ASSESSMENT OF CLINICAL JUDGMENT AND DECISION MAKING
IN NURSING STUDENTS: WHAT ROLE DOES HUMAN PATIENT SIMULATION PLAY

A Project

by

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Clinical judgment is a desired learning outcome for nursing students. Del Bueno (2005) reported that new nursing graduates are lacking in their ability to make clinical decisions at the entry level. Simulation is an innovative learning strategy conducive for measuring clinical judgment through clinical performance and clinical decision making. Using the Lasater Clinical Judgment Rubric (LCJR) this project sought to measure clinical judgment with senior nursing students, by reviewing videotapes of simulation scenarios completed at the end of a capstone simulation course. Good inter-rater reliability was established for use of the LCJR with a 95% confidence interval. The LCJR consists of four phases: noticing, interpreting, responding, and reflecting. Twelve teams were reviewed in three scenarios by three expert reviewers. Students were placed in situations that required them to assess, analyze and make clinical
decisions to take action. The average student performance in the scenarios equated with the LCJR ‘developing’ category of performance. Results from this study are consistent with Benner’s statement that the entry level nurse should be at the level of advanced beginner upon graduation.

In summary, the simulation environment lends itself to providing an environment to develop clinical judgment through evidenced based scenarios. The LCJR was a useful component to measure simulation performance with senior nursing students. The results of the project provided a snapshot of this senior class’ performance, supporting that as entry level nurses they should be likely to demonstrate clinical judgment at the developing level of performance.
CHAPTER I

INTRODUCTION

Nursing education is being challenged to develop curricula which promote “learning activities that assist students to develop syntax, content and inquiry through creative and dynamic modes for providing nursing care” (Bevis, 2007, p. 71). Lasater and Nielson (2009) support educational reform which promotes clinical judgment fostered by deeper clinical thinking. The use of creative and innovative strategies to meet nursing program outcomes becomes increasingly more important as technology advances in the health care field. Desired outcomes for nursing education are identified as problem solving, critical thinking and decision making, prioritization and delegation (Gaberson & Oermann, 2007; Kaplan & Ura, 2010). Through didactic and experiential learning the nursing student develops critical thinking and clinical judgment which enables the graduate to provide safe and competent care (Durham & Alden, 2008).

A traditional curriculum alone can no longer meet the learning needs of the student of today (Earle & Myrick, 2008). The millennial student is diverse, non-traditional, and technologically savvy. In a white paper of the future of higher education, Glenn (2008) states that higher education is ever changing due to technology. Technology can be the determining factor for which the student enrolls in a class. Technology has been well received as a desirable method of learning.
Nurse educators are charged with the continued development and utilization of creative and innovative teaching strategies to engage the current learner. Durham and Alden (2008) state “Nursing educators are challenged to teach students to think critically, to go beyond simply “knowing,” to advance to synthesis and application of knowledge as they assess, plan, implement, and evaluate nursing care” (p. 325). Durham and Alden (2008) state as well “Nursing faculty need to look for new ways to utilize the patient simulation technology with all types of learners (p. 247) and faculty must be fully prepared to facilitate the learning experience” (p. 241). The National Council of State Boards of Nursing (NCSBN) (2005) states that faculty is responsible for facilitating opportunities for the development of clinical judgment and critical thinking. Human patient simulation (HPS) provides a lab environment that can mimic reality to not only meet the diverse educational needs of today’s student but also allow learning outcomes to be achieved through structured performance. More importantly, HPS provides opportunities for evaluating clinical judgment and decision making through performance in a reality based scenario.

Clinical judgment is difficult to measure in the clinical setting as the student may not display evidence of clinical judgment at the moment when the instructor is present. In addition providing similar opportunities for all the students in the clinical setting is also not realistic, due to the variability in patients. Simulation with the use of HPS can provide each student the same opportunities to develop skills and knowledge in a controlled setting. Furthermore it provides the instructor the opportunity to witness clinical judgment as demonstrated by the student in a scenario.
Background

Simulation is not a new strategy to education; it has been used for many years in various sectors. Some examples of simulation used in the past are James Blackburn MD, who simulated breathing in 1947 by developing a human thoracic chest for his classroom (Scott, 1947), Resuci-Annie used for cardio-pulmonary resuscitation training (CPR), and computerized simulators used to assess heart and lung sounds and electrocardiography patterns. Simulation continues to play a major role in healthcare education.

