SIMULATION AND CLINICAL DECISION MAKING

The Impact of a Sequential Simulation Experience on the Clinical Decision Making of Novice Nurses related to the Care of the Morbidly Obese Post-operative Patient: A Pilot Project

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Abstract

Problem: Errors in healthcare have been linked to new nurses' inability to apply sound clinical decision making/clinical judgment (Dunton, Gajewski, Klaus & Peirson, 2007; Smith & Crawford, 2003; NCSBN, 2009). As more demands are being placed on nurses in the current health care environment, particularly the novice nurse, there is an even greater need for nursing educational strategies that integrate theory and practice for nurses, particularly related to the development of sound clinical judgment, which is often illustrated by the appropriate application of clinical nursing skills. The use of clinical simulation has been proposed as a method that integrates theory, clinical skills application and clinical decision making, thus enhancing novice nurses' clinical judgment.

Purpose: The purpose of this Capstone was to implement a program evaluation project that assessed the impact a change in program delivery, the use of a sequential simulation experience, had on the competence of novice nurses' clinical decision making during a nurse residency program in an acute care facility. A sequential simulation experience was created and implemented, and its impact on novice nurses' clinical decision making skills was evaluated. Tanner's Model of Clinical Judgment (2006) was used as the guiding framework and the context was holistic patient care for the morbidly obese post-operative patient.

Methods: This project was conducted in three phases:

Phase I: Simulation scenarios, case studies, participant surveys, simulation checklists and decision trees, related to the nursing care and associated clinical decision making with the morbidly obese post-operative patient, were developed and reviewed by content experts, with revisions as indicated. Simulation scenarios were piloted with senior nursing students enrolled in an Associate degree nursing program.

Phase II: Implementation of project occurred during scheduled nurse residency program. Participants were randomly assigned to one of two groups: simulation or case study. Sequential simulation scenarios were run with eight participants in the morning session of the nurse residency program. Case study group presentation/discussion occurred in the afternoon session with remaining seven participants. All program participants completed surveys prior to and immediately after the teaching intervention.

Phase III: Ten novice nurse participants returned two weeks later to complete a simulation scenario related to the clinical decision making of the morbidly obese post-operative patient to assess competence. Competence was individually assessed using a clinical skills checklist and decision tree.

Results: Survey results for both subgroups were similar with all participants indicating an increase in knowledge and a majority indicating confidence in their confidence in their clinical decision making skills after educational intervention. Mean score on the assessment checklist for the simulation subgroup participants was 8 versus a mean score of 7.8 for the case study group, indicative of a slight enhancement in skill for simulation group. Decision tree results were also similar for both subgroups.

Implications: A summary of program evaluation results was presented to the acute care facility and all materials created were provided for future use. Although the sample size was small, participant self-assessment related to knowledge and confidence, and the slight improvement in the checklist/decision tree results for the simulation subgroup support the conclusion that simulation may be a valuable tool for enhancing the clinical decision making skills of novice nurses.

Dedication

I would like to dedicate this capstone project to my family and friends for their unwavering support. To my supportive, patient and loving husband, Michael and my wonderful children, Emily and Ben, thank you for being my biggest cheerleaders. All three of you loved me when I was tired and grumpy, motivated me when I needed it, and never complained when I had work to do. The three of you are my inspiration. To my Cecil 'family', especially Dr. Mary Bolt and the Cecil College nursing faculty, thank you for being a sounding board and being so supportive. To all of my extended family and all of my friends, I thank you for your patience and hope to see you all soon. And finally to my classmates in the Doctor of Nursing Practice program, especially Susan, I learned from each and every one of you and I am grateful that I met you. This has been an amazing journey and I could not have done it without you all.

Christy Dryer

April 2012

Acknowledgments

I would like to acknowledge the guidance and support of my capstone committee. I would like to thank Dr. Carol O'Neil for her unwavering encouragement, guidance and enthusiasm. Dr. O'Neil's passion and knowledge related to nursing and nursing education is evident in all that she does and was greatly appreciated. Thank you to Dr. Janice Hoffman for her support, expertise and encouragement. Dr. Hoffman's verbalization of 'the process' came at just the right time. Thank you to Dr. Pamela Jeffries for her expertise and guidance. Dr. Jeffries' willinginess to share her knowledge was encouraging to a doctoral student. Again, my sincere thank you to an incredible group of nurse educators; I am privileged to know you and honored to have you serve as my capstone committee.

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Overview

Introduction

As more demands are being placed on nurses in the current health care environment, particularly the new graduate or novice nurse, there is an even greater need for nursing educational strategies that integrate theory and practice for nurses. In the clinical setting, the integration of theory and practice is often demonstrated by the application of sound clinical decision making. This is critical for the novice nurse as errors in healthcare settings have been linked to new nurses' inability to apply sound clinical decision making/clinical judgment (Dunton, Gajewski, Klaus & Peirson, 2007; Smith & Crawford, 2003; NCSBN, 2009). Therefore, educators in all settings have been challenged to implement strategies that facilitate the development of sound clinical judgment illustrated by the appropriate application of clinical nursing skills. Decker, Sportsman, Puetz, and Billings (2008) propose that clinical simulation is a method that incorporates nursing theory, clinical skills application, and clinical decision making, thus enhancing novice nurses' clinical judgment. Additionally, the Institute of Medicine (IOM) in 2001 recommended that simulation be utilized for improving clinical judgment and psychomotor skills for health care professionals, thus promoting patient safety. An Advisory Board report from 2008 indicates that over 42% of front line nurse leaders do not think new graduates are "fully prepared to provide safe and effective care on my unit" (p. 2). Orsolini-Hain and Malone (2007) add that the "expertise gap" is even more significant than the numerical nursing shortage and that new ways to address this gap are needed.

Statement of the issue

In the past, the use of simulation has often focused on the medical model and the 'broken system part' or the specific medical illness or symptom that the nurse fixes or addresses; the

focus has been on task-oriented episodic nursing skill performance. While the application of skills can be one aspect of the clinical decision making process, what is often missing is the context of the patient situation and the critical thinking or the development of the thought processes that support clinical decision making. The purpose of this Capstone Project was to validate the impact of incorporating a sequential simulation scenario teaching methodology into the current nurse residency program with the concurrent goal of enhancing the clinical decision making competence of novice nurses associated with the nursing care of the morbidly obese post-operative. A sequential simulation experience was created and implemented, and its impact on the development of clinical decision making resulting in enhanced competence was evaluated. Tanner's Model of Clinical Judgment (2006) was used as the guiding framework and the context was holistic patient care for the morbidly obese post-operative patient. Integrated throughout the simulation experience were the five Institute of Medicine (IOM) core competencies for health care clinicians: providing patient-centered care; working in interdisciplinary teams; employing evidence-based practice; applying quality improvement; and utilizing informatics (2003). This simulation experience will provide an evidence based framework for the development of clinical decision making skills, thus enhancing novice nurses' competence as they enter the practice arena.

Conceptual framework

Tanner's Clinical Judgment Model (2006, 2008), based on the processes of experienced nurses, provided the foundation for the sequential simulation experience. This model describes the process of clinical judgment, often a precursor to clinical decision making. There are four key processes identified that relate to clinical judgment: noticing, interpreting, responding, and reflecting (Tanner, 2006). While the simulation learning experience had all four elements

imbedded in it, particular focus was on the reflecting component. Reflection, in Tanner's Clinical Judgment Model, is the opportunity to review what happened during an experience, assimilate the knowledge acquired, and correlate the nurse's actions or inactions to the patient outcome (Tanner, 2006). Debriefing, a key component in the simulation experience identified by Jeffries (2005; 2007), supports the concept of reflection; the learner or simulation participant reviews and reflects on the experience, clinical decisions and patient outcomes (Jeffries, 2005; 2007; Tanner, 2006). While both correct and incorrect choices by a nurse during any patient care situation invite reflection, the use of simulation creates a unique learning opportunity. High fidelity simulation experiences present the opportunity for participants to make incorrect choices or decisions in the delivery of patient care. During a simulation experience, a facilitator can allow the failure of clinical judgment or inappropriate clinical decision making to occur, resulting in poor or "faulty" patient outcomes. The learner then has the unique opportunity of experiencing the consequences associated with poor clinical judgment. Any situation that requires the application of clinical judgment or a clinical decision, whether correct or incorrect, facilitates the development of the nurses' clinical judgment (Tanner, 2006).

Capstone Process

A systematic literature review was conducted regarding current best practice for the use of simulation to educate nurses. Guided by 'best practice' in education and simulation, as well as the stated need by a local acute care facility, related to the care of the morbidly obese post-operative patient, a sequential simulation experience was created. This simulation experience was facilitated by an experienced educator and utilized simulation scenarios with concepts that built upon each other, creating a sequential simulation experience for the novice nurse. This simulation experience was incorporated into the existing nurse residency program for novice

nurses at a local community hospital. The use of this strategy in the nurse residency program was assessed at two points in time and will provide the basis for an evidence based framework for the ongoing development of the clinical decision making skills of the novice nurse practicing in the medical/surgical setting in this small acute care facility. Incorporated throughout the simulation experience were the IOM core competencies. Participant behaviors were assessed two weeks after the simulation experience with a competency checklist and decision tree related to participant skill acquisition and retention of behaviors impacting competence in clinical decision making and nursing care of the morbidity obese post-operative patient. Results from this project will provide validation for the change in the nursing residency program delivery.

Significance/Summary

The gap between education and practice, particularly related to nurses' clinical decision making, has been documented and continues to be of concern related to the potential impact on patient safety (Advisory Board, 2008; Dunton et al., 2007; Orsolini-Hain & Malone, 2007; Smith & Crawford, 2003; NCSBN, 2009). Aries (2006) and Tanner (2006) postulate that clinical decision making or clinical judgment are essential skills for the nurse, with far-reaching consequences for safe, effective patient care. Several studies have assessed the clinical decision making skills of new graduate nurses and discovered that graduates not only lack in ability but also lack in confidence related to their clinical decision making skills (Berkow et al., 2008; Fink et al., 2008; Marshburn et al., 2009). Although limited in number and descriptive in nature, additional studies indicate that the clinical decision making skills of novice nurses can be enhanced with exposure to clinical decision making situations, through the use of simulation (Beyea et al., 2007; Bremner & Brannan, 2000; Vandrey & Whitman, 2002).

High-fidelity simulation provides a unique opportunity to create and deliver clinical decision making experiences. Utilizing Tanner's Clinical Judgment Model (2006) as a framework for the simulation experience by using the concepts of noticing, interpreting, responding and reflecting, while also incorporating the five IOM core competencies for health care clinicians (2003), clinical decision making experiences can be presented to the novice nurse. This creates a simulated environment that increases the novice nurse's experience while highlighting the skill of clinical decision making. In the simulation setting, with little or no risk to the novice nurse and no risk to the patient, participants can be allowed to make errors in clinical decision making, thus experiencing the breakdown of clinical judgment identified by Tanner (2006) as a time when significant learning takes place. The concept of guided reflection or debriefing, integral to a simulation experience, enhances the learning process, while assisting in creating context for the learner, and potentially improving decision making skills (Jeffries, 2007; Murray, Grant, Howarth, & Leigh, 2008; Tanner, 2006).

The opportunity to impact novice nurses' clinical decision making skills through the use of simulation is evident and Tanner's Clinical Judgment Model provided an evidence-based template for the development of a simulation experience designed to enhance clinical decision making. In this project, although both groups made clinical decisions in a timely manner, the novice nurse participants who participated in the sequential simulation scenarios completed more thorough assessments, facilitating enhanced interdisciplinary communication and potentially, more accurate clinical decisions, then participants who participated in the case study intervention. A simulation experience, designed to emphasize the process of clinical decision making, can assist in the development of the skills vital for today's graduate nurse, thus impacting patient safety and care.

Literature review

This literature review examines the current state of simulation use in facilitating the development of clinical decision making skills in novice nurses. The relationship and value of appropriate clinical decision making to nursing practice and patient safety; the current use of high fidelity simulation in nursing and nursing education, particularly related to clinical decision making; and the role of Tanner's Clinical Judgment Model in effective clinical decision-making are addressed.

Statement of the issue

The use of simulation has focused on the medical model and the 'broken system part' that the nurse fixes; the focus has not been holistic in nature but rather on task-oriented episodic nursing skill demonstration or performance designed to intervene with a specific patient problem. While the application of clinical skills and practice guidelines are components of clinical decision making, what is often missing is the context of the patient situation and the critical thinking or the development of the thought processes that support clinical decision making (Tanner, 2006). The purpose of this Capstone Project was to validate the impact of incorporating a sequential simulation scenario teaching methodology into the current nurse residency program with the concurrent goal of enhancing the clinical decision making competence of novice nurses associated with the nursing care of the morbidly obese post-operative. The current nurse residency program in the community hospital involved in this capstone project, simulation to teach and 'test out' on specific nursing skills, but does not combine teaching and evaluation related to holistic patient care and clinical decision making. A simulation scenario experience was created, implemented, and its' impact on the development of clinical decision making which results in enhanced competence in novice nurses was assessed

during the existing nurse residency program. Tanner's Model of Clinical Judgment was used as the guiding framework and the context was holistic patient care for the morbidly obese post-operative patient. Integrated throughout the simulation experience were the five Institute of Medicine (IOM) (2003) core competencies for health care clinicians: providing patient-centered care; working in interdisciplinary teams; employing evidence-based practice; applying quality improvement; and utilizing informatics. Guided by 'best practice' in education and simulation, as well as the stated need by the acute care facility, the simulation experience provides an evidence based framework for the development of the clinical decision making skills of the novice nurse practicing in the acute care medical/surgical setting, thus impacting the delivery of patient care and patient safety.

