needing post-mortem care with a grieving son at the bedside, a depressed colostomy patient at shift change with an inappropriate nurse giving report, and a patient needing respiratory assessment.

The high-fidelity station synthesized information from previous stations and fostered working in a group environment with other student staff members. Groups of 10 students participated in the high-fidelity station at one time, with two different patient scenarios. During the high-fidelity case presentation two student nurses functioned as the bedside staff, one student nurse administered medications, one student nurse documented the scenario, and one student nurse evaluated labs and tests. The other five student nurses observed. Once the first scenario was complete, the students exchanged roles and the observers became the participants. Faculty was present at all mid- and high-fidelity stations. Faculty watched the high-fidelity simulation through the one-way glass. The faculty who participated in the high fidelity station also led the group debriefing for those scenarios.

Students were asked to complete the evaluation survey at the end of the four-hour simulation lab experience, and leave them in a designated space in the classroom. Evaluations were not mandatory, and 53 of the 80 students completed the survey. The surveys were anonymous and in no way impacted the student’s grade in the course. If
a name was provided, it was blacked out for anonymity before the surveys were analyzed.

Data Analysis

Frequency and distribution data analyses were hand calculated for quantitative evaluation survey questions one through seven by the authors. Data was verified for accuracy by having both researchers review calculations. Quantitative data were analyzed for thematic responses using grounded theory methodology. Both project authors evaluated the qualitative data independently for themes and then compare results to promote accuracy.
Chapter 4

RESULTS

A total of 80 nursing students in their first semester of a four semester Bachelor of Nursing Science program participated in the simulation lab experience. The simulation day occurred week five of the 16-week semester, prior to their first day in clinical. Two-thirds (66.25%) completed evaluation surveys.

Quantitative Data

The distribution and frequency data for the survey results are presented in Table 1 below. In all of the returned surveys there were no “Disagree (2)” or “Strongly Disagree (1)” responses, indicating that none of the responding students felt simulation was ineffective. Ninety-six percent of the respondents agreed or strongly agreed that mid-fidelity simulation was an effective use of lecture time, while four percent were unsure. Ninety-eight percent of the respondents agreed or strongly agreed that high-fidelity simulation was effective, and 2 percent were not sure of its effectiveness. These responses overwhelmingly demonstrate the effectiveness of simulation as an active learning strategy and provide support of use of Kolb’s Experiential Learning Model for curricula design.

The written portions of the simulation scenarios, which included chart and Kardex review, along with written debriefing notes, were found to be effective by greater than eighty-eight percent of the respondents. It is interesting to note that the highest number of “Not Sure” responses (13.21%) was given in response to the question that asked if the chart and Kardex review stations helped them prepare for clinical. Some of the
indecision may be related to the fact that these students have not yet experienced the actual clinical environment.

Questions five and six evaluated the synthesis of information between different instructional courses and between different scenarios involving the same patient, “BJ”. For both questions, greater than ninety-two percent of the students agreed or strongly agreed that the simulation helped them synthesize information, knowledge, assessment and nursing skills for patient care. Finally, in response to question seven all respondent agreed or strongly agree that their simulation experience would better prepare them for the actual clinical setting.
### Table 1

Quantitative Frequency and Distribution (N=53)

<table>
<thead>
<tr>
<th>Evaluation question</th>
<th>Responses</th>
<th>Percentage of response</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Question 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly agree</td>
<td>37</td>
<td>69.81</td>
</tr>
<tr>
<td>Agree</td>
<td>14</td>
<td>26.42</td>
</tr>
<tr>
<td>Not sure</td>
<td>2</td>
<td>3.77</td>
</tr>
<tr>
<td><strong>Question 2</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly agree</td>
<td>35</td>
<td>66.04</td>
</tr>
<tr>
<td>Agree</td>
<td>17</td>
<td>32.08</td>
</tr>
<tr>
<td>Not sure</td>
<td>1</td>
<td>1.89</td>
</tr>
<tr>
<td><strong>Question 3</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly agree</td>
<td>32</td>
<td>60.38</td>
</tr>
<tr>
<td>Agree</td>
<td>14</td>
<td>26.42</td>
</tr>
<tr>
<td>Not sure</td>
<td>7</td>
<td>13.21</td>
</tr>
<tr>
<td><strong>Question 4</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly agree</td>
<td>32</td>
<td>60.38</td>
</tr>
<tr>
<td>Agree</td>
<td>17</td>
<td>32.08</td>
</tr>
<tr>
<td>Not sure</td>
<td>4</td>
<td>7.55</td>
</tr>
<tr>
<td><strong>Question 5</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly agree</td>
<td>27</td>
<td>50.94</td>
</tr>
<tr>
<td>Agree</td>
<td>22</td>
<td>41.51</td>
</tr>
<tr>
<td>Not sure</td>
<td>4</td>
<td>7.55</td>
</tr>
<tr>
<td><strong>Question 6</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly agree</td>
<td>37</td>
<td>69.81</td>
</tr>
<tr>
<td>Agree</td>
<td>12</td>
<td>22.64</td>
</tr>
<tr>
<td>Not sure</td>
<td>4</td>
<td>7.55</td>
</tr>
<tr>
<td><strong>Question 7</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly agree</td>
<td>38</td>
<td>71.70</td>
</tr>
<tr>
<td>Agree</td>
<td>15</td>
<td>28.30</td>
</tr>
</tbody>
</table>
Qualitative Data