Simulation has evolved through the years. The latest in simulation is the proliferation of high fidelity simulators which can display a variety of physiological responses and can interact with the participants. The student can experience scenarios which require critical thinking, clinical judgment and decision making in real time, similar to actual clinical practice. The scenarios can be basic, requiring novice skills or complex, requiring advanced skills. The scenarios can involve high risk and low volume events which the student may not experience in the clinical setting such as a code blue. A simulated code may be the first experience the student gets to demonstrate clinical decision making in a life-threatening situation.

Simulation training in the aviation field has been used to train pilots since 1979. The use of simulation allows the pilots to develop skills in flying various aircraft and managing various emergencies. The replication of a real life aviation scenario allows the pilot to encounter high risk, low volume scenarios that require critical thinking, decision making skills and the need to demonstrate psychomotor skills to provide safe intervention. Competency can be demonstrated by performance in the scenarios.
These strategies for safety in aviation are applicable for healthcare as well.

Medicine has utilized simulation for the last three decades. The anesthesia field has been instrumental in establishing training and developing evaluation tools for the medical field. An important benefit to simulation is the role it plays in providing for patient safety. Schiavenato (2009) states “The development of skills on models rather than patients is the desired practice in patient care” (p. 389). Cooper and Taqueti (2004) compared medical students trained at the bedside and those trained on a mannequin, specific to cardiology training, and found that the students trained with the mannequin demonstrated superior cardiac assessments and increased confidence at the bedside. Bradley (2006) states that competency can develop through the use of simulation in medical training.

HPS has been instrumental in preparing military physicians in caring for the unexpected injuries and trauma they may encounter when deployed to a war zone facility. Non surgical residents were enrolled in a modified trauma four-part training course that involved didactic, case studies and skills training, HPS, and a live tissue surgical procedure lab. HPS, though just a small part of the course, was recognized by the students as increasing the students’ confidence in “managing trauma scenarios, improved trauma team dynamics, and improved management skills” (Sohn et al., 2007, p. 202).

The recent affordability of simulators has made HPS feasible for enhanced simulation in many nursing programs. The role of simulation in the nursing curriculum has been, until recently, through case studies, role playing, games and computer software (Billings & Halstead, 2009). These previous methodologies assisted students to develop
critical thinking, clinical judgment, and decision making as well as assisted the student to go from passive to active learning, achieve integrative learning, experience the reality of clinical topics and stimulate interactive learning (Head & Bays, 2010). HPS simulation takes learning to the next level and requires the students to interact through communication and psychomotor skills while using clinical judgment.

Simulation models in traditional nursing labs have been generally inert and silent. Most simulation models have been used as task trainers. Today’s high-fidelity human simulators can demonstrate movement and interact through programmed responses. Through the students’ interventions the simulator can be reprogrammed to offer a different response than the student first encountered. The simulator of today brings a scenario to life and can lead to “clinically proficient health care professionals” (Harder, 2010, p. 23).

Through the use of HPS scenarios the student can “mimic the way care is delivered in real life, role play in different positions of the health care team, delegate, share information, and develop communication skills” (Brewer, 2011, p. 315). A large benefit of the use of HPS is the safe environment it provides for the student to fail without consequences. Videotaping allows the student to reflect on the situation and evaluate his/her performance. For the observer, the visual reference allows for constructive feedback. The most beneficial component of simulated learning is often described as the debriefing session. Lasater (2007a) states that clinical judgment is developed through the ability of students to self reflect, share clinical thinking, analyze events, analyze their responses, and apply the experience to their knowledge base.
The use of HPS in nursing programs continues to evolve. In 2008-2009, clinical simulation was at 88% use in 111 California nursing programs out of 120 (California Board of Registered Nursing [BRN], 2010). The BRN annual school report (2012) reported clinical simulation was used in 120 nursing programs out of 131. As of July 2011, eight of the nursing programs not using simulation were starting to use clinical simulation in their nursing program. Reasons for using simulation in 2010-2011 were (a) to standardize clinical experiences, (b) to provide clinical experience not available in a clinical setting, (c) to check clinical competencies, (d) to make up for clinical experiences, and (e) to increase capacity in the nursing program. In the BRN report for 2008-2009 the greatest use of simulation was noted to be in fundamentals, medical surgical and pediatrics, with leadership and mental health being the least areas of use (BRN, 2010). The breakdown of use was not identified in the 2010-2011 report.