The simulation experience was evaluated by use of a survey to assess participants prior experience with simulation; knowledge related to clinical decision making; knowledge of nursing care related to the morbidly obese post-operative patient; and satisfaction with experience. Additionally, a simulation scenario performance decision tree and checklist, that assessed the participants' skill acquisition, retention of information and behaviors, were utilized during the second simulation experience, assessing the novice nurses' competence related to clinical decision making and the morbidly obese post-operative patient. The additional use of a checklist assessed the learner's performance of specific behaviors or skills, while the use of a decision tree reinforced and assessed the performance of optimal behaviors associated with clinical decision making (Campbell & Daley, 2009; Dowding & Thompson, 2004; Jeffries, 2007). This quality improvement project was evaluated based on the participants' response on the second simulation experience checklist and decision tree. The goal of this capstone project

was to validate the impact of incorporating a sequential simulation scenario teaching methodology into the current nurse residency program.

PICO question

Does participation in a sequential simulation experience enhance the clinical decision making behaviors of the novice nurse related to the nursing care of the morbidly obese post-operative patient?

Evidence search

An extensive evidence search was conducted using several electronic data bases (CINAHL, Medline, PubMed). A search of Cochrane Review was also completed. Key words used were: nursing clinical skills; simulation; nursing students; patient safety; novice nurses; graduate nurses; simulation; clinical decision making skills; clinical judgment; and clinical-decision making. These same terms were used as MESH terms for the databases. A search of the reference lists of relevant articles also yielded other pertinent articles.

Initial inclusion criteria related to the abstract review included articles published between January 2000 and March 2010 and information related to the acquisition and performance of clinical nursing skills, clinical decision making or clinical judgment, the novice or graduate nurse, and the use of simulation with human patient simulators (HPS), including low-or high fidelity mannequins. Initial exclusion criteria included articles published before January 2000 and the use of other forms of simulation, such as case study, role-playing, CD-rom, or the use of actors. Related to the paucity of the literature discovered pertaining to clinical decision making and new graduate nurses or novice nurses, the exclusion criteria were revised and all forms of simulation, low-fidelity and high-fidelity patient simulators, case studies, standardized patients, and the use of CD-ROMs were included. Additional exclusion criteria included descriptive

articles related to the development of clinical decision making curriculums and models, and studies assessing graduate nurses' competence that did not include clinical decision making or those related to comparing the role of the novice versus experienced nurse.

Clinical decision making and nursing practice

Maintaining patient safety is a key component of nursing practice. Errors in healthcare were highlighted in the *Institute of Medicine report To Err is Human: Building a Safer Health System* that was released in 1999. A survey of nurses conducted by VanGeest and Cummins (2007) over 95% of the nurses surveyed also identified patient safety as an important issue in health care today, with 97% of the respondents identifying a relationship between patient safety and quality of care (VanGeest & Cummins, 2007).

Clinical decision making is embedded in everyday nursing practice. Safe, appropriate, and accurate clinical decision making is critical in today's challenging and dynamic health care environment (Dunton, Gajewski, Klaus & Peirson, 2007; Orsolini-Hain & Malone, 2007; Smith & Crawford, 2003). In early nursing education and practice, Florence Nightingale established the nurse's observations, interpretations and subsequent actions as characteristics of nursing practice. Nurses face multiple decisions in their day to day practice and must develop the necessary knowledge and skills to meet this daily challenge (Aries, 2006). Nurses are accountable for the decisions they reach and require the tools necessary to facilitate quality decision making (Tanner, 2006; Muir, 2004).

In nursing literature, the terms "clinical decision making", "critical thinking", "clinical reasoning" and "clinical judgment" are often used interchangeably. While they share many similar traits, Tanner (2006) proposes that these are distinct concepts and processes that contribute to each other. According to Tanner, clinical judgment is "an interpretation or

conclusion about a patient's needs, concerns or health problems, and/or the decision to take action" (Tanner, 2006, p.204). Additionally, Tanner defines clinical reasoning as "the processes by which nurses and other clinicians make their judgments" (2006, p. 204). Martin (2002) refers to critical thinking as a significant component of the clinical decision making process, supporting Tanner's hypothesis that critical thinking is a component of clinical decision making. Aries (2006) and Banning (2007) agree that clinical decision making is a process that occurs frequently throughout the nurses' day and is undertaken by the nurse regarding the patient and patient care management issues.

For the purpose of this project, clinical decision making was the concept addressed and was defined as the thoughtful, reasoned and conscious decision a nurse reaches based on the evidence presented and within the holistic context of the patient care situation and the resulting nurse behaviors and/or actions. Clinical judgment, critical thinking and clinical reasoning, based on the previous definitions, all contribute to the clinical decision making process and outcome (Aries, 2006; Banner, 2002; Tanner, 2006).

Several reviews of the literature and studies have established clinical decision making as a distinct process in nursing that has a significant impact on patient care (Bakalis, 2006; Banning, 2007; Lake, Moss, & Duke, 2009; Muir, 2004.) Others have indicated that nursing decisions and actions play a significant role in patient safety (Brady et al., 2009; Johnstone & Kanitsaki, 2008; Orsolini-Hain & Malone, 2007; Smith & Crawford, 2003). New nursing graduates and nursing administrators both acknowledge the 'gap' that exists between education and readiness to practice, particularly related to clinical decision making (Berkow, Virkstis, Stewart, & Conway, 2008; Del Bueno, 2005). Strategies to address this gap have included increased mentoring or nurse residency programs, use of reflective learning techniques and

limited use of simulation (Forneris & Peden-Mcalpine, 2007; Orsolini-Hain & Malone). Simulation experiences for the novice nurse may be an effective method for addressing this identified gap.

Simulation and clinical decision making skills

The majority of research related to simulation and nursing, has been conducted with nursing students and related to the acquisition of skills. Numerous studies have touted the advantages of simulation in nursing education, many descriptive in nature, documenting a nursing program's experiences or journey with simulation or recommending best practices (Haskvitz & Koops, 2004; Henneman & Cunningham, 2005; Henneman, Cunningham, Roche, & Curnin, 2007; Hyland & Hawkins, 2009; Parr & Sweeney, 2006; Spunt, Foster, & Adams, 2004). The majority of research that has been conducted in regards to the use of simulation or human patient simulators (HPS) has been qualitative in nature, most commonly measuring students' or faculty's' perception of the value of simulation (Baillie & Curzio 2008; Bremner, Aduddell, Bennett, & Vangeest, 2006; Feingold, Calaluce, & Kallen, 2004; Kardong-Edgren, Starkweather, & Ward, 2008; Lasater, 2007; Moule, Wilford, Sales, & Lockyear, 2008; Ramsey, Keith, Ker, & Hogg, 2008; Rhodes & Curran, 2005; Schonening, Sittner, & Todd, 2006; Wellard, Woolf, & Gleeson, 2007). The results of these studies indicate that the vast majority of students and faculty perceive simulation to be a valuable educational strategy, providing a link between theory and practice (Baillie & Curzio; Bambini, Washburn, & Perkins, 2009; Bremner et al. 2006; Kardong-Edgren et al.; Lasater; Ramsey et al.; Rhodes & Curran; Schonening et al.; Wellard et al.). However Feingold et al. found that only approximately one half of the students surveyed felt that HPS improved their clinical competence or better prepared them to practice in the clinical setting.

Several studies also have supported the concept that simulation increases nursing students' self-efficacy and/or self-confidence (Baillie & Curzio, 2008; Bambini, Washburn, & Perkins, 2009; Bremner et al., 2006; Goldenberg, Andrusyszyn, & Iwasiw, 2005; Kardong-Edgren et al., 2008). However a study by Brannan, White and Bezanson (2008) did not find an increase in students' confidence levels after simulation, when compared to traditional lecture style presentation. Bandura's theory of self-efficacy (1977; 1993; 1994) establishes the link between improved self-efficacy and improved performance of a skill or behavior, however little research has been done in nursing education to support that improved self-efficacy effectively translates into improved performance in the clinical setting.

Evidence from six additional studies, that assessed a learning outcome, improvement in cognitive application, or the performance or application of a nursing clinical skill, support the conclusion that the use of simulation, specifically human patient simulators (HPS), is a valuable and effective educational strategy (Alinier, Hunt, Gordon, & Harwood, 2006; Bearson & Wiker, 2005; Brannan et al., 2008; Jarzemsky & McGrath, 2008; Jeffries & Rizzolo, 2006; Radhakrishnan, Roche, & Cunningham, 2007). Although the studies are primarily quasi-experimental or qualitative in nature, the results from all six studies are consistent in demonstrating a positive effect on nursing student performance of clinical or cognitive skills.

Multiple studies have assessed the clinical decision making process of novice and/or graduate nurses and discovered self-perception of deficiency in this area, as well as diminished or poor outcomes (Fink, Krugman, Casey, & Goode, 2008; Higuchi & Donald, 2002; Hoffman, Aitken, & Duffield, 2009; Hoffman, Donoghue, & Duffield, 2004; Lauri & Salantera, 2002; Marshburn, Engelke, & Swanson, 2009; Martin, 2002; & Standing, 2007). Several studies also assessed contributing factors to the development of quality clinical decision making resulting in

positive patient outcomes, and found that experience, area of practice, and age were the most significant factors that contribute to appropriate clinical decision making (Higuchi & Donald, 2002; Hoffman et al., 2004). Marshburn, Engelke, and Swanson (2009) discovered a correlation between new nurses' prior experiences in health care and self-perception of competence to performance based measures of clinical competence, including problem management. In other words, nurses who thought they could manage problems were better able to do so. This is noteworthy related to the relationship between simulation and the potential for improved self-efficacy or self-confidence, leading to improved performance. While Martin (2002) did not find a significant relationship between age and critical thinking, she did find that nurses who had taken a critical thinking course had improved critical thinking scores. Additionally, a study by Forneris and Peden-Mcalpine (2007) indicated that a reflective thinking learning experience had a significant impact on the critical thinking processes of novice nurses. Tanner's (2006) model of clinical judgment supports this conclusion, highlighting the importance and value of reflection in the process. According to Tanner (2006) reflection related to clinical decision making provides context, enhances learning and improves decision making performance in future clinical situations. Jeffries (2007) postulates that debriefing in a simulation experience is as valuable or more valuable than the actual simulation scenario experience, where the participant has the opportunity to see the results of poor performance of a skill or a poor decision. A simulation experience that focuses on the concepts of clinical decision-making, while incorporating the best practice debriefing and reflective concepts presented by Tanner (2006) and Jefferies (2007) connect the concepts of experience, critical thinking practice, self-efficacy and reflective learning, all contributing to enhanced clinical decision making.

Only three articles specifically addressed novice nurses' decision making abilities. A study by Vandrey and Whitman (2002) focused on novice nurses' decision making abilities after exposure to a simulated experience. Vandrey and Whitman describe the development of a simulation experience with HPS for critical care nurses. Student and facilitators responses were positive in nature, but no details related to the student outcomes were presented. In a descriptive narrative, Bremner and Brannan (2000) presented the implementation of a CD rom case study simulation related to clinical decision making with novice nurses. Bremner and Brannan argue that practice in clinical decision making is essential for novice nurses, but no evaluation data is presented.

A third study that addressed nurses' decision making was related to a nurse residency program that focused on critical thinking, patient safety and quality patient care utilizing simulation integrated throughout the new graduate nurse curriculum as described by Beyea, Von Reyn, and Slattery (2007). Integrated throughout the simulation component was the expectation that the new graduate or novice nurse 'problem solve' related to the patient care scenario. Each week the residency program participants rated their confidence, competence and readiness to provide independent nursing care to a group of patients. Although the study relied on the participants self-perception of these qualities, initial findings indicated that the simulation experience promoted self-confidence and increased competence, while facilitating safe decision making (Beyea et al.).

Tanner's Model of Clinical Judgment

Tanner's Model of Clinical Judgment provides an apt framework for a simulation experience focused on clinical decision making (2006). Tanner concludes that there are multiple factors that impact clinical judgment: 1) clinical judgments are often influenced more by what

the nurse brings to the situation versus the objective data from the patient care situation; 2) some degree of clinical judgment relies on 'knowing' the patient and his or her response patterns; 3) clinical judgments are influenced by the context of the situation and the culture of the unit or facility; 4) clinical judgments rely on a variety of reasoning patterns such as analytic processes, intuition and narrative thinking; 5) reflection in practice is key to the development of clinical judgment and is often triggered by the breakdown in judgment or poor patient outcomes (Tanner, 2006). While this model describes the clinical judgment of experienced nurses, it provides a structure for student and novice nurses and guidance for educators (Tanner, 2006; 2008).

The Tanner's (2006) Model of Clinical Judgment relies on four aspects: 1) noticing; 2) interpreting; 3) responding; and 4) reflecting (see Figure 1).