The responses to questions eight and nine were analyzed and grouped into themes according to grounded theory (Burns & Grove, 2005, p. 57). The transcribed responses are located in Appendix A. Because some students’ responses went to multiple themes, the distributions of themes were analyzed as a percentage of the total number of surveys (53), rather than the total number of responses.

Question 8, “The one thing I liked…” had the largest response of the two qualitative questions, receiving comments from 34 of the 53 (64.15%) students. The two largest themes identified (11.32%) were “receiving feedback and help” from the instructors at each station and appreciation for the hands-on practice that they felt would prepare them for clinical. One of the students specifically stated, “hands on practice [is] the best way to remember and put it all together.” The next most common themes were mentioned by five students each (9.43%). The first five appreciated being exposed to a variety of new situations. Another five mentioned liking the challenge of simulations in spite of, or because of, feeling nervous, scared, anxious and “put on the spot”. Finally, five students specifically appreciated the mid-fidelity scenarios.

Debriefing was especially enjoyed by four (7.55%) of the respondents. Two students (3.77%) appreciated the preparation they did for simulation, and another three (5.66%) simply liked “all” of the simulation experience. One student (1.89%) most appreciated the “experience of working with family.”

In response to the final qualitative question, “The one thing I wish you would change…” the single largest request was for more clarity and/or organization during
the simulation day. This response was given by six of the 53 students (11.32%). It should be noted that one response asking for more clarity, “It wasn’t clear in the kardex review what we were [sic] supposed to do with the papers in front of us” was given in response to question 8. Due to the nature of the response, however, it was included in the data for question 9. Four students (7.55%) requested more advance preparation and another four (7.55%) wanted fewer students per group. Four more students (7.55%) would change “nothing”. Three students (5.66%) wanted “more time…” at the stations, in lab and/or in debriefing. The same number (5.66%) wanted more familiarity with the mannequins and their capabilities. The final theme, identified by two students (3.77%), was the desire to participate in more simulation experiences. Twenty-six of the students (49%) did not respond to this question at all.

Quantitative and qualitative evaluation data provide consistent responses that indicate a vast majority of students highly valued the simulation experience. Student responses concur that the use of both mid-fidelity and high-fidelity simulation are highly effective active learning strategies that enable the synthesis of information from multiple courses. Students also reported the innovative model of a single complex case in multiple scenarios was a highly effective way to learn and that the structure of the simulation learning experiences would better prepare them for the clinical setting.
Chapter 5

FINDINGS AND INTERPRETATIONS

The findings of the evaluation data from this project are consistent with those reported in the nursing education literature on the effectiveness of simulation as an active learning strategy that students highly value (Bremner et al, 2006; Feingold, Calaluce & Kallen, 2004; Jefferies, 2007; MaGaghie et al, 2006; Rhodes & Curran, 2005). However, this project addresses a gap in the nursing education literature on use of a single case study in multiple simulations to address complexity of patient care. Interpretation of the overwhelmingly positive student response to this innovative simulation model holds significance for nursing education, hospital administration, and research.

Nursing Education

The current literature related to healthcare education clearly indicates that the use of HPS is changing the culture of nursing education. Nursing educators can no longer limit themselves and their students to lecture, static skills labs and clinical experience. The increasing complexity of hospitalized patients and patient safety mandates require educators to provide more integrated learning opportunities for the student nurse. Theorists Benner and Kolb provide a framework that enables recognition that clinical competence is accomplished with experiential practice, and it is our job as nursing educators to provide that experience with new and effective educational strategies. By using varying levels of simulation, with each simulation experience building on the
previous, the novice nursing student can gather information, categorize it, and add to their background data with each experience. The result provides a stair step method to learning, adding more depth in discovery and greater understanding at each level.

Providing consistency in clinical experiences is also challenging. Each student may not have the opportunity to experience the same clinical scenario in the traditional clinical setting. Larew states that the development of nursing clinical competency requires practice in the clinical environment, but the experiences may vary for students across the health care settings. The use of simulation can provide a consistent structured learning experience for all students (Larew et al., 2006, p.21).