There is a common theme to the benefits of the simulation lab as an adjunct to clinical rotations. A few identified advantages of simulation are opportunity for realism, placing the student in a real time situation, providing individualized scenarios for specific learning opportunities, initiating situations on demand, establishing a controlled environment, the opportunity to transfer knowledge, providing standardized experiences for students, interactive student involvement, opportunity to test various options and debriefing sessions (Jeffries & Rogers, 2007; Rauen, 2004; Wagner, Bear, & Sander, 2009). All the above benefits promote patient safety by providing an environment for the student to develop skills, clinical judgment, confidence, and most importantly “do no harm.”
Major disadvantages noted with the use of simulation are the expense required for set up, operation, maintenance, supplies and repairs. Additional costs include the need for a simulation center coordinator and technical support personnel. Faculty must be computer literate and be familiar with the concepts of simulation learning and use of the highly technical equipment. Another disadvantage identified is the labor intensive work to create and develop realistic and accurate scenarios (Hovancsek, 2007).

Students, whether from medicine or nursing, enjoy simulation as a strategy for learning (Bambini, Washburn, & Perkins, 2009; Bradley, 2006; Wotten, Davis, Button, & Kelton, 2010). Competency, confidence, development of teamwork, and collaboration were identified by nursing students as positive aspects of simulation (Wagner et al., 2009).

Statement of the Problem

Improving student learning through the use of simulation should be an outcome for which all nursing programs strive. Simulation has proven to be beneficial for developing confidence, communication and clinical judgment (Bambini et al., 2009; Cato, Lasater, & Peeples, 2009).

Clinical judgment in the clinical setting is difficult to measure as the opportunity for faculty to be present in the exact moment when clinical judgment might be demonstrated is rare. Aldrich (2006) states that another problem with training in reality is that the patient response or result of nursing actions may not be witnessed by the students within the time frame they are on the unit. The students receive partial experience on how to manage care and are left to fill in the blanks from theory. This
affects their ability, as well as the instructor’s ability, to validate critical thinking and clinical judgment skills.

Providing similar learning opportunities for all students becomes a challenge for nursing programs. The availability or limited access to patients, clinical sites, and like diagnosis, increases the risk of nursing students not experiencing the same experiential learning. Dunham and Alden (2008) states

By providing students with exposure to a variety of clinical situations through clinical practicum experiences and patient simulations, they can be better equipped to provide safe, effective care and work as contributing members of the health care team. (p. 28)

Simulation in California has been limited by the California Board of Registered Nursing to be part of the 25% allowed for alternative clinical activity. The question has been posed by nursing programs as to whether simulation can be increased to supplement for limited clinical experience and/or sites or whether it can replace total clinical hours for nearly non-existent clinical sites such as acute pediatrics, to meet clinical objectives. The American Association of Colleges of Nursing (AACN) (2008) affirm that simulation adds to developing cognitive and performance skills for practice. In the following statement they suggest a larger role for simulation, “Over time, as evidence emerges regarding the use of simulation as a substitute for actual patient experience, the balance between actual and simulated patient care may change” (p. 34).

In response to a question about extending simulation hours for supplementing clinical K. Daughtery MN, RN, NEC, a nursing education consultant with the California Board of Registered Nurses (personal communication, December 3, 2010) stated “qualitative
research was plentiful but what was needed was quantitative research in relation to core competencies of the nurse.”

With the focus on patient safety it becomes imperative that students and nurses train in simulated environments to learn, perfect and maintain their skills and knowledge, and demonstrate continued competency (Dunham & Alden, 2008). Competency does not come solely from the amount of experience but from the development and integration of critical thinking and decision making from that experience (Gregory, Guse, Dick, & Russell, 2007; Tanner, 2006). Bedside safety requires that the nurse be able to identify the primary problem, recognize deviations, decide on an intervention and rescue the patient before injury can occur (Del Bueno, 2005). Simulation can assist the student in developing clinical judgment through exposure to different situations requiring problem solving skills. The simulation experience provides a reference for the student to build on when they encounter a similar situation in the clinical setting.

The Relevance and Importance to Nursing

The benefits of the HPS in nursing education are still emerging. Aviation was able to note a decrease in airplane accidents due to the use of simulation when training pilots (Rauen, 2004). Simulation labs have been used by medical schools to train for assessments, early recognition, treatment and surgery without the danger of harm to a real patient. “Simulation labs have allowed medical students ‘permission to fail’ and learn from mistakes and build on experiential learning” (Satava, 2005, p. 260).
Nursing can follow the lead of other fields and develop concepts in integrating the simulation lab in professional development. It is important to develop educational strategies in which students identify their capabilities and build their confidence, therefore developing competency. The California Board of Registered Nursing (1998) defines clinical competence as possessing and exercising the degree of learning, skill, care and experience ordinarily possessed and exercised by a member of the appropriate discipline in clinical practice. Competency comes not only from the amount of experience but from the development and integration of critical thinking and decision making from that experience (Gregory et al., 2007).