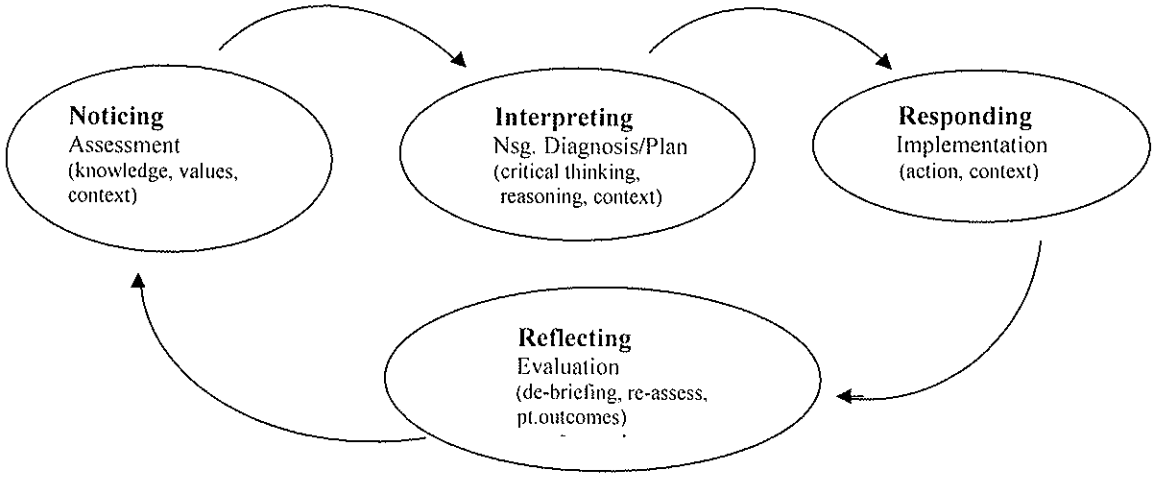

Figure 1. Tanner's Model of Clinical Judgment and the Nursing process

Each concept builds upon the next, ending in reflection, providing a feedback loop that creates context related to the patient care situation, leading back to noticing. Noticing is more than the assessment of the nursing process, but also incorporates the knowledge that the nurse brings to the situation related to the patient, past experiences and textbook. Values, the nurse's perception

of professional nursing practice and work environment also impact the noticing stage. Interpreting and responding refer to the nurse's reasoning or thought processes related to the data presented and/or assessed, and the action taken in response (Tanner, 2006). Multiple factors contribute to these stages, such as the type of reasoning employed, and the eventual nursing decision and action (Tanner, 2006).

The last stage, reflection can be a major contributor to the learning process (Tanner, 2006). Reflection is the process that occurs after the event or interventions and frequently includes an evaluative component (Tanner, 2006). Interventions are assessed and adjusted based on patient response and context, providing an opportunity to learn from the experience (Tanner, 2006). Debriefing, where participants examine what occurred during simulation and what was learned, is a key component in the simulation experience and supports the concept of reflection (Jeffries, 2005; 2007; Tanner, 2006). While all simulation experiences support the concept of reflection, the failure of clinical judgment or inappropriate clinical decision making invites reflection; simulation provides an environment that allows for poor clinical decision making and the associated consequences, creating unique learning opportunities.

Conclusion and indications for change in nurse residency program

The gap between education and practice, particularly related to nurses' clinical decision making, has been documented and continues to be of concern related to the potential impact on patient safety (Dunton et al., 2007; Orsolini-Hain & Malone, 2007; Smith & Crawford, 2003; NCSBN, 2009). Aries (2006) and Tanner (2006) postulate that clinical decision making or clinical judgment are essential skills for the nurse, with far-reaching consequences for safe, effective patient care. Additionally, as identified by the IOM (2003), the ability to communicate and collaborate in an interdisciplinary team as well as provide individualized patient centered-

care are core competencies for health professionals related to patient safety. Several studies have assessed the clinical decision making skills of graduate nurses and discovered that graduates not only lack in ability but also lack in confidence related to their clinical decision making skills (Berkow et al., 2008; Fink et al., 2008; Marshburn et al., 2009). This lack of confidence may also inhibit quality communication from the novice nurse as well as impact clinical decision making (Bambini, Washburn, & Perkins, 2009). Although limited in number and descriptive in nature, additional studies indicate that the clinical decision making skills of novice nurses can be enhanced with exposure to clinical decision making situations, through the use of simulation (Beyea et al., 2007; Bremner & Brannan, 2000; Vandrey & Whitman, 2002).

High-fidelity simulation provides a unique opportunity to create and deliver clinical decision making experiences. Utilizing Tanner's Clinical Judgment Model (2006) as a framework for the simulation experience, and incorporating the five IOM core competencies for health care clinicians, clinical decision making scenarios were presented to novice nurses, by using the concepts of noticing, interpreting, responding and reflecting, thus creating an environment that increases experience and highlights the skill of clinical decision making. With limited risk to the novice nurse and no risk to the patient, participants can be allowed to experience the breakdown of clinical judgment identified by Tanner (2006) as a time when significant learning takes place. The concept of guided reflection or debriefing, integral to a simulation experience, enhances the learning process, while assisting in creating context for the learner (Jeffries, 2007; Tanner, 2006).

The opportunity to impact novice nurses' clinical decision making skills through the use of simulation appears evident. Tanner's Clinical Judgment Model provides an evidence-based framework for the development of a simulation experience designed to enhance clinical decision

making. Bandura's theory of Self-efficacy provides the connection between thought, belief and the potential change or improvement in behavior, creating an avenue for the assessment of effectiveness of the intervention. A sequential simulation experience, designed to emphasize the process of clinical decision making, can assist in the development of the skills vital for today's novice nurse graduate, thus impacting the delivery of nursing care and patient safety.

Methodology

Statement of the issue

Errors in healthcare have been linked to new nurses' inability to apply sound clinical decision making/clinical judgment (Dunton, Gajewski, Klaus & Peirson, 2007; Smith & Crawford, 2003; NCSBN, 2009). Decker, Sportsman, Puetz, and Billings (2008) propose that clinical simulation is a method that incorporates nursing theory, clinical skills application, and clinical decision making, thus enhancing novice nurses' clinical judgment. The Institute of Medicine (IOM, 2001) recommended that simulation be utilized for improving clinical judgment and psychomotor skills for health care professionals, thus promoting patient safety.

The purpose of this Capstone Project was to validate the impact of incorporating a sequential simulation scenario teaching methodology into the current nurse residency program with the concurrent goal of enhancing the clinical decision making competence of novice nurses associated with the nursing care of the morbidly obese post-operative patient. The current nurse residency program uses simulation to teach and 'test out' on specific nursing skills, but does not combine teaching and formative and/or summative evaluation related to holistic patient care and clinical decision making. A simulation scenario experience focused on the clinical decision making related to the nursing care of the morbidly obese post-operative patient was created, implemented, and the competence of the novice nurses related to clinical decision making was evaluated. Tanner's Model of Clinical Judgment (2006) was used as the guiding framework and the simulation scenario context was holistic patient care for the morbidly obese post-operative patient

PICO question

Does participation in a guided, sequential simulation experience enhance the clinical decision making behaviors of the novice nurse related to the nursing care of the morbidly obese post-operative patient?

Study design

This is a program evaluation project that assessed the impact a change in program delivery, the use of a sequential simulation experience, had on the competence of novice nurses' clinical decision making. Currently, the hospital uses simulation for mock code practice and education, and for the assessment of specific 'hands on' clinical skills in its nurse residency program. In an attempt to expand the effective use of simulation to assist in easing the transition of novice nurses into practice, as well as enhancing the competence of the novice nurse, a sequential simulation experience was developed, implemented and evaluated. During this project, one group of novice nurses had a two hour sequential simulation experience related to clinical decision making and the morbidly obese post-operative patient where the components of the simulation experience built or scaffolded on the previous one. This educational practice is supported by Kolb's Theory of Experiential Learning which indicates that learning is a continuous process where knowledge is acquired and expanded upon by experiences (Kolb, 1984; Kolb & Kolb, 2005). The concept of facilitating learning, while scaffolding concepts or experiences created a sequential simulation learning experience. The educational experience was facilitated or 'guided' by the project coordinator, who is a nurse educator with twenty-five years of experience in nursing education, is a certified nurse educator, and has worked with simulation in nursing for the past four years.

The second group of novice nurses received the more traditional two hour lecture and case study format presentation related to clinical decision making and the care of the morbidly obese post-operative patient. Both educational interventions occurred on the same day; with the simulation experience in the morning and the lecture/case study experience occurring in the afternoon.

Project evaluation occurred at two different points in time, immediately upon completion of the initial educational presentation, the sequential simulation experience or the lecture/case study experience, and two weeks after the initial educational experience. Participants completed a brief survey related to retention of information, self-confidence and evaluation of experience at both points in time. Additionally, at the two week assessment point, all novice nurse participants were exposed to a second simulation scenario again focused on clinical decision making related to the nursing care of the morbidly obese post-operative patient. Retention of information is enhanced by testing or evaluation, with spaced retrieval of information having the most significant impact on memory and retention of information (Kromann, Jensen, & Ringsted, 2009; Roediger & Karpicke, 2006). Participant performance was assessed through the use of a competency checklist and decision tree; a validation of competency related to clinical decision making and the care of the morbidly obese post-operative patient.

Ethical considerations

Minimal risk was associated with this study. Participants were novice nurses already participating in a local hospital nurse residency program. All simulation surveys and competencies were numbered and were not associated with individual performance. The educator conducting the program improvement project conducted the initial educational experiences, simulation versus lecture/case study, as well administered all surveys. An

experienced nurse educator, not affiliated with the hospital or the program improvement project, assessed competency related to the final simulation experience. No hospital employees, other than novice nurse participants, were present during the teaching sessions or the assessment sessions. All information will be reported in aggregate format with no individual identifiers.

Study participants had the opportunity to practice clinical decision making in a simulation setting or lecture/case study format without risking harm to patients. Participants received feedback during educational experiences, from the educator in the role of facilitator, with no employee evaluation component. Self-assessment and reflection was encouraged and facilitated during simulation experience, debriefing component, competency assessment and completion of questionnaire.

All survey data was kept in a locked filing cabinet in the project coordinator's office, off-site. Data was reviewed by the educator leading the program improvement project only; no one else had access to the data. Results will be shared with the participating acute care facility upon completion of project and will be reported in aggregate form to help ensure participants anonymity.

This program evaluation project had an expedited Institutional Review Board (IRB) review process. All information was submitted to IRB by summer 2011. IRB determination was received August 29, 2011 and determined that this project was not human research (Appendix K). The use of simulation was already in place at this acute care facility; however the use of a sequential simulation focused on clinical decision making implemented during the nurse residency program required evaluation. All participants were current novice nurses who were participating in the nurse residency program. Participation in the educational experience, simulation or lecture/case study format, was required related to role in hospital setting however

completion of questionnaire was optional and informed consent (Appendix I) was collected from study participants prior to first survey administration. All participants could return blank surveys at any time during the nurse residency program evaluation, without consequences or further coercion.

Sample and Setting

This was a convenience sample of novice nurses at a local acute care hospital, currently participating in the nurse residency program. Participants were novice nurses, as defined by the acute care facility's clinical ladder, based on the work of Benner (1984), novice to expert. Selection criteria includes novice nurses or "clinical ladder 1"s, defined as nurses who have completed their initial nursing education program within the past 12 months and have been employed in the registered nurse role, by the acute care facility 18 months or less (Appendix A). All novice nurses at this facility participate in the nurse residency program that incorporates additional education and skill assessment for one year after the date of initial hire (Appendix B).

Sample size for this pilot study was determined by the number of novice nurses participating in the nurse residency program at the time of the project implementation. There were 27 nurses in the acute care facility designated as novice nurses or clinical ladder "1's" as of September 2011. Of those 27, 18 were present when the project was introduced to them during a presentation that occurred in September of 2011. The consent forms were reviewed and participants had the opportunity to ask questions, as well as decline to participate. Eighteen consent forms were signed and returned in September. On the day of project implementation, in October, only fifteen nurse residency participants were present. This was related to a decrease in nurse residency program attendance.

Procedures

Initial agreement for acute care facility participation was obtained from the Chief Nursing Officer in 2010. Related to a change in nursing administration, agreement for the project was again obtained in the summer of 2011. Initial proposal of capstone project was presented to hospital research and quality committee in September 2010. Facility letter of approval was submitted with IRB process and with absence of IRB; the acute care facility accepted University Maryland IRB approval which was obtained in August of 2011 (Appendix K).

Development of simulation scenarios and competencies. Simulation scenarios, case studies and competencies were developed during the fall of 2010, and spring and summer of 2011. Three simulation scenarios were developed for the nurse residency program. With a growing population of morbidly obese post-operative patients the acute care facility requested simulation scenario and competencies focus on this patient population. The first two scenarios were developed as the educational component of the project and were presented during the initial educational simulation experience. The first simulation scenario focused on clinical decision making related to the nursing care of the post-operative appendectomy patient and introduced the participants to the simulation experience and post-operative nursing care and clinical decision making concepts. The second scenario built or scaffolded on the concepts from the first scenario and added the complexity of the morbidly obese post-operative patient and its associated clinical decision making and nursing care. This created a sequential simulation experience. Again, applying the principles associated with Kolb's Theory of Experiential Learning, repeated concepts or experiences in the simulation experience build upon one another to enhance learning (Kolb, 1984; Kolb & Kolb, 2005).

The lecture and case study educational presentation created, mimicked the simulation scenario presentation, minus the simulation component. It was similar in content and length of time, with the simulation components presented in sequential case study format for class discussion. It was also developed during the spring/summer of 2011.

The second simulation experience mirrored the previous teaching one and was used to validate competency related to clinical decision making and the nursing care of the morbidly obese post-operative patient. All simulation scenarios, competency checklists and decision trees were reviewed by two content experts in the use of simulation and two content experts in the nursing care of the medical/surgical patient (see Appendices C, E, G, J). A nurse educator at the acute care facility also reviewed the simulation scenarios and associated competency decision trees/checklists to assure conformity with the facility policies and procedures. In accordance with published guidelines for simulation development (Jeffries, 2007; Waxman, 2010), all simulation scenarios were assessed related to simulation scenario content, clarity, simulation procedures, debriefing prompts, and current best practice policies and procedures (see Appendix J). Any portion of simulation scenario(s) or competency decision tree/checklist found to be unclear, inaccurate or not current best practice by two or more of the five reviewers was revised and re-submitted for additional review.