Simulation also incorporates the adult learning principles and active learning strategies that are the hallmark of adult education. Simulation encourages student and faculty contact, cooperation among students, gives prompt feedback and encourages active learning (Chickering & Gamson, 1999). This is evident in the cooperation between students during the scenario, the faculty/student interaction during the case, and the communication exemplified during the debriefing period post-scenario.

Hospital Administration

With the aging workforce of nurses practicing at the bedside, hospitals must plan for the influx of novice nurses to their ranks. The novice nurses, while coming with enthusiasm and desire, also come with limited experience in many patient situations. Novice nurses require significant orientation time, consistent preceptors and experiences in a variety of patient situations. These essential elements are difficult to provide on a consistent basis. Yet the public and governing healthcare organizations,
such as the IOM and Joint Commission, have challenged healthcare institutions to ensure patient safety by providing adequate training and oversight for the novice nurse (JCAHO, 2002; IOM, 2000). Nurses are pivotal care providers and advocates for the hospitalized patient. This skill set requires knowledge, personal confidence and team training. Structured new graduate programs that include simulation, with its focus on communication, teamwork and exposure to high-risk patient scenarios, prepare nurses to provide safe evidence-based care. Despite the high cost of simulation labs, the net benefit to the institution and community in protecting patients is a worthy investment. The complex patient multi-scenario simulation model validated in this project can be used in the prelicensure undergraduate or new graduate orientation programs to provide novice nurses with experience based learning while promoting patient safety.

Research

In our validation study, a single patient scenario was constructed in a multi-level format to provide varied learning experiences to novice nursing students. The students’ evaluations supported that the mid- and high-fidelity scenarios as an effective use of lecture time, which helped them to synthesize the data and assessment pieces. Further, they believed these skills would translate to the clinical environment. Their evaluations also overwhelmingly indicated that their simulation experience would allow them to provide safer patient care. These results provide foundational data for further studies on the translation of simulation learning to the clinical environment and clinical performance. Further research is needed to evaluate student
performance in the clinical arena to determine if in fact simulation experiences do improve clinical skills, assessment, and interventions that promote patient safety.

As educators, we feel simulation is at the forefront of nursing education. Simulation is an active learning strategy that adds to the students’ experiential foundation. In turn, it allows them to provide more competent, safe nursing care once they are in the clinical arena. Pamela Jeffries states in the president’s message for the NLN, “simulation holds the promise to change faculty assumptions about how students learn and think and to become an essential teaching/assessment/evaluation strategy in the education of nurses” (Jeffries, 2009, p. 69). We also feel developing simulation scenarios that can be used in a multi-level format will add to the bank of tools available to all nursing instructors. Utilizing these tools can lead to increased nursing confidence, and in turn improve patient safety. Consistent educational experiences may also advance the competency level of new graduate nurses as they enter our currently complex clinical environment. These experiences will benefit nurses, healthcare agencies, and ultimately patients and families.
APPENDICES

Page

APPENDIX A ............................................................... 47
APPENDIX B ............................................................... 53
APPENDIX C ............................................................... 55
APPENDIX D ............................................................... 57
APPENDIX E ............................................................... 59
APPENDIX A

Chart and Kardex Review Station

MID FIDELITY GI NURSING ASSESSMENT CASE STUDY

Patient Data:  Admit date 9/24/09, 82-year-old Caucasian female, Height: 62cm, Weight: 72kg

Admission diagnosis: Mrs. Jones had a right fem-pop bypass one week ago for limb salvage of a non-healing foot ulcer

Relevant Medical History: 4 days post-operatively the patient has nausea and vomiting with hypoactive bowel sounds. Today she has been vomiting large amounts of brown fluid with diarrhea stools. She has abdominal pain and distention.

Past Medical History (PMH): Mrs. Jones has rheumatoid arthritis, for which she has been on Enbrel and azathioprine. She is s/p an appendectomy one year ago, and had a colonoscopy at that time showing diverticulosis in the sigmoid colon and ascending colon. She also has chronic heart failure with an ejection fraction of 40% and is hypothyroid which is managed on Synthroid daily 100mcg.

Family Medical History: Father died at age 58 of myocardial infarction. Mother had Type II Diabetes and peripheral vascular disease; died at age 79 of a stroke. Patient's younger sister, aged 77, is alive and well.

Social History: Patient lives independently, drives a car, and cares for her home with little help from family. Her daughter lives close by and is available for help. Her daughter is at the bedside and concerned about her mother's lack of progress.

MD Orders:

IV D5 0.45NS with 20meq KCL at 125 ml/hr

Reglan 10mg IV Q 8 hr

Protonix 40mg IV daily

Synthroid 100mcg IV daily

Morphine Sulfate 2-4 mg IV every 2 hours prn pain

NPO

Labs: CBC, Complete metabolic panel now and in am
Nurse’s note/significant admission data: Patient is side lying in bed at 45 degrees, complaining of abdominal pain 8:10. The daughter states "I don't understand why my mother isn't getting better. Why aren't you people doing anything? Can't you see she's in pain?" Last morphine administered 2 hours ago.