The Joint Commission (formerly Joint Commission on Accreditation of Healthcare Organizations) focus on patient safety goals (2006) and the Institute of Medicine’s (IOM, 1999) report “To Err is Human: Building a safer Health System” suggest that clinical learning may be considered unethical due to increasing the risk for the patient as well as the student. The students’ clinical opportunities may also be limited by organizations due to the perceived risk to the patient (Hovancsek et al., 2009). Simulation becomes relevant in patient safety by providing a safe atmosphere to practice decision making without consequences. The simulated experience can also provide a reference for decision making when encountered in the actual patient care setting.

Obstacles faculty encounter in finding adequate clinical learning opportunities for students are the over saturation of clinical sites from competing programs and the increased volume of students requiring placement. Individual opportunities for student interventions may not arise due to having to share the clinical space with other students. The ratio of instructor to students limits the ability to evaluate each student on equal
experiences. One other limitation is the availability of specialty units such as pediatrics and obstetrics in the rural setting.

The need to develop students who display the skills and clinical judgment necessary to deliver safe, competent care requires an environment that promotes experiential learning. The BRN’s (2008) statement on clinical learning experiences identifies both clinical faculty and the facility’s registered nurse (RN) share the responsibility for the student’s delivery of safe care. The level of expertise of the facility RN varies widely ranging from expert nurses to a new graduate to a traveling nurse. Students may find themselves in an observational role if the RN feels overwhelmed managing patients and mentoring a student (Glasper, Richardson, & Whiting, 2006).

Theory to practice application has been identified as difficult to apply in a clinical setting (Frontiero & Glynn, 2012). Working with HPS can assist to bridge the gap by assisting the student’s development of skills and knowledge related to situations in the wake of limited clinical opportunities. The student can encounter a variety of situations at different levels. Various skills such as assessments, communication, and clinical judgment can be refined. Hovancsek (2007) states “another advantage to using simulation is that the instructor does not take over, as often happens on an actual clinical unit when the student is mishandling a situation or having difficulty with a skill” (p. 5). The students, through debriefing and reflection, can analyze their actions providing an opportunity to build on knowledge and skills and teamwork.

Debriefing sessions can assist the student to evaluate performance and build on knowledge of evidence based practice. The simulation environment provides the faculty the opportunity to individualize scenarios, focus learning, observe and guide the
student in making clinical decisions. The faculty can also provide encounters with situations rarely experienced in clinical. Decker, Sportman, Puetz, and Billings (2008) state “Simulation as an educational process is a viable option for evaluation of professional competencies regardless of levels (student, new graduate, or seasoned professionals) and clinical area (p. 75). With clinical judgment a desired outcome for the nursing graduate, the use of HPS technology enhances the preparation of the nursing graduate to provide safe and competent care (Glynn, 2012; Institute of Medicine, 1999, National League for Nursing, 2006; Tanner, 2006).

Theoretical/Philosophical Underpinnings of the Study

Guiding the project will be Benner’s (2001) “Novice to Expert” theory. Benner states learners evolve from one level to another from a sound educational base and from a variety of experiences. The levels identified by Benner are novice, advanced beginner, competent, proficient and expert. Benner’s theory identifies the beginning student as a novice while expecting senior students to achieve the level of advanced beginner. Simulation provides experiential learning that will assist them in the application of theory.

Kolb’s theory on experiential learning, states that the learner continuously “changes his thought process and behavior” when encountering a like situation (Billings & Halstead, 2009). The learner moves through a four stage learning cycle starting with encountering the experience (concrete experience), by analyzing the meaning of the experience (reflective observation), by comprehension of the experience (abstract conceptualization) and active experimentation which leads to trying out the theories and
entering the concrete experience again. The components of Kolb’s learning cycle are reflected in Lasater’s (2007b) clinical judgment rubric (LCJR) tool which is one tool used to evaluate and measure clinical judgment.

Through experiential learning knowledge is gained through interaction and the process of reflection. Interaction increases the student’s ability to make decisions and utilize clinical judgment during care while reflection allows the student to examine actions, reflections, feelings and thinking. Transformation of the experience is essential for learning to occur. Through tactic knowledge students develop the ability to learn when and how to use the skill and knowledge which guides their decision making skills in a situation.