Prior to use in the nurse residency program the simulation scenarios were piloted with senior nursing students who are enrolled in the last year of an Associate degree nursing program. A posting on the senior nursing Blackboard ® course site, offered the opportunity to participate in simulation scenarios as volunteers, in addition to senior coursework. No coercion or extra course credit occurred. Students were offered free pizza upon completion of simulation scenario

trial run. During this trial run, scenario(s) progression was assessed as well as the elicited behaviors of participants.

Two senior students participated in the simulation scenario(s) trial. All three simulation scenarios were implemented and scenario progression was assessed. Assessment of scenario progression included: amount of time for scenario(s); smoothness of transitions/changes in 'patient' status during simulation; elicited student behaviors; and responses to reflection prompts. Minor adjustments were made to the simulation scenarios to assist in clarity of information presented to participants, but no major revisions were necessary.

Survey creation and use. A brief two-page survey was created and administered three times: prior to the initiation of the first simulation or case study teaching presentation; at the conclusion of the teaching (simulation or case study) experience; and two weeks later at the competency assessment. Surveys were reviewed by the same nurse educators who reviewed the simulation scenarios, competency checklists and decision trees. The short survey included information related to demographics, prior experience with simulation; knowledge related to clinical decision making; knowledge of nursing care related to the morbidly obese post-operative patient; and satisfaction with experience if applicable (Appendix H). Surveys were kept brief, with 'yes' or 'no' or 'true' or 'false' responses to simplify and promote completion, as this portion of the project was voluntary for the participants.

Participants were asked to complete one survey prior to starting the educational experience, either lecture and case study or sequential simulation experience, and one immediately following the educational experience. All surveys were collected by a participant attending sessions and placed in a sealed envelope. Participants were asked to bring the third survey with them, along with the copy of the checklist/decision tree when they returned in two

weeks for competency assessment. Participants who forget were able to obtain a survey at the time of assessment; however this may skew survey results and limit comparison to earlier surveys if participants did not recall their identifying number. Prior to initiating the simulation assessment experience, participants completed the third survey and placed it in a sealed, signed, and dated envelope.

Project implementation. Project implementation occurred in October of 2011, during a scheduled nurse residency day/presentation. Nurse residency participants met in one large conference room at the start of the day; there were fourteen present. An orientation and plan for the day was provided by the project coordinator and the nurse residency coordinator for the acute care facility.

Numbered packets with color coded and numbered surveys were passed out. To maintain confidentiality related to surveys and participant responses, each participant was asked to choose a randomly numbered envelope with three copies of the survey in the envelope, a copy of the final scenario skills competency checklist/decision tree, and an extra envelope. Participants were informed they could choose not to answer the surveys and opt to return blank surveys. It was explained to the participants that they must participate in the simulation experience as a component of the nurse residency program, but survey completion was optional. Identification numbers associated with surveys and simulation competency checklists/decision trees were known only by the educator conducting the assessment. All documentation related to the project had only the number assigned to the participant; there were no participant names on any documents. Each participant chose a numbered packet and completed the corresponding master list. The master list with participant names and assigned numbers was kept in a locked cabinet in the project coordinator's office, off site. Surveys were color coded: Survey for all participants

prior to any participation in the project was pink; survey for post-participation in case study or simulation teaching experience was green; and survey for after completion of simulation assessment experience, two weeks post-teaching intervention was white. All surveys were identical and were numbered to match the participant.

Novice nurse participants were then randomly assigned to one of two groups by the nurse residency coordinator; the project coordinator was not present when this occurred. Group one was scheduled for the project educational intervention in the morning; group two remained in the conference room for another presentation related to nurse residency content. Group two was scheduled for the project educational intervention in the afternoon; group one attended the presentation from the morning or an alternative one on electronic documentation. Basic knowledge related to post-operative nursing care was assumed for all participants, based on recent completion of entry level nursing educational program and current nursing licensure. Each group, during its time slot, received a brief fifteen minute presentation related to clinical decision making, delivered by the nurse educator conducting the program evaluation. Tanner's model of Clinical Judgment, with its four components of noticing, interpreting, responding and reflecting was reviewed and discussed. Each group also received a brief ten minute orientation to the simulation mannequins, including a demonstration of mannequin capabilities. Both presentations were identical for the two groups.

Teaching simulation scenario experience. Group one, after receiving the presentation on clinical decision making and the orientation to the simulation mannequins began the sequential simulation experience facilitated by the project coordinator. An additional mastered prepared nurse educator, not associated with the acute care facility, and who is experienced with simulation and currently conducts educational simulation experiences and assessments in an

Associate degree nursing program was also present and operated the simulation mannequin The simulation experience took place in the four bed simulation unit at the acute care facility, with an attached classroom. Since there were eight participants in this group; the decision was made to run the teaching scenarios with eight participants. Roles were designated for the first scenario: primary nurse, physician, family member(s), and observer(s), as appropriate to the simulation (Jeffries, 2007).

The initial teaching simulation experience, care of a post-operative open appendectomy patient was initiated. The primary nurse was provided the opportunity to review the patient's 'chart' prior to the initiation of the scenario. The project coordinator then gave 'report' to the incoming 'primary nurse'. All participants heard report to the assigned 'primary nurse'. The simulation scenario took approximately twenty minutes to run, with the designated 'primary nurse' responding to the patient and the situation changes. During this scenario (Appendix C), the 'primary nurse' also had to contact the physician, communicate with the spouse at the bedside and call respiratory therapy to consult about the patient. The nurse made multiple clinical decisions and acted on these decisions such as: the change in vital signs; the patient's stated increase in pain; the patient's shortness of breath; calling a rapid response team consult (RRT); the unanticipated arrival of the spouse at the bedside; and communicating with the physician. Reflection immediately followed the simulation exercise, using the project developed questions (Appendix C). All group members participated in the reflection. Time frame of reflection was approximately twenty minutes.

Participants were given a ten minute break while the second simulation scenario was set up. To simulate obesity, a sumo wrestler costume was placed on the manikin, with appropriate markings and dressings to simulate the surgery. To facilitate enhanced learning related to

interdisciplinary health care team roles and communication, assigned roles changed for the second simulation presented (IOM, 2003; Jeffries, 2007). This second and more complex simulation scenario focused on the clinical decision making associated with the nursing care of the morbidly obese post-operative patient (see Appendix E). Roles were again assigned: primary nurse; physician, respiratory therapist; spouse/family member; and observers. The project coordinator again acted as the 'nurse' going off, reporting to the incoming shift. After the 'primary nurse' reviewed the chart, and heard report, the simulation scenario began. During this scenario (Appendix E), the 'primary nurse' again had to contact the physician, communicate with the spouse at the bedside and call respiratory therapy to consult about the patient. The nurse made multiple clinical decisions and again acted on these decisions such as: the change in vital signs; the patient's stated increase in pain; the patient's shortness of breath; calling a rapid response team consult (RRT); the unanticipated arrival of the spouse at the bedside; and communicating with the physician. The scenario unfolded over approximately twenty-five minutes with reflection following immediately afterward. Using the project developed questions; reflection then occurred that was approximately twenty-five minutes in length (Appendix E). Debriefing or reflection, facilitated by the educator conducting the performance improvement project, was of equal or greater in length of time related to the simulation scenario, according to simulation education best practices (Jeffries, 2007; Waxman, 2010). Upon completion of the simulation scenario teaching experience, the group congregated in the classroom off the simulation lab and completed the program participant surveys again (green). The project coordinator was not in the room and the surveys were collected by a participant and placed in a sealed envelope, signed and dated.

Teaching scenario experience. Group two, after receiving the same fifteen minute presentation on clinical decision making as the morning group had received, and the ten minute orientation to the simulation mannequins, began the lecture and case study experience facilitated by the project coordinator. There were seven participants in this session. Additional information in lecture format, with PowerPoint® slides, was presented on post-operative nursing care, and care of the morbidly obese post-operative patient. Case studies, based on the simulation scenarios presented in the simulations from the am, were presented, in paragraph format, and discussed (see Appendices D, F). The educational experience was also facilitated by the project coordinator. The session took approximately one hour and half; slightly less time than the simulation experience earlier in the day. Reflection occurred throughout the educational experience but the process was not as clearly delineated as with the simulation experience.

Individual simulation assessment scenario. The day after the nurse residency program presentation(s) an e-mail was sent to the nurse residency coordinator to be forwarded to the nurse residency participants. The e-mail provided the days and times that participants could sign up for the half hour individual simulation assessment session. There were three days established for individual simulation assessment: Saturday; Monday; and Tuesday; with times ranging from 7am to 6:30pm. The e-mail asked participants to contact the project coordinator directly with requests for times and/or any questions. It was also stated that if none of the available times worked, the participant could contact the project coordinator and request another time or day. This e-mail was also re-sent twice during the two week interval between the presentation and the beginning of the assessment time frame. Ten participants signed up for individual simulation assessment slots.

Individual simulation assessments were initiated two weeks after the teaching presentations occurred. The simulation scenario used for assessment was the third simulation that was created and reviewed for this project, and mimicked the second simulation scenario, focusing on the clinical decision making and nursing care of the morbidly obese post-operative patient (Appendix G) . The sumo wrestler costume was again used to simulate obesity. Each novice nurse participated in a simulation scenario related to the clinical decision making associated with the nursing care of the morbidly obese post-operative patient and competency was assessed according to established checklist by a nurse educator, experienced in simulation, and who is not affiliated with the facility or the program improvement project. The same nurse educator, who was not the project coordinator, completed the assessments on all novice nurse participants. Each novice nurse participated in the simulation assessment individually and checklists and decision trees were completed with each assessment. Reflection occurred after each simulation assessment, guided by the nurse educator who conducted the assessment and the project coordinator.

Results

Survey results prior to teaching presentations.

A total of fifteen nurse residency participants (N=15) were present on the day of implementation and completed the survey prior to either teaching presentation (Appendix H). The majority of the participants were female (N=14) and graduated from an associate degree program (N=11). The majority of participants were 20-29 years in age (N=11), with three participants 30-39 and one participant 40-49 in age.

Of the 15 participants, five had not had any prior experience with simulation. Of those that had experience with simulation (N=10) half of them had experienced ten or more simulations (N=5) with the remaining participants having between 1-4 (N=3) and 5-9 (N=2). The majority of participants indicated that they were comfortable with simulation as a learning environment (N=13), with one participant unsure and one participant uncomfortable with simulation.

All participants acknowledged that they frequently make clinical decisions in nursing practice (N=15). However, only nine participants expressed confidence in their clinical decision making and delivery of nursing care. Three participants expressed that they were not confident and three expressed that they were unsure about their confidence related to clinical decision making. Seven participants responded 'true' when asked if they could verbalize the components of clinical decision making; six were unsure and two responded 'false'.

When asked specifically about the post-operative care of the morbidly obese patient, the majority responded that the respiratory status of this patient was a priority (N=13); one responded 'false' and one response was 'did not know'. The majority of participants also knew that morbidly obese patients have a higher risk of infection (N=11), with 3 respondents

indicating they did not know and one respondent indicating 'false'. The majority of participants were unsure about the high risk of malnutrition for the morbidly obese post-operative patient (N=10). Four responded 'true', that this patient was at high risk and one responded 'false'.

Survey results after simulation teaching experience

Eight novice nurses participated in the simulation experience in the morning of the nurse residency program. Two participants were BSN graduates, with the remaining participants ADN graduates (N=6). The majority were between the ages of 20-29 (N=6), with two respondents identifying their age as between 30-39. There was one male participant with the remaining participants female (N=7).

Experience with simulation was varied with this subgroup. The majority had experience with simulation (N=7), but experience varied from none (N=1) to 10 or greater (N=3). The remaining participants had 1-4 simulation experiences (N=2) and 5-9 simulation experiences (N=2), prior to this experience.

After the simulation experience all participants (N=8) responded that they could verbalize the components of clinical decision making and agreed that they made clinical decisions frequently in their practice. The majority responded that they felt confident making clinical decisions in their nursing practice (N=7); however one participant responded false to the statement related to confidence in clinical decision making.

All simulation experience participants responded correctly to all of the statements related to the post-operative care of the morbidly obese patient (N=8). All participants responded 'true' to the following assessment questions after the simulation experience:

1. *This simulation experience increased my knowledge related to the care of the morbidly obese post-operative patient.*

2. *This simulation experience increased my confidence related to the care of the morbidly obese post-operative patient.*
3. *This simulation experience increased my knowledge related to making clinical decisions.*
4. *This simulation experience increased my confidence related to making clinical decisions.*

All participants responded to all survey questions.

Survey results after lecture/case study teaching experience

Seven novice nurses participated in the lecture/case study experience in the afternoon of the nurse residency program. Two participants were BSN graduates, with the remaining participants ADN graduates (N=5). The majority were between the ages of 20-29 (N=6), with one respondents identifying their age as between 30-39 and one respondent identifying her age as 40-49. This subgroup had all female participants (N=7).

Experience with simulation was also varied with this subgroup. The majority had experience with simulation (N=5), but two respondents had no experience with simulation. The majority of participants in this group indicated experience with simulation of 10 experiences or more (N=4). The remaining participant, who indicated she had experience with simulation, reported 5-9 prior simulation experiences.

After the lecture/case study experience all participants (N=7) responded that they could verbalize the components of clinical decision making and agreed that they made clinical decisions frequently in their practice. The majority responded that they felt confident making clinical decisions in their nursing practice (N=6); however one participant responded false to the statement related to confidence in clinical decision making.