TPR/ B/P:  T: 99 degrees, HR: 74, RR: 18, BP: 130/85 F. O2 sat on room air is 96%

Physical Exam

Heart: Normal with NSR

Lungs: Normal bilaterally

GI: Bowel sounds absent, and abdomen distended and painful, patient c/o nausea and vomited 400 ml brown fluid.

Subsequent Nursing Notes: MD notified of above findings; orders received. Patient medicated with morphine for pain.

Treatment Ordered: Place NGT to low wall suction

Diagnostic labs ordered: CBC, Complete metabolic panel now and in am

X-ray: Report shows significant dilation of small bowel

LAB

**CBC with differentials**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>WBC (4-10.6k/cumm)</td>
<td>9.2</td>
</tr>
<tr>
<td>RBC (4.3-5.65m/cumm)</td>
<td>-</td>
</tr>
<tr>
<td>Hgb (11.6-15g/dl)/(13.3-16.5g/dl)</td>
<td>9</td>
</tr>
<tr>
<td>Hct (39.5-49.5%)/(36-46%)</td>
<td>30</td>
</tr>
<tr>
<td>Platelets (150-400k/cumm)</td>
<td>272</td>
</tr>
<tr>
<td>Neutrophils (40-70%)</td>
<td>-</td>
</tr>
</tbody>
</table>

**Chem Profile**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glucose (70-110mg/dl)</td>
<td>102</td>
</tr>
<tr>
<td>Na+ (135-145meq/L)</td>
<td>128</td>
</tr>
<tr>
<td>K+ (3.5-5meq/L)</td>
<td>4.9</td>
</tr>
<tr>
<td>CL (98-107meq/L)</td>
<td>109</td>
</tr>
<tr>
<td>CO2 (22-31mmol/L)</td>
<td>-</td>
</tr>
<tr>
<td>BUN (5-21mg/dl)</td>
<td>20</td>
</tr>
<tr>
<td>Creatinine (.5-1.3mg/dl)</td>
<td>1</td>
</tr>
</tbody>
</table>
Calcium (8.6-10.1mg/dl)  
**ABG’s on**  
PaO2  
Saturation  
PaCo2  
HC03  
pH  
**Hepatic Profile**  
ALT/SGPT (11-66)  
AST/SGOT (15-46)  
Alk Phos (38-126)  
T Bilirubin (.2-1.3)  
Protein Tot. (6.3-8.2)  
Albumin (3.5-5.2)  
Direct bilirubin (.2-1.3)  
**Pancreatic Enzymes**  
Amylase (30-110)  
Lipase (23-300)

Medications:

<table>
<thead>
<tr>
<th>Medication at Hospital</th>
<th>Dose</th>
<th>Route</th>
<th>Time</th>
<th>Reason</th>
<th>Assessment of Medication of this patient</th>
<th>Assessment of Therapeutic Response</th>
<th>Assessment of Side Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>MORPHINE</td>
<td>2 - 4 MG</td>
<td>IV</td>
<td>every 2 hr</td>
<td>prn</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>REGLAN</td>
<td>10 MG</td>
<td>IV</td>
<td>every 8 hr</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PROTONIX</td>
<td>40 MG</td>
<td>IV</td>
<td>every 12 hr</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>D5 0.45 NS</td>
<td>125ML/HR</td>
<td>IV</td>
<td>continuous</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>WITH 20 MEQ KCL</td>
<td>100 micrograms</td>
<td>IV</td>
<td>daily in the AM</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Medication at Home**

<table>
<thead>
<tr>
<th>Medication at Home</th>
<th>Dose</th>
<th>Route</th>
<th>Time</th>
<th>Reason</th>
<th>Assessment of Medication of this patient</th>
<th>Assessment of Therapeutic Response</th>
<th>Assessment of Side Effects</th>
</tr>
</thead>
</table>
SYNTHROID 100 MCG PO DAILY ordered for Therapeutic Effects of this patient Response