Purpose of the Project

The development of clinical judgment through experiential learning is a desired outcome for the nursing student (AACN, 2008; Gaberson & Oermann, 2007; Kaplan & Ura, 2010). Bridging the gap between theory and practice has been identified as a necessary goal to curriculum changes. Higher acuities and complex situations in the clinical setting require “actively thinking, reflection and application of classroom knowledge” (Frontiero & Glynn, 2012, p. 135). The purpose of this project is to measure clinical judgment in the simulation lab.

Research Question

Qualitative studies have demonstrated that students feel that simulation has allowed them to develop skills, knowledge and confidence (Jeffries, 2005; Lundberg, 2008; Smith & Roehrs, 2009; Wagner et al., 2009). Yet “feeling” that one has learned is
different than being able to demonstrate what they have learned. The nurse must be able
to apply theory to practice and understand the outcomes. In a study by Standing (2008) a
statement is made that “nurses not only need to apply knowledge and skill but must be
able to ‘justify, explain and defend judgments and decisions’ (p. 125). Developing
clinical judgment and clinical decision skills can develop through the use of alternative
methods which address concepts and allow application to practice.

Outcome based education is guiding nursing curricula. Bradley (2006) states
“having defined outcomes facilitates the investigation of the intervention intended to
produce learning and achievement of these outcomes” (p. 260). In a response to the IOM
study to assess the future of nursing Tanner’s (2010) response to new prelicensure
clinical education models recommends that essential competencies guide the nursing
program’s learning outcomes. Tanner identified clinical judgment as one of those desired
competencies which will prepare the student to better address the current health needs
and be better prepared for current practice. Tanner also recommends that simulation and
clinical curriculum be integrated to support best practice.

This study will attempt to answer the following question: Can clinical
judgment be measured in a controlled environment? Can clinical judgment be measured
using an adapted form of Lasater’s clinical judgment rubric (Lasater, 2007b)?
Definition of Terminology

**Advanced Beginner**

“One who can demonstrate marginally acceptable performance, ones who have coped with enough real situations to note (or to have pointed out to them by a mentor) the recurring meaningful situational components” (Benner, 2001, p. 22).

**Clinical Competency**

“Possessing and exercising the degree of learning, skill, care and experience ordinarily possessed and exercised by a member of the appropriate discipline in clinical practice” (California Board of Registered Nursing, 1998).

**Clinical Judgment**

An interpretation or conclusion about a patient’s needs, concerns, or health problems and/or the decision to take action (or not), use or modify standard approaches, or improvise new ones as deemed appropriate by the patient’s response. (Tanner, 2006, p. 204)

**Clinical Reasoning**

The processes by which nurses and other clinicians make their judgments, and includes both the deliberate process of generating alternatives, weighing them against the evidence and choosing the most appropriate, and those patterns that might be characterized as engaged, practical reasoning (e.g., recognition of a pattern, an intuitive clinical grasp, a response without evident forethought). (Tanner, 2006, p. 204)

A situated, practice-based form of reasoning that requires a background of scientific and technological research-based knowledge about general cases. It requires practical ability to discern the relevance of the evidence behind general scientific and technical knowledge and how it applies to a particular patient. (Benner, Hughes & Sutphen, 2008)
Competence

The ability to meet standards of practice and appropriately apply relevant knowledge and skills in either simulated or actual patient care situations (Decker et al., 2008).

Competent

Competence, typified by the nurse who has been on the job in the same or similar situations two to three years, develops when the nurse begins to see his or her actions in terms of long range goals or plans of which he or she is consciously aware. (Benner, 2001, p. 27)

Critical Thinking

The ability to accurately identify the primary problems or deviations from normal health status; initiate independent and collaborative actions to at least prevent further harm; act within a relevant time period; and support actions with a rationale (Del Bueno, 2005, p. 279).

Cues

“Instructor prompts, questions and teaching points in a scenario” (Wilford & Doyle, 2006).

Decision Making

“The process of choosing a particular course of action” (Marquis & Huston, 2006, p. 2).

Experiential Learning

“Learning that occurs through experience” (Billings & Halstead, 2009, p. 175).
**Expert**

“The performer no longer relies on an analytic principle to connect her or his understanding of the situation to an appropriate action” (Benner, 2001, p. 31).

**Fidelity**

“Fidelity can be defined as the degree to which the appearance and capabilities of the simulator resembles the appearance and function of the simulated system where HPS can be low, intermediate or high fidelity” (Maran & Glavin, 2003, p. 23).

**Novice**

Someone who lacks experience relies on protocols or procedures for direct care (Benner, 2001, p. 20).

**Proficient**

Perception of situations is perceived as a whole rather than in terms of aspects, and performance is guided by maxims. Their knowledge develops from experiential learning which allows them to anticipate plan responses to situations (Benner, 2001, pp. 27-28).