All lecture/case study experience participants responded correctly to all statements in the survey related to the post-operative care of the morbidly obese patient (N=7). Participants in the

lecture/case study presentation did not complete the questions on the survey related to the simulation experience as they were not applicable.

Survey results after individual simulation assessment experience

Ten novice nurses participated in the simulation assessment experience that occurred two weeks after the initial teaching presentations (simulation or lecture/case study). Results from the surveys completed prior to the start of the simulation assessment experience were very similar when comparing the simulation versus the case study teaching groups. Demographic data was similar between the two groups. Both subgroups also had similar results indicating knowledge and confidence related to clinical decision making and nursing care of the morbidly obese post-operative patient. (Table 1).

Table 1: Summary of survey results from Individual simulation assessment participants

Individual simulation assessment	Participants (N=10)	Simulation (N=5)	Case study (N=5)
Demographics			
Degree			
BSN	2	1	1
ADN	8	4	4
Age			
20-29	7	4	3
30-39	2	1	1
40-49	1		1
Gender			
Male	1	1	0
Female	9	4	5
Simulation			
Prior experience			
Yes	8	4	4
No	2	1	1
Number of prior simulations			
1-4	2	0	2
5-9	2	2	0
10 or greater	4	2	2
Comfortable with simulation			
Yes	10	5	5
No	0		
Clinical decision making (CDM)			
Verbalize components			
True	9	5	4
False	1	0	1
Do not know	0	0	0
Make CDM in practice			
True	10	5	5
False	0	0	0
Do not know	0	0	0

Confident in CDM			
True	8	4	4
False	0	0	0
Do not know	2	1	1
Post-op care of morbidly obese patient			
Respiratory priority			
True	10	5	5
False	0	0	0
Do not know	0	0	0
Higher risk of infection			
True	10	5	5
False	0	0	0
Do not know	0	0	0
High risk for malnutrition			
True	10	5	5
False	0	0	0
Do not know	0	0	0
Simulation experience			
Increased my knowledge r/t morbidly obese post-op pt.			
True	8	5	3
False	0	0	0
Do not know	0	0	0
Increased my confidence r/t morbidly obese post-op pt.			
True	8	5	3
False	0	0	0
Do not know	0	0	0
Increased my knowledge r/t CDM			
True	8	5	3
False	0	0	0
Do not know	0	0	0
Increased my confidence r/t CDM			
True	8	5	3
False	0	0	0
Do not know	0	0	0

Checklist and decision tree results

A competency assessment checklist and related decision tree was completed on each participant in the individual simulation assessment. Results for the two groups, simulation versus lecture/case study presentations were again very similar, with both groups completing the decision process quickly. Participants who had participated in simulation scored slightly higher on the competency checklist and completed more of the competencies than participants who had the lecture/case study educational experience (Table 2).

Table 2: Summary of results from individual simulation assessment checklist/decision tree

Individual simulation assessment	Total participants (N-10)	Simulation (N=5)	Case study (N=5)
Checklist: total score (possible 15):			
0-3			
4-7	3	1	2
8-11	7	4	3
12-15			

Mean		8	7.8
Median		8	8
Mode		8 and 9	6
Scenario competencies:			
1. Wash hands	0	0	0
2. ID patient	7	4	3
3. Complete post-op assessment	0	0	0
VS	10	5	5
LOC	0	0	0
Lung sounds	9	4	5
Post-op dressing	8	5	3
IV therapy	3	2	1
Pain, use of pain scale	10	5	5
PCBs	1	0	1
I&O (elimination)	4	2	2
4. Questions /assessment r/t pain	10	5	5
5. Questions/assessment r/t respiratory status	4	2	2
6. Communicate with physician	10	5	5
7. Complete decision tree within time frame	10	5	5
Decision tree: Time into scenario that physician was notified of patient change			
0-5 minutes	9	4	5
6-10 minutes	1	1	0
11-15 minutes		0	0
>15 minutes		0	0

Discussion and Dissemination

Novice nurse participation in project

Sample size for this pilot study was determined by the number of novice nurses participating in the nurse residency program at the time of the project implementation. There were 27 nurses in the acute care facility designated as novice nurses or clinical ladder "1's" as of September 2011. In October 2011, on the day of project implementation, only 15 novice nurses attended and participated in the project. The nurse residency program at this acute care facility is designated as 'mandatory', however during the implementation of this project it was discovered that attendance is sporadic for the nurse residency program. Novice nurses are not scheduled 'off' to participate, nurse managers do not make attendance a priority for their novice nurses, and there no clearly articulated consequences for novice nurses or nurse managers when novice nurses do not participate, creating a very limited and weak nurse residency program.

Survey results

Demographic make-up of the two subgroups, simulation versus lecture/case study was similar with no remarkable differences. The simulation assessment results for both groups, regardless of presentation method were also very similar (Table 1). Participants in both groups indicated increased knowledge related to nursing care of the morbidly obese post-operative patient (N=10), a goal of the sponsoring institution. The majority of participants expressed increased confidence in clinical decision making (N=8), however one participant from each teaching presentation group still indicated no increase in confidence after this experience (n=2).

Surveys completed prior to the educational interventions indicated that 60% of the participants had confidence in their clinical decision making skills (9 of the 15 participants). However, after the simulation educational experience seven of the eight participants or 87.5%,

indicated confidence in clinical decision making. Results were similar with the lecture/case study group with six out of seven participants indicating confidence with their clinical decision making skills after the educational experience or 85%. This reported confidence was sustained over a two week period with eight of the ten participants or 80% indicating confidence in clinical decision making skills at the two week assessment.

Knowledge related to post-op care of the morbidly obese patient was also enhanced according to self-reported survey results. Prior to educational interventions the majority of participants identified respiratory status as a priority for the morbidly obese post-operative patient with thirteen of the fifteen participants selecting 'true' or 86%. However, only eleven out of fifteen participants (73%) identified the morbidly obese post-operative patient at higher risk for infection and only four participants identified this patient at high for malnutrition (26%). After the simulation and the lecture/case study educational experiences all participants (N=15; or 100%) responded correctly to all knowledge statements regarding the care of the morbidly obese post-operative patient. This knowledge was retained at the two week assessment point, with all participants (N=10; or 100%) again responding correctly to statements about the morbidly obese post-operative patient.

Simulation assessment checklist and decision tree results

Individual simulation results from the competency checklists were surprisingly similar for both groups. All participants, regardless of educational intervention assessed pain, using the pain scale; communicated changes to the physician; and assessed vital signs. However, participants who completed the simulation educational experience scored slightly higher on the competency assessment overall and completed more components of the patient assessment as indicated by a slightly overall higher mean score of 8 versus 7.8 for lecture/case study group.

For both groups, not one participant washed their hands or indicated to the assessor that they would have. Also, patient identification often was limited to asking the patient his name; only two checked the ID band.

Decision tree results were also similar for the two groups. All participants from both teaching presentation groups noticed, interpreted and responded to the changes in the patient condition within ten minutes (N=10). One individual in the simulation group took six minutes to contact the physician in the simulation; the remainder of the participants (N=9) regardless of educational experience group took less than five minutes to notify physician of patient changes.

During the reflection, the majority of the participants were comfortable with his/her performance. However when asked about a particular competency on the checklist that might have been missed, respondents acknowledged that it should have been completed, particularly before communicating with a physician. A few participants commented, "Oh, I would have done that in a real situation." Several participants also expressed that they felt like they were 'back in nursing school' but thought the teaching intervention had been valuable.

Limitations

There are several limitations identified with this project. Although the beginning pool of potential participants was larger, the final number of project participants was small in number, leading to an even smaller pilot project than originally planned. This unintentional consequence raises additional questions about the necessity, characteristics, and perceived value by various stakeholders of nurse residency programs. The project was conducted in one acute care facility and many of the participants had graduated from the local ADN program that the project coordinator is affiliated. The sample size and characteristics, limit the generalization of the

results to other populations including student nurses and novice nurses working in other settings or at larger acute care facilities.

Additionally, with a broad definition of a novice nurse (from zero to eighteen months experience for participation in nurse residency program) it was difficult to determine what factors had already been in play, contributing to the participants' knowledge base. Participants also came from a wide variety of patient care units: Pediatrics, Medical/Surgical, Maternal/Child, ICU and ED. Often, as nurse practice longer on specific units, priorities for assessment and treatment may differ, leading to changes in practice. Since the scenario focused on the post-operative morbidly obese patient, this type of patient and the associated priorities and assessments would be more difficult for the ED or Maternal/Child nurse to notice, interpret and respond to. Although the survey did not address this, participants identified their area of practice and stated that the scenario(s) had less relevance in their areas of practice.

Conclusions

Although there were very limited differences between the two groups, this project adds to the dialogue regarding simulation and its use. Based on the small sample size limited conclusions can be drawn regarding the effectiveness of simulation versus lecture/case study presentation. In this pilot project, it appeared that both teaching interventions were overall effective, with slight improvements in competency in the simulation educational group. Participants in the simulation experience group conducted more thorough assessments on the simulated patient, which could lead to better interdisciplinary communication and thus enhanced patient outcomes. While both teaching interventions took about the same amount of time, the simulation teaching intervention created spontaneous comments from the participants "I really like learning this way" and I don't like to just sit, so the activity is good for me".

Implications for nursing education, clinical practice, and transition into practice

Clinical decision making and transition into practice are areas of concern for new nurses, nurse educators and nurse administrators (Advisory Board, 2008; Dunton, et al., 2007; NCSBN, 2009). New methods for addressing these concerns are needed and simulation is one potential avenue. Although there were limited differences in the measured outcomes between the two education intervention groups, any project that addresses new or innovative methods to assist novice nurses with transition and clinical decision making, adds to the dialogue. Results from this project indicate that both interventions had an impact on the knowledge and confidence of the novice nurse participants, related to clinical decision making and care of the morbidly obese post-operative patient. This supports the conclusion that focused, reality based scenarios may be a valuable educational strategy for enhancing the clinical decision making skills of novice nurses. Simulation, although valuable, is expensive to implement and facilities with limited budgets may get as much out of case studies.

DNP essentials

This capstone project addresses several of the Doctorate of Nursing Practice Essentials identified by the American Association of Colleges of Nursing. *Essential II: Organizational and System Leadership for Quality Improvement and System Thinking* is addressed by this quality improvement project related to impacting the quality of patient care for a particular patient population, as well as creating a safe environment for novice nurses to 'practice' clinical decision making. *Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice* is addressed by the integration and application of current evident in the capstone project. *Essential VI: Interprofessional Collaboration for Improving Patient and Population*

Health Outcomes was modeled in the use and assigned roles in the simulation scenarios; illustrating to the participants the role and value of the various health care team members.

Plans for translation

The author will share the results from this quality improvement project with the acute care facility in mid-March, with a presentation to the novice nurse participants, the nurse residency coordinator and members of the hospital research and quality committee. All scenarios and case study material created for this project will be made available to the acute care facility for future use. Project results will also be shared with the Associate degree nursing program faculty that affiliate with the acute care facility. An abstract will be submitted for a poster presentation to a national conference (National League for Nursing Educators Summit and National Association for Associate Degree Nursing). A manuscript about the project is also planned for submission.

Summary

With ever increasing complexities in today's health care system, the demands on the novice nurse entering practice can be overwhelming. The need for educational strategies to integrate theory and practice, while easing the transition into practice for novice nurses is evident. The skill of clinical decision making, imbedded in every aspect of nursing practice, is of particular importance as the decision and resulting action or inaction of a nurse impacts the delivery of safe and effective patient care. The use of innovative educational strategies, such as simulation scenarios that focus on clinical decision making within the context of a patient care situation can assist in the development of the novice nurse's clinical decision making skills, thus enhancing competency and impacting patient safety.

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Appendix A

RN CLINICAL EXCELLENCE LADDER
ADVANCEMENT CRITERIA
Union Hospital

This professional recognition program was developed by nurses through a shared governance process in order to celebrate the growth and development of front-line nurses. The ladder promotes the professional values of excellence in patient care, personal responsibility, respect for self and others, innovation through teamwork, dedication to caring, and Service Excellence.

- ***In order to maintain the current status on the Clinical Excellence Ladder, nurses' annual performance evaluation must reflect ongoing professional behaviors as described in the advancement criteria below.***
- ***Manager will initial and date this form to verify that criteria for advancement have been met.***
- ***Completed form must be submitted with portfolio for nurses seeking advancement.***
- ***Leadership Council will review submitted materials and approve advancement.***
- ***If seeking advancement, for Clin III or IV the portfolio must be updated and maintained by the nurse, and submitted to the Leadership Council for annual review.***
- ***If maintaining status, manager can evaluate portfolio, using this form as a guide.***
- ***Advancement up the ladder is available to all interested nurses.***
- ***Per diem nurses are not required to advance above the level at which they were hired.***

Compensation

- ***Pay increase will be calculated as a percentage of the base rate.***
- ***Only full-time, part-time, and casual part-time will be eligible for a pay increase as they advance.***
- ***The WEO (week-end option) rate will not change but the secondary RN code will be eligible for the increase.***
- ***Per Diem rates will not change with advancement.***
- ***All levels of the ladder will be paid hourly.***

I

- In order to maintain personal and professional growth, new grad and Clin I nurses should begin the process of preparing a portfolio with the support of their manager and/or a chosen experienced nurse mentor within 6 months from date of hire regardless of employment status. Nurses hired who have been licensed less than 12 months are expected apply for Clin II within 18 months of hire.
- Experienced new hire who is not a new grad and not per diem must advance within 12 months

_____
Initial and Date

II

- Portfolio Submission to Nurse Manager
- 1 year RN experience minimum
- 15 hours of continuing education, at least 10 of which must be accredited (ANCC, MNA, NLN, CME, ETC).
- If enrolled in an academic nursing program, each academic credit will be counted as one continuing education credit hour.
- Active participation on house-wide/unit-based shared governance council or committee and/or Qualifying Project that reflects the organizational mission and is approved by manager
- Annual review by manager to ensure that Clinician II standards are maintained. This discussion can occur at quarterly feedback sessions.
- No outstanding performance issues or concerns within the previous 6 months.