VASOTEC 5 MG PO AM TWICE DAILY

Kardex Page 1
<table>
<thead>
<tr>
<th>Date</th>
<th>NURSING CARE</th>
<th>Date</th>
<th>DIETARY</th>
<th>Date</th>
<th>ACTIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VIS freq: 4 PR</td>
<td></td>
<td>Bedrest</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Neuro checks: 9/7 NPO</td>
<td></td>
<td>Turn</td>
<td>ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wt: 140.2</td>
<td></td>
<td>Fluid Limit:</td>
<td>BIP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bath: Shower</td>
<td></td>
<td>Tube Feed:</td>
<td>BSC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oral Care: 9/7 I &amp; O</td>
<td></td>
<td>Ambulate:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Douch/Wound Care (see last pg)</td>
<td></td>
<td>Assist Device:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wt: Bearing:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>SAFETY</th>
<th>Date</th>
<th>EQUIPMENT</th>
<th>Date</th>
<th>DRAINS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall Risk</td>
<td>Telemetry</td>
<td>Foley Cath</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Restraints</td>
<td>Temp PM</td>
<td>CT</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sensory Deficit</td>
<td>TEDS</td>
<td>SCDs</td>
<td>J P</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Overhead Frame</td>
<td>Trapooze</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acco Max Pump</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>IV THERAPY</th>
<th>Date</th>
<th>RESPIRATORY THERAPY</th>
<th>Date</th>
<th>OTHER TREATMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>O2: RA</td>
<td>Pulse Ox: 98%</td>
<td>Keep Sat &gt; 94%</td>
<td></td>
<td>AccoCheck Q</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RT Tx:</td>
<td></td>
<td>Dialysis: M Tu W Th F Sa Su</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CRAP</td>
<td>BiPap</td>
<td>Vapotherm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>CORE MEASURES</th>
<th>Date</th>
<th>NURSING PROTOCOLS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AMI</td>
<td>Intubated</td>
<td>9/14 Wound and Skin Care Protocol</td>
</tr>
<tr>
<td>Heart Failure</td>
<td>Vent Settings: FIO2 Mode</td>
<td>Smoking Cessation Protocol Orders</td>
<td></td>
</tr>
<tr>
<td>Pneumonia</td>
<td>VT PEEP Pressure Support</td>
<td>Emergency Protocol for Monitored and Non-Monitored Areas</td>
<td></td>
</tr>
<tr>
<td>SCIP</td>
<td>Weaning: Extented</td>
<td>Initiation of Rehab Services Protocol</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PICC Protocol Orders</td>
<td></td>
</tr>
</tbody>
</table>
## DIAGNOSTICS / REFERRALS / DISCHARGE PLAN

<table>
<thead>
<tr>
<th>Date</th>
<th>ONE TIME LABS</th>
<th>To Be Done</th>
<th>Date</th>
<th>DAILY LABS</th>
<th>To Be Done</th>
<th>Date</th>
<th>DIAGNOSTIC TESTS</th>
<th>To Be Done</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/17</td>
<td>CBC, Chem PANEL</td>
<td>9/27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/27</td>
<td>CBC Chem PANEL</td>
<td>9/25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### CONSULTS

- 9/4: Case Management
- Dietary
- Social Work
- Diabetes Educator

### MD PARAMETERS

- **OT:**
- **PT:**
- **Speech Therapy:**

#### Palliative Care:

- **Pharmacy:**
- **WOCN:**
- **Smoking Cessation:**
- **Heart Failure CNS**

#### DISCHARGE PLAN

- **Date:**
- **Estimated Date of Discharge:** 9/25
- **Estimated Disposition:**
  - Home
  - Home Health
  - SNF
  - Assisted Living
  - Other

---

**Name:** Jones, KB

**Signature:** [Signature]

**Date:** 10/20
<table>
<thead>
<tr>
<th>Date</th>
<th>WOUND TYPE</th>
<th>LOCATION</th>
<th>TREATMENT ORDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-4</td>
<td>shoulder</td>
<td>foot</td>
<td>dressing change</td>
</tr>
</tbody>
</table>

APPENDIX B

Mid-Fidelity Station Scenario and Instructor Key

N18 Mid Fidelity Scenario: Station A
Created by Denise Glover, RN, BSN and Terry Lehman, RN, BSN
Origination Date: July 12, 2009
Validation Date: September 28, 2009

Case Presentation: 82-year-old female “B.J.”, admitted one week ago for pain in legs and non-healing foot ulcer; Post-Op femoral-popliteal bypass graft. She has had a poor post-operative course. She is currently 4 days post surgery and has an ileus.
HX: rheumatoid arthritis, CHF, hypothyroidism

You are working with a nurse on the Medical Surgical unit and beginning the AM shift. You have received report indicating that the patient had stable vital signs, and less discomfort and nausea since placement of the NG tube. However, the family is at the bedside and very concerned about the new complication of an ileus.

Complete the following:
1. Interact with the family at the bedside using active listening skills to determine major concerns.
2. Assess the patient and record your assessment findings.
3. Identify the critical issues you need to discuss with the RN

Data Collection:
HR ________
RR ________
BP ________
Temp: ________
Pulse Ox: ________
Lung assessment: Right: ________ Left: ________
Heart Tones: ________
Bowel Sounds: ________

Are there any Labs that really concern you?