**Rubric**

“An explicit set of criteria and standards used for assessing a learners competence, skills, abilities, and assignments” (Abe, Kawahara, Yamashina, & Tsuboi, 2013).

**Simulation**

Activities that mimic the reality of a clinical environment and are designed to demonstrate procedures, decision making and critical thinking through techniques such as role playing and the use of devices such as interactive videos and
mannequins. Low and intermediate simulators and task trainers provide a certain degree of real world application. High fidelity patient simulators provide real physical input and real environmental interactivity. (Jeffries, 2005, p. 97)

**Tactic Knowledge**

“An unarticulated, preconscious form of knowledge that forms a basis for human judgment and decision making” (Evans & Donnelly, 2006, p. 152).

**Qualifications of the Researcher**

The researcher brings clinical experience developed from 29 years in an acute care setting. She has sound knowledge of disease, illness, and injuries related to the acute medical surgical adult and pediatric patient. She has strong leadership skills developed in the 22 years of managing a pediatric unit, adult medical/surgical and orthopedic unit.

Her 22 years as a supervisor with eight years as a nursing instructor provides the foundation for assessing the development of clinical judgment in the students for this project. Her years as a preceptor to the BSN students and role as a clinical instructor for the California State University of Chico makes her familiar with the clinical objectives and goals for the students. Her role as an instructor in the simulation lab for the last 8 years allows her familiarity with the technology, expected scenarios and expected reactions from the high-fidelity simulation models.

**Conclusion**

Integrating simulation into the nursing curriculum is essential to meet students’ needs for learning outcomes. With limited clinical availability, limited opportunities for the application of theory, and limited instructor clinical time, simulation labs can offer an alternative learning environment to introduce and develop critical
thinking skills, develop clinical judgment, and apply knowledge and competency building. Benner and Kolb’s theories support the student as an active participant in the students’ learning. The ability of the student to integrate knowledge, skill, and judgment elevates students’ autonomy to make assessments and develop critical thinking, which leads to competent decision making (Evans & Donnelly, 2006).
CHAPTER II

LITERATURE REVIEW

Nursing journals, CINAHL, PubMed, Academic search, and nursing texts, were used to locate current literature related to simulation use in the academic setting. Keywords used were teaching strategies through simulation, clinical judgment, decision making, clinical reasoning, nursing curriculum, competency and critical thinking. The search began eight years ago when little was known about simulation in nursing education. Within the last four years, qualitative studies have emerged but quantitative studies are still lacking. The focus of the research was on finding a measurement tool that was in place or being evaluated for its quantitative results related to clinical judgment and usefulness for HPS.

Del Bueno (2005) reported that new nursing graduates were lacking in their ability to make clinical decisions at the entry level. Ironside (2007) agreed stating, “the well-educated, critical thinking professional, emerges infrequently from colleges and universities” (p. 57). Rowles and Russo (2009) state “Developing critical thinking skills “may become more important than the ability to perform associated psychomotor skills” (p. 239). Dreifuerst (2009) states “Clinical decision making includes knowledge, skills and attitudes used in tandem with critical thinking to determine action or response (p. 109). In a position statement from the National Council of State Boards of Nursing
(2005), the BSN student is expected to be at Benner’s advanced beginner stage at the time of graduation.

The ability to make clinical judgments is a desired outcome for the nursing graduate and a desired quality in a new employee. Del Buenos’s (2005) study showed that only 35% of new graduates were able to do “the right thing” when placed in a situation requiring clinical judgment. According to Tanner (2006)

Clinical judgment is viewed as an essential skill for virtually every health care professional. Clinical judgment requires the ability to recognize salient aspects of an undefined clinical situation, interpret their meanings and respond appropriately. (p. 204)

The American Association of College of Nursing (AACN) (2008) identifies clinical judgment as part of one of the nine essentials outcomes expected from a baccalaureate nursing program. The AACN recommends the use of HPS to complement clinical learning to prepare the BSN nurse in acquisition of knowledge skills and attitude to assist with application to practice.