_____
Initial and Date

III

- Interview and portfolio submission to Leadership Council required for advancement
- 25 Hours of continuing education, at least 15 of which must be accredited (ANCC, MNA, NLN, CME, ETC).
- If enrolled in an academic nursing program, each academic credit will be counted as one continuing education credit hour
- Active participation on house-wide/unit-based shared governance council, committee, and/or Qualifying Project that reflects the organizational mission and is approved by manager and a task force of peers
- National Specialty Certification as approved by Directors for each unit (see attached list)
- 1 criteria in Education category
- 1 criteria in Leadership category
- 1 criteria in Professional Practice category
- 1 additional criteria from preferred area of focus
- For nurses maintaining Clin III status, annual review of portfolio by manager and Leadership Council are required to ensure that all Clin III standards are maintained.
- No outstanding performance issues or concerns within the previous 12 months

_____
Initial and Date

IV

- Interview and portfolio submission to Leadership Council required for advancement.
- 35 hours of continuing education per year, 25 of which must be accredited
- If enrolled in an academic nursing program, each academic credit will be counted as one continuing education credit hour
- Current or past chair of house-wide/unit-based shared governance council, committee, or task force; must remain actively involved in shared governance , supporting council as a mentor and leader.
- National Specialty Certification in as approved by Directors for each unit
- Minimum of a Bachelor of Science in Nursing Degree
- 2 criteria in Education category
- 2 criteria in Leadership category
- 2 criteria in Professional Practice category
- For nurses maintaining Clin IV status, annual review of portfolio by manager and Leadership Council are required to ensure that all Clin IV standards are maintained.
- No outstanding performance issues or concerns within the previous 12 months.

_____
Initial and Date

Portfolios will be accepted monthly for review by the Leadership Council. Review Panel will convene every other month.

Appendix B

The Union Hospital Nurse Residency Program for new RN's

Providing education and guidance across the entire first year, this program reflects Union Hospital's commitment to helping new nurses prepare for practice in the complex, ever-changing clinical environment of acute care.

Key Features of the Nurse Residency Program for New Nurses

- Twelve full months of education and support to smooth your transition into practice
- A professional partnership with an experienced voluntary and enthusiastic nurse preceptor who works one-on-one with you for at least three months or until you feel ready to practice independently
- A multi-tracked learning program to expand your knowledge consisting of
    - Evidence-based clinical orientation featuring presenters from every level of the organization
    - Didactic coursework to taught by nurse leaders and other experts covering all aspects of professional nursing, including evidence-based practice, shared governance, delegation, and the forces of Magnetism
    - Monthly Nursing Grand Rounds offering review of pathophysiology, pharmacology, and case studies presented by your front-line nurse colleagues
    - Monthly support group that allows you to share experience with other new nurses working throughout the hospital
- Access to a fully-equipped Simulation Lab under the guidance of trained super-users.
- Opportunities to participate in our Nursing Councils and our Pain Resource Nurse Program
- Motivation and reward for advancement through our Clinical Excellence Ladder

The Nurse Residency Program enables you to gradually progress to managing a full assignment while developing your skills and expanding your knowledge base as a professional registered nurse.

Appendix C

Simulation Scenario I

Nursing care of the post-operative appendectomy patient

Objectives:

1. Describe and demonstrate the components of a thorough post-op patient assessment. (noticing)
2. Determine the priority assessment(s) related to a post-op appendectomy patient. (noticing, interpreting and responding)
3. Recognize patient information that requires additional assessment and act accordingly. (interpreting and responding)
4. Recognize the abnormal respiratory assessment data and determine decisions to be made by the nurse regarding these findings. (interpreting and responding) (signs and symptoms indicating pulmonary embolism)
5. Communicate the assessment findings accurately to the patient's physician. (interpreting and responding)

Simulation Scenario:

Patient is a 56 year old female who underwent an Appendectomy at 1300 today. The nurse is coming onto the unit at 7pm for the night shift and receives report. The patient returned to the unit at 1800 hours.

Report:

Ms. Jane Smyth is a 56 year old patient of Dr. Lang's who underwent an Appendectomy at 1300 hours today. She returned to the unit at 1800 hours. Vital signs are stable (100.4-76-18, 126/72) and she does not have any significant medical history. She is allergic to penicillin. Patient was complaining of abdominal pain and had a fever of 102.2 prior to appendectomy.

Patient is sleeping, but arouses easily to verbal stimuli. She was medicated with 2 mg IV morphine at 1530 hours before coming to the unit. Cefoxitin 1 gm is ordered q 8 hours IVPB. Tylenol and Phenergan are ordered PRN. IV is D5NS at 100cc/hr. Lung sounds are clear bilaterally. Abdominal dressing is clean, dry and intact. PCB boots are on. Patient has a clear liquid diet ordered, but has not had anything to eat or drink. Husband was at the bedside but is currently downstairs having something to eat.

Scenario set up:

Human Patient Simulator (HPS) has been set with vital signs as follows: 100.8-98-24, 148/82. Lung sounds are clear in the left fields, and upper right field, but are absent in the lower right lung field. Pulse oximetry is registering 88%. O2 via nasal cannula is available in patient room, but not on patient. Abdominal dressing is dry and intact. PCB boots are on and functioning correctly. Patient is awake and complaining of pain. If nurse questions the patient, patient will respond that pain is sharp, worse when patient inhales (pleuric pain), and is on the right side (vague with exact location). IV of D5NS is intact and infusing at 100cc/hr.

Scenario competency checklist:

(participants receive one point for component completed)

1. ____Wash hands before patient contact.
2. ____Identify patient and introduce self to patient
3. ____Complete assessment of post-operative patient. * *noticing*
    a. ___Vital signs
    b. ___level of consciousness, orientation
    c. ___Lung sounds
    d. ___Dressing
    e. ___IV therapy
    f. ___Pain, use of pain scale
    g. ___PCBs
    h. ___elimination (intake and output)
4. ____Ask patient additional questions related to complaint of pain-determine location, duration, type and impact of respirations and breathing on pain. **interpreting and responding*
5. ____Apply O2 2L via nasal cannula * *interpreting and responding*
6. ____communicate findings to physician, using SBAR.* *interpreting and responding*
7. ____completion of clinical decision tree within time frame **clinical decision making indicator*

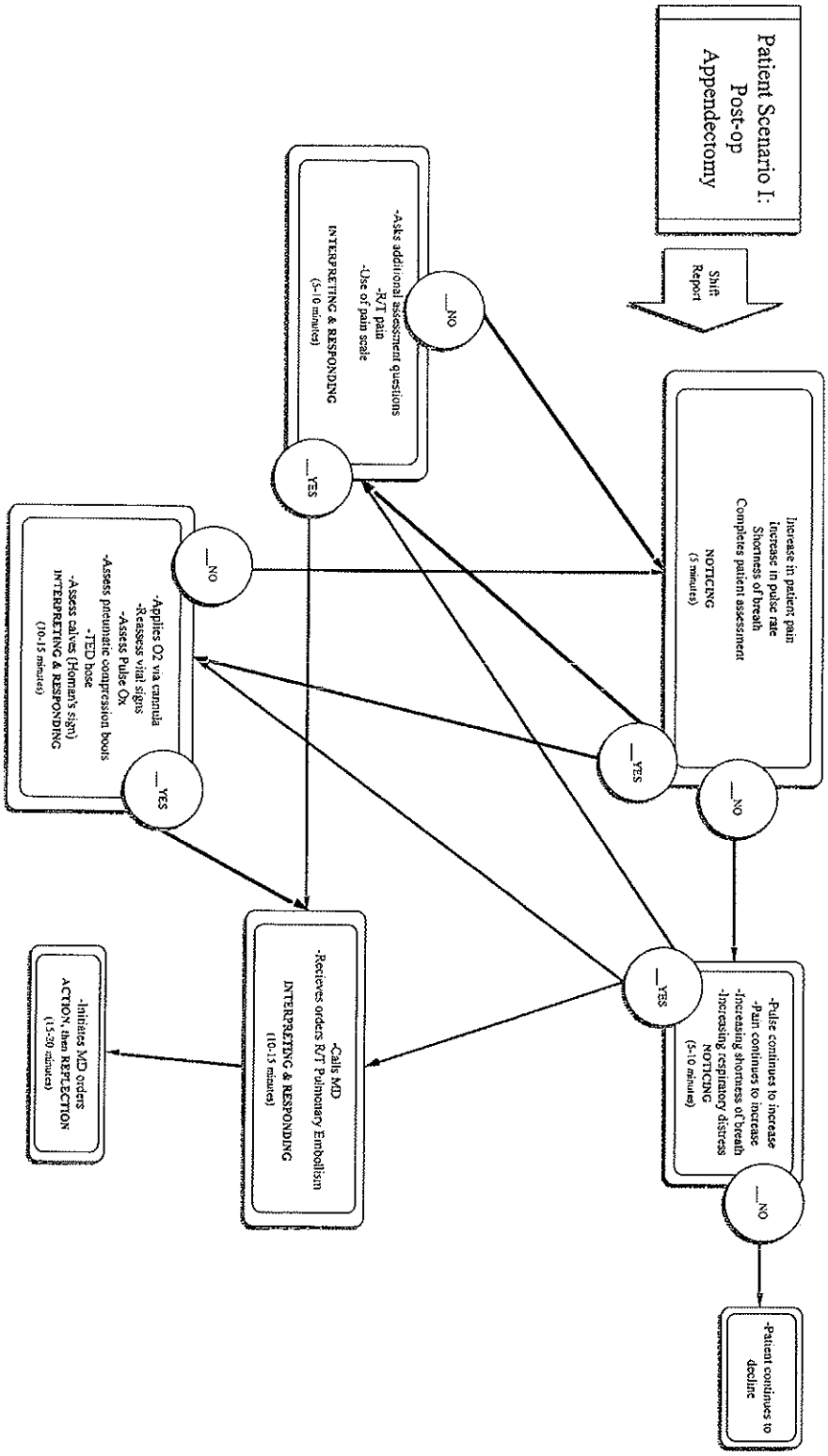
____total (total possible_15_)

**Tanner Model of Clinical Judgment*

Debriefing/reflection questions:

1. What did you discover (*notice*) in your patient assessment?
2. What is the patient care priority in this scenario or how did you *interpret* these findings?
3. How did you *respond* to patient assessment or re-assessment findings?
4. What are the clinical decisions that you made as the nurse?
5. What would you do differently next time?

Simulation Scenario I
Nursing care of the post-operative appendectomy patient
Decision tree



Appendix D

Case Study I

Nursing care of the post-operative appendectomy patient

Objectives:

1. Describe and demonstrate the components of a thorough post-op patient assessment. (noticing)
2. Determine the priority assessment(s) related to a post-op appendectomy patient. (noticing, interpreting and responding)
3. Recognize patient information that requires additional assessment and act accordingly. (interpreting and responding)
4. Recognize the abnormal respiratory assessment data and determine decisions to be made by the nurse regarding these findings. (interpreting and responding)
5. Communicate the assessment findings accurately to the patient's physician. (interpreting and responding)

Scenario:

Patient is a 56 year old female who underwent an Appendectomy at 1300 today. The nurse is coming onto the unit at 7pm for the night shift and receives report. The patient returned to the unit at 1800 hours.

Report:

Ms. Jane Smyth is a 56 year old patient of Dr. Lang's who underwent an Appendectomy at 1300 hours today. She returned to the unit at 1800 hours. Vital signs are stable (100.4-76-18, 126/72) and she does not have any significant medical history. She is allergic to penicillin. Patient was complaining of abdominal pain and had a fever of 102.2 prior to appendectomy.

Patient is sleeping, but arouses easily to verbal stimuli. She was medicated with 2 mg IV morphine at 1530 hours before coming to the unit. Cefoxitin 1 gm is ordered q 8 hours IVPB. Tylenol and Phenergan is ordered PRN. IV is D5NS at 100cc/hr. Lung sounds are clear bilaterally. Abdominal dressing is clean, dry and intact. PCB boots are on. Patient has a clear liquid diet ordered, but has not had anything to eat or drink. Husband was at the bedside but is currently downstairs having something to eat.

Progression of case study:

Vital signs as follows: 100.8-98-24, 148/82. Lung sounds are clear in the left fields, and upper right field, but are absent in the lower right lung field. Pulse oximetry is registering 88%. O2 via nasal cannula is available in patient room, but not on patient. Abdominal dressing is dry and intact. PCB boots are on and functioning correctly. Patient is awake and complaining of pain. If nurse questions the patient, patient will respond that pain is sharp, worse when patient inhales (pleuric pain), and is on the right side (vague with exact location). IV of D5NS is intact and infusing at 100cc/hr.

Discussion questions:

1. What would you expect to discover (*notice*) in your patient assessment?
2. What is the patient care priority in this scenario or how did you *interpret* these findings?
3. How would you *respond* to patient assessment or re-assessment findings?
4. What are the clinical decisions that you would make as the nurse?
5. What might you do differently next time?