What critical issues and follow-up plan do you need to discuss with the RN?
Case Presentation: 82 year old female admitted one week ago for pain in legs and non-healing foot ulcer; Post-Op femoral-popliteal bypass graft. She has had a poor post operative course. She is currently 4 days post surgery and has an ileus (and developing bowel ischemia). HX: rheumatoid arthritis, CHF, hypothyroidism

You are working with a nurse on the Medical Surgical unit and beginning the AM shift. You received report indicating that the patient had stable vital signs, and less discomfort and nausea since placement of the NG tube. However, the family is at the bedside and very concerned about the new complication of an ileus.

Complete the following:
1. Interact with the family at the bedside using active listening skills to determine major concerns. Instructor: You will act as the daughter, who has two major concerns—she is reluctant to have a student take care of her mother, and she is frustrated that her mother is not making progress; she feels that not enough is being done. Assess the students’ willingness to interact with the daughter and ability to hear the daughter’s concerns and act on them without getting defensive.

2. Assess the patient and record your assessment findings.
   HR 90
   RR 26
   BP 110/50 (70)
   Temp: 100.5
   Pulse Ox: 96% RA
   Lung assessment: Right: Fine Crackles Left: Fine Crackles
   Heart Tones: Normal
   Bowel Sounds: Absent (student will need to clamp NG to assess bowel sounds)

3. Identify the critical issues you need to discuss with the RN
   Are there any Labs that really concern you?
   The H&H is trending down; the WBC’s are trending up; the K is trending up; the BUN/Cr are trending up;

   What critical issues and follow-up plan do you need to discuss with the RN?
   Family concerns; absent bowel sounds and abdominal pain; ongoing nausea despite NG drainage
APPENDIX C

High-Fidelity Station Scenario and Instructor Key

**High Fidelity Simulation**
**GI Case Declining Treatment Barbara Jones**

**Students:** Section of 8 students, have 4 participate in the scenario and other 4 watching. Then students will switch to other SimPerson Station and the observing group will be working on SimMan.

**Sim Program:** Use NLN Standardized Scenarios for Core Medical or Surgical Cases

**Patient Case Scenario:**
**Scenario Focus:** Listening to patient concern, respecting patient choice on treatment, SBAR communication with RN, accessing spiritual resources pt requests

**Simulator:** Female SimPerson
**Human Actor:** RN role
**Supplies/ Sim set up:**
Female MF patient lying in bed with eyes closed, with head of bed 35%
IV D5 0.45 NS
Nametag:
Barbara Jones
MR 0108110
**DOB 3/17/XX**

**Case Presentation:** 82 years old female admitted one week ago for pain in legs and non-healing foot ulcer; Post-Op femoral-popliteal bypass graft. She has had a poor post-operative course. She is currently 4 days post surgery and has an ileus, family wants her to go to surgery, and she is not sure she really wants more treatment, feels like declining treatment and wants spiritual care.

HX: rheumatoid arthritis, CHF, hypothyroidism

You are working with a nurse on the Medical Surgical unit and beginning the AM shift. You have received report indicating that the patient had stable vital signs, abd discomfort and nausea, and a NG tube has been placed. The physician has just talked with patient and her daughter. She needs to go back to OR for removal of ischemic bowel. She has her call light on and you enter the room to talk with her.
PRIOR HISTORY AND PHYSICIAL  (Electronic Report Chart, MF Case Study A)

Client Description:
Barbara Jones
82-year-old Caucasian female
Height: 62cm
Weight: 72kg
Religion: Lutheran
Major Support: Daughter- Mary
Phone: 916-733-0999
Allergies: none noted
Immunizations: all up to date, including pneumo-vax

Attending MD and team: Internist: Dr. Sawyer and Gastroenterologist: Dr. Gould.

Past Medical History:
Mrs. Jones has rheumatoid arthritis, for which she has been on Enbrel and azathioprine. She is s/p an appendectomy one year ago, and had a colonoscopy at that time showing diverticulosis in the sigmoid colon and ascending colon.

History of present illness:
Mrs. Jones had a right femoral-popliteal bypass one week ago for limb salvage of a non-healing foot ulcer.  4 days post-operatively the patient has nausea and vomiting with hypoactive bowel sounds. She had an NG tube inserted last night to low wall suction. Today she has continued to vomit large amounts of brown fluid, despite NG drainage, with diarrhea stools. She has abdominal pain and distention.

Social History:
Patient lives independently, drives a car, and cares for her home with little help from family. Her daughter lives close by and is available for help.

Primary Medical Diagnosis:
Post-op ileus
APPENDIX D

Simulation Evaluation

Our goal in facilitating your nursing education is to create learning opportunities that you value and that will better prepare you to care for patients in the clinical setting. We would appreciate your perspective on learning using simulation. This is an anonymous evaluation and we ask you to be candid in your responses. Thank you. Please CIRCLE one response for questions 1-7.