Changes in the health care environment have impacted the acuity of the acute care patient and the level of nursing care required at the bedside. The nursing graduate today is employed in high acuity settings straight out of school. In the past, an expected amount of experience on a medical surgical unit was required to build a foundational base prior to transferring to a higher acuity setting. Employers expect that entry level nursing includes being able to recognize abnormal findings, identify an action, implement it and be able to explain reasons for the actions while keeping the patient safe (Del Bueno, 2005).
The simulation lab offers an innovative teaching and learning strategy for evaluating student performance. Wotten et al. (2010) state “when incorporated with curriculum, simulation can become a powerful bridge between theory and practice by enhancing students’ cognitive, associative, and autonomous skills” (p. 638). Best practice in simulation use has not been defined in curriculum and allows for continued research as to its benefits as a learning strategy in nursing education (Lasater, 2007b). Continued research is required to validate simulation’s efficacy and effectiveness in learning in the academic field. Qualitative studies have been helpful in learning about how simulation affects the students’ confidence and learning but focusing on higher level outcomes such as measuring clinical judgment will strengthen the drive to utilize simulation in education (Gordon & Buckley, 2009).

The purpose of simulation in health care is to prepare students for clinical situations they may encounter (Harder, 2010). Scenarios that mimic real life situations engage students in activities which teach, reinforce skills and build knowledge, and/or allow the utilization of previous learned information. Through repetitive and purposeful actions the student gains competency and confidence in their abilities. Through experiential learning the student gains the ability to make clinical judgments. Reflection after the simulation exercise can assist the student to develop clinical reasoning and judgment (Dreifuerst, 2009). Through video, the students can self evaluate their performance and assess their strengths and areas for development.
The Performance Based Development System

Between 1995 and 2004, the Performance Based Development System (PBDS) was used to evaluate clinical judgment of both experienced and inexperienced licensed nurses. Del Bueno (2005) states that

new employees are assessed for their ability to accurately identify the primary problems or deviation from normal health status; initiate independent and collaborative actions to at least prevent further harm; act within a relevant time period; and support actions with a rationale. (p. 279)

The expectation for new employees was to be at an entry level that demonstrated safe practice. The reported data were reflective of ten years use of the PBDS within 146 hospitals with 10,988 inexperienced nurses assessed and 20,413 experienced nurses (more than one-year experience).

Using ‘acceptable’ and ‘not acceptable’ ratings, the nurses were placed in situations that required them to prioritize, recognize, identify and manage patient problems. Three levels of exercises were introduced starting with basic to complex. The ability to make a basic assessment and recognize the primary problem is an expectation of the novice nurse (Del Bueno, 2005). The study demonstrated that recognizing and relating manifestations was a challenge to most inexperienced nurses. Benner (2001) states that novice nurses require context free rules to guide their response to situations. Their inexperience and dependence on the rules does not allow flexibility or the ability to determine which action is priority. Benner’s theory helps to explain Del Bueno’s findings.

Findings from the study revealed 65% of the inexperienced and experienced nurses were unable to accurately recognize a patient’s primary problem, let alone manage...
Contributing factors suggested were the lack of application of theory to practice, limited clinical hours, and higher acuity of patients experienced by nursing students. The lack of exposure to certain diagnoses was also noted to be a contributing factor.

Though the study does not specifically suggest simulation as an activity for development or evaluation of clinical judgment it does suggest an environment which builds on knowledge and skills by coaching and asking questions rather than giving answers (Del Bueno, 2005). Simulation provides for individualized learning, application of knowledge, repetitive practice, and exposure to high risk and low volume situations. Simulation is the perfect platform to provide scenarios, oral feedback and visual feedback for students to evaluate their performance.

A National Multisite, Multi-Method Study

The National League for Nursing and the Laerdal Corporation (one manufacturer for HPS) partnered in a study for the purpose of (a) examining the development and testing of models for faculty to use in simulation teaching, (b) development of faculty to utilize simulation in innovative ways, (c) refining the body of knowledge already known about simulation and its relationship to nursing education, and (d) examining the value of collaboration between the corporate and not-for-profit worlds. Goals for the research were (a) develop a framework for teaching simulation, (b) describe and test a design that promotes good learning outcomes, (c) explore theoretical concepts, (d) test and analyze selected outcome (Jeffries, 2006, p. 148). The study aimed to answer (a) whether the method of learning would impact the student learning outcome, and (b) whether the student’s role would impact the learning outcome.
This multi-site study focused on basic post-operative adult care theories for the simulation scenario, which was common to all sites. The sample size included both baccalaureate and associate degree nursing students enrolled in their first medical surgical course. Four hundred and three students collectively from all 8 sites participated in this study.

The study was implemented in four phases. The first phase involved the development of the leadership for the project, clarifying goals, establishing the theoretical framework, developing the design and developing the measurement tool specific to the study. Phase two allowed the project coordinators the ability to develop simulation using the framework, implementing it and evaluating it. Part one of phase three examined the participants' knowledge base related to post op care through a pretest plus provided a mini theory presentation via video lecture on post op care. Part two of phase three implemented the three standardized simulations. Through randomized selection the participants were assigned to one of the three methods: (a) the first group received the simulation in paper, (b) the second group received the hands on simulation using a low static HPS, and (c) the third group received the hands on simulation using the high fidelity HPS. Phase four, the final phase, gathered the data.