Appendix E

Simulation Scenario II

Nursing care of the morbidly obese post-operative patient

Objectives:

1. Describe the nursing considerations/assessments that are vital in the care of the morbidly obese post-operative patient. (noticing)
2. Determine the priority assessment(s) and nursing interventions related to the morbidly obese post-op patient. (noticing, interpreting and responding)
3. Recognize patient assessment data that would indicate the need for additional assessment, determine decisions to made by nurse and act accordingly. (interpreting and responding) (signs and symptoms in early post-operative period, indicating anastomotic leak – potentially life threatening)
4. Communicate the assessment findings accurately to the patient's physician. (interpreting and responding)

Simulation Scenario:

Patient is a 34 year old female who underwent gastric bypass surgery at 1000 this am. The nurse is coming onto the unit at 7pm for the night shift and receives report. The patient returned to the unit at 1800 hours.

Report:

Ms. Susan Jones is a 34 year old patient of Dr. Pennington's who underwent gastric bypass surgery at 1000 hours today. She returned to the unit at 1800 hours. Vital signs were stable (100.4-88-18, 158/96). Her medication history includes hypertension managed by Lopressor 100mg once per day. She has no allergies. Ms. Jones is 5'5'' and weighs 345 lbs.

Patient is sleeping, but arouses easily to verbal stimuli. She was medicated with 1 mg IV morphine at 1530 hours before coming to the unit and now has a PCA with morphine ordered: 0.5 mg per patient demand, with a 10 minute lockout. Tylenol and Phenergan are ordered PRN. IV is D5NS at 100cc/hr. Lung sounds are clear bilaterally, but diminished in bases. Abdominal dressing is clean, dry and intact. PCB boots are on. Patient is NPO today, with sips of clear liquid diet after 2000 hours, but has not had anything to eat or drink. Steri strip sites are all clean, dry and intact. When you are in the room assessing the patient, she begins to cry. Patient states "it was so embarrassing in the recovery room. Some of the staff were commenting on the number of 'whales' today. They thought I was asleep on the stretcher." Husband was at the bedside but is currently downstairs having something to eat.

Scenario set up:

Human Patient Simulator (HPS) has been set with vital signs as follows: 100.8-122-24, 156/88. Padding is in place to simulate obesity. Lung sounds are clear in the left and right fields, but are severely diminished in lower lung fields. Pulse oximetry is registering 90%. O2 via nasal cannula is available in patient room, but not on patient. Abdominal dressing is dry

and intact. PCB boots are on and functioning correctly. Patient is awake and complaining of left shoulder and abdominal pain. If nurse questions the patient, patient will respond that pain is sharp and worse when patient inhales. IV of D5NS is intact and infusing at 100cc/hr. Patient has had no urine output since surgery; foley present.

Scenario competency checklist:

(participants receive one point for each component completed)

1. ____Wash hands before patient contact.
2. ____Identify patient and introduce self to patient.
3. ____Complete assessment of post-operative patient. * *noticing*
    a. ___Vital signs
    b. ___level of consciousness, orientation
    c. ___Lung sounds
    d. ___Dressing
    e. ___IV therapy
    f. ___Pain, use of pain scale
    g. ___PCBs
    h. ___ elimination (intake and output)
4. ____Ask patient additional questions related to complaint of pain-determine location, duration, type and impact of respirations and breathing on pain. **interpreting and responding*
5. ____asks patient questions related to tachycardia-history of, review chart **interpreting and responding*
6. ____notices oliguria; conducts assessment r/t oliguria **interpreting and responding*
7. ____communicates findings to physician asap, using SBAR.* *interpreting and responding*
8. ____ completion of clinical decision tree within time frame **clinical decision making indicator*

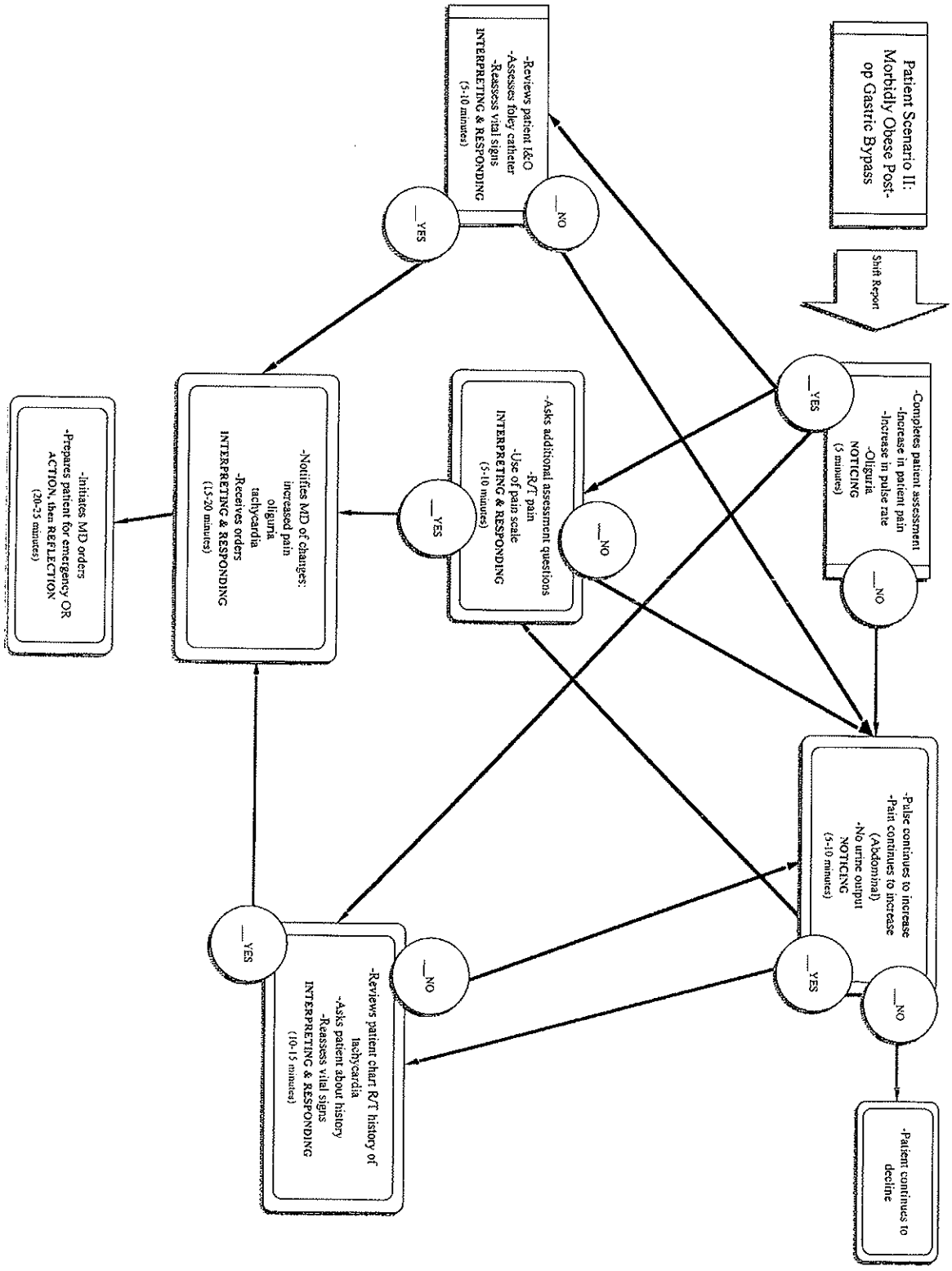
____ total (total possible 16)

**Tanner Model of Clinical Judgment*

Debriefing/reflection questions:

1. What did you discover (*notice*) in your patient assessment?
2. What is the patient care priority in this scenario and how did you *interpret* these findings?
3. How did you *respond* to the patient assessment or re-assessment findings?
4. What are the clinical decisions that you made as the nurse?
5. What would you do differently next time?
6. What are the other potential early and later complications for the morbidly obese post-operative patient?

Simulation Scenario II
Nursing care of the morbidly obese post-operative patient
Decision tree



Appendix F

Case Study II

Nursing care of the morbidly obese post-operative patient

Objectives:

1. Describe the nursing considerations/assessments that are vital in the care of the morbidly obese post-operative patient. (noticing)
2. Determine the priority assessment(s) and nursing interventions related to the morbidly obese post-op patient. (noticing, interpreting and responding)
3. Recognize patient assessment data that would indicate the need for additional assessment, determine decisions to be made by nurse and act accordingly. (interpreting and responding) (signs and symptoms in early post-operative period, indicating anastomotic leak – potentially life threatening)
4. Communicate the assessment findings accurately to the patient's physician. (interpreting and responding)

Case Study Scenario:

Patient is a 34 year old female who underwent gastric bypass surgery at 1000 this am. The nurse is coming onto the unit at 7pm for the night shift and receives report. The patient returned to the unit at 1800 hours.

Report:

Ms. Susan Jones is a 34 year old patient of Dr. Pennington's who underwent gastric bypass surgery at 1000 hours today. She returned to the unit at 1800 hours. Vital signs were stable (100.4-88-18, 158/96). Her medication history includes Lopressor, 100mg once per day for hypertension. She has no allergies. Ms. Jones is 5'5'' and weighs 345 lbs.

Patient is sleeping, but arouses easily to verbal stimuli. She was medicated with 1 mg IV morphine at 1530 hours before coming to the unit and now has a PCA with morphine ordered: 0.5 mg per patient demand, with a 10 minute lockout. Tylenol and Phenergan is ordered PRN. IV is D5NS at 100cc/hr. Lung sounds are clear bilaterally, but diminished in bases. Abdominal dressing is clean, dry and intact. PCB boots are on. Patient is NPO today, with sips of clear liquid diet after 2000 hours, but has not had anything to eat or drink. Steri strip sites are all clean, dry and intact. When you are in the room assessing the patient, she begins to cry. Patient states "it was so embarrassing in the recovery room. Some of the staff were commenting on the number of 'whales' today. They thought I was asleep on the stretcher." Husband was at the bedside but is currently downstairs having something to eat.

Progression of scenario:

Vital signs as follows: 100.8-122-24, 156/88. ung sounds are clear in the left and right fields, but are severely diminished in lower lung fields. Pulse oximetry is registering 90%. O2 via nasal cannula is available in patient room, but not on patient. Abdominal dressing is dry and intact. PCB boots are on and functioning correctly. Patient is awake and complaining of left shoulder and abdominal pain. If nurse questions the patient, patient will respond that pain is

sharp and worse when patient inhales. IV of D5NS is intact and infusing at 100cc/hr. Patient has had no urine output since surgery; foley catheter present.

Discussion questions:

1. What would you expect to discover (*notice*) in your patient assessment?
2. What would be the patient care priority in this scenario and how did you *interpret* these findings?
3. How would you expect to *respond* to the patient assessment or re-assessment findings?
4. What are the clinical decisions that you would expect to make as the nurse?
5. What might you do differently next time?
6. What are the other potential early and later complications for the morbidly obese post-operative patient?

Appendix G

Simulation Scenario III
Nursing care of the morbidly obese post-operative patient

Objectives:

1. Describe the nursing considerations/assessments that are vital in the care of the morbidly obese post-operative patient. (noticing)
2. Determine the priority assessment(s) and nursing interventions related to the morbidly obese post-op patient. (noticing, interpreting and responding)
3. Recognize patient assessment data that would indicate the need for additional assessment, determine decisions to be made by nurse and act accordingly. (interpreting and responding) (signs and symptoms in early post-operative period, indicating pulmonary embolism – potentially life threatening)
4. Communicate the assessment findings accurately to the patient's physician. (interpreting and responding)

Simulation Scenario:

Patient is a 38 year old male who underwent a gastric bypass 1000 yesterday. The nurse is coming onto the unit at 0700 the next morning for the day shift and receives report. The patient returned to the unit at 1800 hours.

Report:

Mr. Sam Drew is a 38 year old patient of Dr. Abdington's who underwent a gastric bypass at 1000 hours yesterday. He returned to the unit at 1800 hours. Vital signs were stable (100.1-88-18, 136/80). His medication history includes Diabeta 5mg for diabetes, and he should be on a 1800 calorie ADA diet, but his adherence is poor. Mr. Drew also has a history of shortness of breath on exertion. He does not take any medications for his SOB. He has a latex allergy but has no other allergies. Mr. Jones is 5'10'' and weighs 408 lbs.

Patient is sleeping, but arouses easily to verbal stimuli. He was medicated with 2mg IV morphine at 1530 hours before coming to the unit and now has a PCA with morphine ordered: 0.5 mg per patient demand, with a 10 minute lockout. Tylenol and Phenergan is ordered PRN. IV is D5NS at 100cc/hr. Lung sounds are clear bilaterally, but diminished in bases. Abdominal dressing is clean, dry and intact. PCB boots are on. Clear liquid diet ordered and patient is tolerating sips.

Scenario set up:

Human Patient Simulator (HPS) has been set with vital signs as follows: 100.8-116-24, 140/82. Padding is in place to simulate obesity. Lung sounds are clear in the left and right fields, but are diminished in lower right lung field and absent in lower left lung field. Pulse oximetry is registering 88%. O2 via nasal cannula is available in patient room, but not on patient. Abdominal dressing is dry and intact. PCB boots are on and functioning correctly. Patient is awake and complaining of left shoulder and left sided chest pain. If nurse questions the patient,

patient will respond that pain is sharp and worse when patient inhales, moves or coughs. Patient has occasional cough, non-productive. IV of D5NS is intact and infusing at 100cc/hr. Patient voiding qs.