1. The Mid Fidelity Case studies were an effective use of lecture time.
   1                          2                 3               4                   5
   Strongly Disagree     Disagree     Not Sure     Agree     Strongly Agree

2. The High Fidelity Simulation was an effective use of lecture time.
   1                          2                 3               4                   5
   Strongly Disagree     Disagree     Not Sure     Agree     Strongly Agree

3. The Chart and Kardex Review Station helped me prepare for clinical.
   1                          2                 3               4                   5
   Strongly Disagree     Disagree     Not Sure     Agree     Strongly Agree

4. The written debriefing notes were effective in helping me understand key concepts about the case study.
   1                          2                 3               4                   5
   Strongly Disagree     Disagree     Not Sure     Agree     Strongly Agree

5. The simulation experiences helped me pull together (synthesize) the theoretical information on disease processes in N12 with the nursing skills from N15 and assessment skills from N16.
   1                          2                 3               4                   5
   Strongly Disagree     Disagree     Not Sure     Agree     Strongly Agree

6. Having the case of BJ presented in multiple stations helped me synthesize information about the complexity issues I need to think about in caring for patients.
   1                          2                 3               4                   5
   Strongly Disagree     Disagree     Not Sure     Agree     Strongly Agree
7. The time in simulation will better prepare me to safely care for patients in the clinical setting.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Not Sure</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

8. The one thing I really liked:

________________________________________________________________________

________________________________________________________________________

9. The one thing I wish you would change:

________________________________________________________________________

________________________________________________________________________
APPENDIX E

Qualitative Responses to Evaluation Questions 8 and 9

Question 8: “The one thing I really liked:”

<table>
<thead>
<tr>
<th>Participant</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>No response</td>
</tr>
<tr>
<td>2.</td>
<td>“Getting acquainted with new situations”</td>
</tr>
<tr>
<td>3.</td>
<td>“Being put on the spot—pressure being put on me helps me for when it happens at clinic.”</td>
</tr>
<tr>
<td>4.</td>
<td>“I really liked that we go to know the pt a little more before SIM lab”</td>
</tr>
<tr>
<td>5.</td>
<td>“Debriefing.”</td>
</tr>
<tr>
<td>6.</td>
<td>“Multiple scenarios cause us to think of several things”</td>
</tr>
<tr>
<td>7.</td>
<td>No response</td>
</tr>
<tr>
<td>8.</td>
<td>“I like the simulation. Although they can be quite Scary, they are helpful.”</td>
</tr>
<tr>
<td>9.</td>
<td>“Was when we could actually respond to mannequins, good when the have a pulse, BS, lung sounds, etc.”</td>
</tr>
<tr>
<td>10.</td>
<td>No response</td>
</tr>
<tr>
<td>11.</td>
<td>No response</td>
</tr>
<tr>
<td>12.</td>
<td>“Having gone over medical records/report before Sim (patient BJ)”</td>
</tr>
<tr>
<td>13.</td>
<td>“I like the experience with working with family”</td>
</tr>
<tr>
<td>14.</td>
<td>No response</td>
</tr>
<tr>
<td>15.</td>
<td>“All of it”</td>
</tr>
<tr>
<td>16.</td>
<td>“ALL!”</td>
</tr>
<tr>
<td>17.</td>
<td>No response</td>
</tr>
<tr>
<td>18.</td>
<td>“Feedback”</td>
</tr>
<tr>
<td>19.</td>
<td>“Was the 4 stations because we were exposed to different scenarios”</td>
</tr>
<tr>
<td>20.</td>
<td>“The mid-fi cases and the 4 different situations they exposed me to.”</td>
</tr>
<tr>
<td>21.</td>
<td>“I really liked the Mid Fid because there were many different subjects covered.”</td>
</tr>
<tr>
<td>22.</td>
<td>“The respiratory distress simulation was a good thing to view”</td>
</tr>
<tr>
<td>23.</td>
<td>“REAL SITUATIONS”</td>
</tr>
<tr>
<td>24.</td>
<td>No response</td>
</tr>
<tr>
<td>25.</td>
<td>“Guided by senior students”</td>
</tr>
<tr>
<td>26.</td>
<td>“Really prep me for the real deal. And I like having a moderator there to stop you when you are doing something wrong.”</td>
</tr>
<tr>
<td>27.</td>
<td>“Hands-on”</td>
</tr>
<tr>
<td>28.</td>
<td>“The four stations w/ one instructor @ each station”</td>
</tr>
<tr>
<td>29.</td>
<td>“Hands on practice. Best way to remember and put it all together.”</td>
</tr>
<tr>
<td>30.</td>
<td>No response</td>
</tr>
<tr>
<td>31.</td>
<td>No response</td>
</tr>
</tbody>
</table>
32. “Variety of scenarios”
33. No response
34. No response
35. No response
36. No response
37. No response
38. “Practice”
39. “Group discussion after”
40. No response
41. “Having simulations”
42. No response
43. No response
44. “Other students helping”
45. “Mid-sim labs had really practical lessons for what we could come across in clinical during 1st semester. Very, very helpful & thought-provoking.”
46. No response
47. “All questions answered.”
48. No response
49. “The interaction with professor or RN students providing feedback.”
50. “Was simulations, although they helped I felt nervous and incompetent.”
51. “The feedback given by faculty.”
52. “I always love the challenge of having to think on my feet. (love/hate) ☺”
53. “It wasn’t clear in the kardex review what we wer [sic] supposed to do with the papers in front of us”
Question 9: “The one thing I wish you would change:”

<table>
<thead>
<tr>
<th>Participant</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>No response</td>
</tr>
<tr>
<td>2.</td>
<td>“Not much”</td>
</tr>
<tr>
<td>3.</td>
<td>“Inc pulse on main nikans” [sic]</td>
</tr>
<tr>
<td>4.</td>
<td>“Wish I could have more time in Mid-Fidelity”</td>
</tr>
<tr>
<td>5.</td>
<td>“??”</td>
</tr>
<tr>
<td>6.</td>
<td>“More time discussing”</td>
</tr>
<tr>
<td>7.</td>
<td>No response</td>
</tr>
<tr>
<td>8.</td>
<td>“More briefing time regarding pt situation prior to addressing pt during simulation”</td>
</tr>
<tr>
<td>9.</td>
<td>“Clear schedule divided by section number would help to relieve confusion.”</td>
</tr>
<tr>
<td>10.</td>
<td>No response</td>
</tr>
<tr>
<td>11.</td>
<td>No response</td>
</tr>
<tr>
<td>12.</td>
<td>No response</td>
</tr>
<tr>
<td>13.</td>
<td>No response</td>
</tr>
<tr>
<td>14.</td>
<td>No response</td>
</tr>
<tr>
<td>15.</td>
<td>“We need more, 2x week!! 😊”</td>
</tr>
<tr>
<td>16.</td>
<td>No response</td>
</tr>
<tr>
<td>17.</td>
<td>No response</td>
</tr>
<tr>
<td>18.</td>
<td>“Have students study chart B4 Sim lab. —Learning it on the fly is time consuming and provides for a less effective LAB.”</td>
</tr>
<tr>
<td>19.</td>
<td>“Is making it clear to us when to switch stations.”</td>
</tr>
<tr>
<td>20.</td>
<td>No response</td>
</tr>
<tr>
<td>21.</td>
<td>“When to switch stations wasn’t clear (Mid Fidelity)”</td>
</tr>
<tr>
<td>22.</td>
<td>“The gap between the test and our rotation was not not [sic] ideal, but it was understandable.”</td>
</tr>
<tr>
<td>23.</td>
<td>“Less people IN THE SIM LAB”</td>
</tr>
<tr>
<td>24.</td>
<td>No response</td>
</tr>
<tr>
<td>25.</td>
<td>“More mid fidelity than sim labs on television”</td>
</tr>
<tr>
<td>26.</td>
<td>“Have more of these”</td>
</tr>
<tr>
<td>27.</td>
<td>“More instructions, feedback, demos on sims”</td>
</tr>
<tr>
<td>28.</td>
<td>“More tips on how to face sims labs”</td>
</tr>
<tr>
<td>29.</td>
<td>“Nothing!”</td>
</tr>
<tr>
<td>30.</td>
<td>No response</td>
</tr>
<tr>
<td>31.</td>
<td>No response</td>
</tr>
<tr>
<td>32.</td>
<td>“Too many people working on one patient!”</td>
</tr>
<tr>
<td>33.</td>
<td>No response</td>
</tr>
<tr>
<td>34.</td>
<td>No response</td>
</tr>
<tr>
<td>35.</td>
<td>No response</td>
</tr>
</tbody>
</table>
36. No response
37. No response
38. “Better track of time.—We missed one of the mid-fidelity stations entirely”
39. No response
40. “I realize this can’t be helped, but it’s hard to get a good sim exp. w/ so many students in each group.”
41. No response
42. “n/a”
43. “I wish I knew more about the mannequins so I know what I can/can’t assess.”
44. “Too many students doing pt.”
45. “Better explanation of what mid-fidelity [sic] and high-fidelity [sic] can do.”
46. No response
47. No response
48. No response
49. No response
50. “Was being more organized”
51. No response
52. “I felt a bit rushed through the mid fidelity portion”
53. No response
REFERENCES


From Conceptualization to Evaluation (pp. 73-85). New York, NY: National League for Nursing.


National League for Nursing Board of Governors. (2008, May 9). *Preparing the next generation of nurses to practice in a technology-rich environment: an*