Scenario competency checklist:

(participant will receive one point for each component completed)

1. ____Wash hands before patient contact.
2. ____Identify patient and introduce self to patient.
3. ____Complete assessment of post-operative patient. * *noticing*
    a. ___Vital signs
    b. ___level of consciousness, orientation
    c. ___Lung sounds
    d. ___Dressing
    e. ___IV therapy
    f. ___Pain, use of pain scale
    g. ___PCBs
    h. ___elimination (intake and output)
4. ____Ask patient additional questions related to complaint of pain-determine location, duration, type and impact of respirations on pain. **interpreting and responding*
5. ____asks patient questions related to respiratory assessment-history of SOB, level of activity prior to surgery, use of PCBs, OOB after surgery, review chart **interpreting and responding*
6. ____communicates findings to physician asap, using SBAR.* *interpreting and responding*
7. ____ completion of clinical decision tree within time frame **clinical decision making indicator*

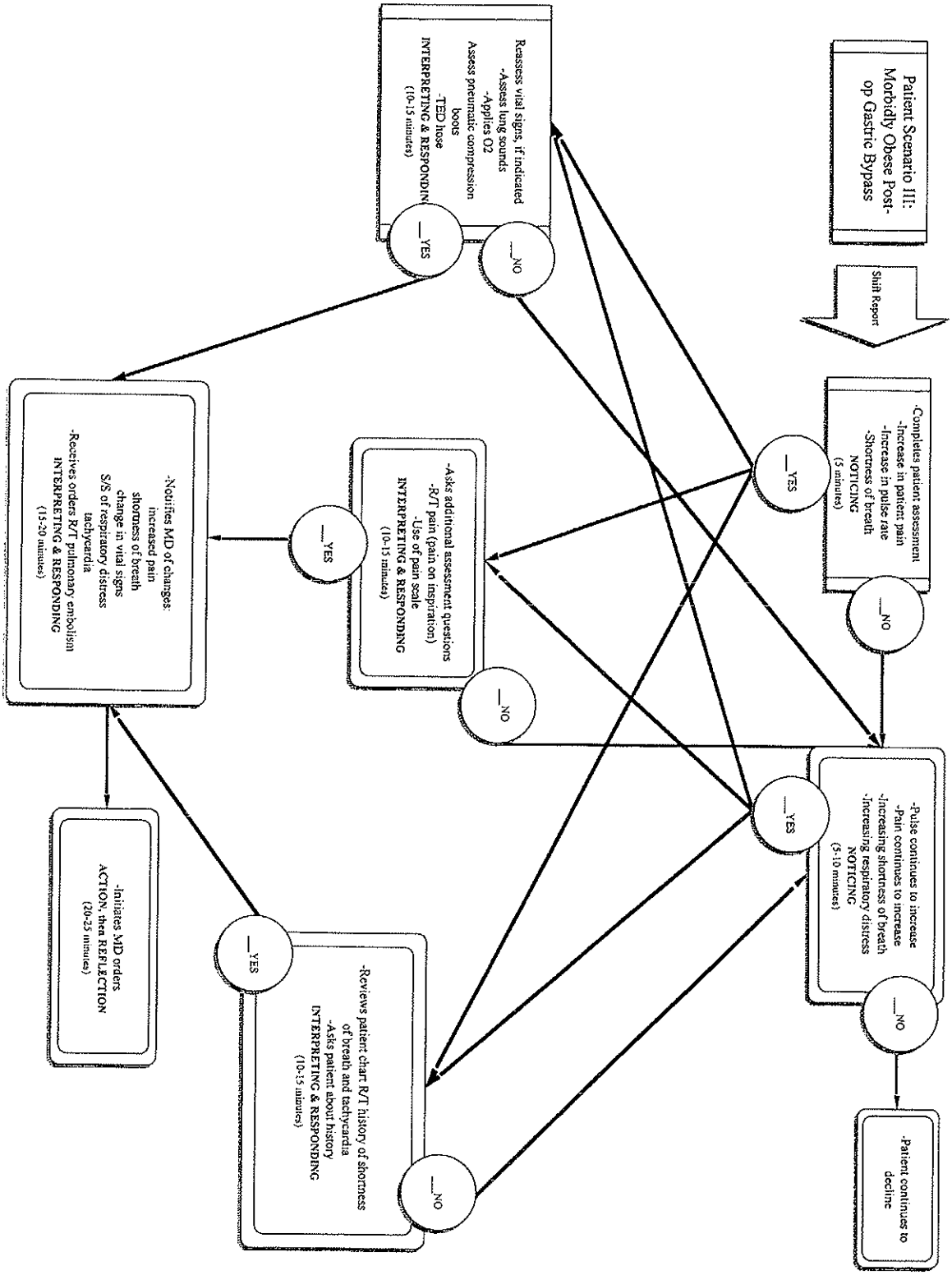
___ total (total possible 15)

**Tanner Model of Clinical Judgment*

Debriefing/reflection questions:

1. What did you discover *(notice)* in your patient assessment?
2. What is the patient care priority in this scenario or how did you *interpret* these findings?
3. How did you *respond* to the patient assessment or re-assessment findings?
4. What are the clinical decisions that you made as the nurse?
5. What would you do differently next time?
6. What are the other potential early and later complications for the morbidly obese post-operative patient?

Simulation Scenario III
Nursing care of the morbidly obese post-operative patient
Decision tree



Appendix H

Program participant survey
Simulation evaluation-Union Hospital
Fall 2011

Demographic information:

1. Initial nursing program
   _____ADN
   _____BSN
   _____diploma
2. Age
   _____20-29
   _____30-39
   _____40-49
   _____50 or greater
3. Gender
   _____male
   _____female

Simulation:

4. Participated in a simulation scenario prior to this experience
   _____yes
   _____no

5. Number of simulation scenario experiences prior to this experience
   _____1-4
   _____5-9
   _____10 or greater

6. Comfortable with simulation as a learning environment
   _____yes
   _____no
   _____do not know

Clinical decision making:

7. I can verbalized the components of clinical of clinical decision making
   _____ true
   _____false
   _____do not know

8. As a nurse I make clinical decisions frequently in my practice.
   _____true
   _____false
   _____do not know

9. I am confident making decisions related to my patient and delivery of nursing care.
   ____true
   ____false
   ____do not know

(please turn page over)

Post-operative care of the morbidly obese patient:

10. A priority in the immediate post-operative period for the morbidly obese post-operative patient is respiratory status.
    _____true
    _____false
    _____do not know
11. Morbidly obese post-operative patients have a higher risk of infection than other post-operative patients.
    _____true
    _____false
    _____do not know
12. Morbidly obese post-operative patients are at high risk for malnutrition.
    _____true
    _____false
    _____do not know

Simulation experience:

13. This simulation experience increased my knowledge related to the care of the morbidly obese post-operative patient
    ____true
    ____false
    ____do not know
14. This simulation experience increased my confidence related to the care of the morbidly obese post-operative patient
    _____ true
    ____false
    ____do not know
15. This simulation experience increased my knowledge related to making clinical decisions.
    ____true
    ____false
    ____do not know
16. This simulation experience increased my confidence related to making clinical decisions.
    ____true
    ____false
    ____do not know

Comments:

Appendix I

Informed Consent

Title of Research: The Impact of a Sequential Simulation Experience on the Clinical Decision Making of Novice Nurses related to the Care of the Morbidly Obese Post-operative Patient.
Investigator: Christy Dryer, MSN, RN, CNE, Doctorate of Nursing Practice student, University of Maryland School of Nursing

Before agreeing to participate in a component of this program evaluation, it is important that you read the following explanation of this study. This statement describes the purpose, procedures, benefits, risks, discomforts, and precautions of the program. Also described is your right to withdraw from the study at any time. No guarantees or assurances can be made as to the results of the study.

Explanation of Procedures
You are being asked to participate in a project to evaluate the effectiveness of a guided sequential simulation experience on the competence of novice nurses related to clinical decision making associated with care of the morbidly obese post-operative patient.

The approach of this program evaluation is the completion of three questionnaires, the participation in three simulation scenarios, with a competency assessment during the last simulation scenario experience. Participation in the simulation scenarios is a component of your nurse residency program; however the completion of the questionnaires is voluntary. You will be asked to complete the first questionnaire immediately prior to participating in the simulation experience. It has sixteen questions and should take less than 10 minutes. After participating the guided sequential simulation experience today, you will be asked to complete a second questionnaire, identical to the first one. Approximately two weeks later you will return to the simulation lab for participation in the third simulation experience that includes the competency assessment checklist and you will also be asked to complete the same questionnaire for the third time prior to the initiation of the scenario.

A specific number will be on the questionnaire. The purpose of this specific number on each questionnaire is to compare your answers at all three points in time related to the simulation experience. The answers will be compared to determine the relevance, quality and impact of the simulation on your practice as a nurse. There will no individual identifiers on any of the questionnaires.

The questionnaires will be read over only by the researcher who will review the answers and will not know who answered the questions. The questionnaire results will be added together and presented to the researcher's University of Maryland capstone committee, and to the Union Hospital Research and Quality committee, with both presentations occurring in the spring of 2011. Names of the people answering the questionnaires will not be disclosed at any time.

Participant initials:_____

Informed Consent

Title of Research: The Impact of a Sequential Simulation Experience on the Clinical Decision Making of Novice Nurses related to the Care of the Morbidly Obese Post-operative Patient.
Investigator: Christy Dryer, MSN, RN, CNE, Doctorate of Nursing Practice student, University of Maryland School of Nursing

Risks and Discomforts
You will not be at physical or psychological risk and should experience no discomfort resulting from answering the questionnaires or listening to the sermons.

Benefits
It is anticipated that the participant will increase their knowledge related to clinical decision making and the care of the morbidly obese post-operative patient, thus enhancing their delivery of nursing care.

Confidentiality
All information gathered from the study will remain confidential. Your identity as a participant will not be disclosed to any unauthorized persons; only the researcher and University of Maryland Institutional Review Board (the committee that approved this research project) will have access to the research materials, which will be kept in a locked drawer. Any references to your identity that would compromise your anonymity will be removed or disguised prior to the preparation of the research reports and publications.

Withdrawal Without Prejudice
Participation regarding the completion of the program evaluation questionnaires is voluntary; refusal to participate will involve no penalty. You are free to withdraw consent and discontinue participation in this project at any time.

Costs and/or Payments to Subject for Participation in Research
There will be no costs for participating in the research. As an employee of Union Hospital, you will be required to participate in the simulation scenarios as a component of your nurse residency program, however participation regarding questionnaire completion is voluntary. There is no compensation for questionnaire completion.

Payment for Research Related Injuries
Although there are no risks of injury involved with this study, University of Maryland has made no provision for monetary compensation in the event of injury resulting from the research. In the event of such injury, University of Maryland will provide assistance in locating and accessing appropriate health care services. The cost of health care services is the responsibility of the participant.

Participant initials:_____

Informed Consent

Title of Research: The Impact of a Sequential Simulation Experience on the Clinical Decision Making of Novice Nurses related to the Care of the Morbidly Obese Post-operative Patient.
Investigator: Christy Dryer, MSN, RN, CNE, Doctorate of Nursing Practice student, University of Maryland School of Nursing

Alternative Procedures
If a person chooses not to participate in the completion of questionnaires, an alternative procedure is not necessary.

Questions
Any questions concerning the research project should be directed to the researcher or the faculty advisor, Dr. Carol O'Neil, at the University of Maryland School of Nursing.

Agreement
This agreement states that you have received a copy of this informed consent. Your signature below indicates that you agree to participate in this study.

Signature of Subject and Date _____

Subject name (printed) _____

Signature of Researcher and Date_____

Appendix J

Evaluator Assessment of Simulation Scenarios

Objectives

___yes ___ no 1. Objectives are clear and communicate expectations for the learner.

Comments:

___yes ___no 2. Objectives address the key concepts in simulation scenario adequately.

Comments:

Simulation Scenario

___yes ____no 1. Scenario description is complete.

Comments:

___yes ____no 2. Scenario report is thorough and provides the learner with adequate information to 'care' for patient.

Comments:

___yes ____no 3. Information presented is accurate and thorough.

Comments:

Scenario set up

___yes ___no 1. Information presented in scenario set-up is adequate for the facilitator to create simulation scenario.

Comments:

Scenario checklist

___yes ____no 1. Simulation scenario checklist is thorough and addresses key learning points in scenario.

Comments:

___yes ____no 2. Checklist is reflective of simulation scenario objectives.

Comments:

Scenario decision tree checklist

___yes ____no 1. Decision tree is useful to the facilitator

Comments:

___yes ___no 2. Decision tree reflects key clinical decision making points in simulation scenario.

Comments:

Debriefing questions

____yes ____no 1. Debriefing questions are reflective of simulation scenario content and objectives.

Comments:

____yes ____no 2. Debriefing questions reinforce key learning concepts in simulation scenario.

Comments:

___yes ____no 3. Debriefing questions add to learning experience.

Comments:

Appendix K
Institutional Review Board Determination

Christy Dryer

From: CICERO@som.umaryland.edu
Sent: Monday, August 29, 2011 10:01 AM
To: Christy Dryer
Subject: Research is Not Human Subjects Research

Not Human Subjects Research (NHSR) Confirmed

To: Christy Dryer

Link: HP-00050382

An IRB Analyst has reviewed the information provided and has determined that the project meets the definition of *Not Human Subjects Research* (NHSR). IRB oversight is not required and no further actions are required.

Description:

Submission Title: Simulation Experience

POC: Carol O'Neil

Please contact the HRPO at 410-706-5037 or HRPO@som.umaryland.edu if you have any questions.