In each group, four students participated in a 20-minute simulation. Post simulation the participants engaged in a 20-minute reflection which was guided with the use of scripted questions from the facilitator. The reflection was either videotaped or audiotaped for research purposes. The participants then completed the Educational Practices in Simulation Scale (EPSS) and the Simulation Design Scale (SDS), both new
evaluation instruments developed in phase one of the project. Validity and reliability of
the instruments were established in phase two.

During the data analysis it was identified that the students’ learning was limited due to only participating in one method. Phase five was implemented to provide the opportunity for participation in two types of simulation which only two sites took advantage of. Overall the findings from the DSD related to the high fidelity simulator were (a) it provides a real life situation, (b) provides for timely feedback, (c) provides increased opportunity for problem solving and clinical decision making, (d) feedback was noted as less important for the paper/pencil simulation. Findings for the EPSS revealed (a) diverse learning opportunities with both static and high fidelity simulators, (b) collaboration was stronger for the paper/pencil simulation group, (c) the paper/pencil group felt that the pressure to perform was greater than those involved in the other simulations, (d) both static and high fidelity patient simulators identified active learning as a benefit and more valuable to their experience. Another finding was that all three groups were equal in knowledge in both pre- and pos- test.

In a summary report commissioned by the National League of Nurses (NLN) (2006), Jeffries and Rizzolo stated that the purpose of the simulation should not be to develop new knowledge but to synthesize and apply knowledge. In summary, the study did validate the importance of collaboration, problem solving, decision making, self confidence and application of theory to learning. Validation of HPS as an adjunct to traditional educational methods was evident from the students’ responses. Simulation can provide opportunities for diverse learning, problem solving and clinical judgment skills development.
The Residency Model for Nursing Education

The Residency Model for Nursing Education was the University of Delaware School of Nursing response to the National League of Nursing call for “Innovation in Nursing Education.” This model used the simulation lab to provide clinical hours and training. Based on Porter O’Grady’s nursing model for education philosophy, accountability for learning is placed on the student. The residency model prepares the senior nursing student through coursework, lab/simulation practice and field experience (Diefenbeck, Plowfield, & Herrman, 2006). The senior nurse demonstrates mastery of all content areas and brings to the clinical setting a student capable of functioning in a higher acuity setting who is able to critically think and transfer knowledge to practice (p. 14).

The use of the simulation lab in this model promotes an environment for independent student learning. Providing an acute care setting with real life scenarios and the use of low and high fidelity HPS, the student learns to navigate the care for the patients using knowledge learned in previous experiences and also acquired through self directed learning via reading, CDs, and lab equipment kits. The student takes responsibility for reaching predetermined competencies. The premise is that development of skills, assessments and critical thinking through use of the simulation lab will improve the students’ clinical judgment and decision making, assisting in transition to practice (Diefenbeck et al., 2006).

The use of the simulation lab in The Residency Model for Nursing Education also provided for the following benefits: (a) allows the student to practice through repetition on techniques and skills that ensures patient safety (b) allows the student to
make errors without negative consequences (c) allows for remediation assisting the students to continue to build on skills and (d) decreases the need for acute care clinical placement. With the increased demand to enroll nursing students, clinical placement is a challenge especially in specialty units.

Though this model is early in its implementation and the article lacks data related to evaluation, it does address the need for an evidence based outcome assessment. Satisfaction surveys for student, faculty and eventually employers are planned. The use of focus groups has been suggested from faculty for the evaluation of the student’s experience of, expectations of and satisfaction with the model. Increasing the health care community awareness of this innovative teaching strategy, faculty buy in and coordinating clinical specialties sites continue to be some factors to overcome to increase the use of The Residency Model for Nursing Education.

Tanner’s Clinical Judgment Model

Developing tools to measure clinical judgment in the simulation setting continues to evolve. In 2006 Tanner’s research on clinical judgment identified that clinical judgment is an accumulation of various factors: (a) Past influences (b) Knowing your patient (c) Considering the context in which a situation occurs and culture of the nursing unit, (d) Reasoning and (e) Reflection. Tanner identified four aspects to use to guide students in developing clinical judgment through feedback and coaching: (a) Noticing, (b) Interpreting, (c) Responding, and (d) Reflecting.

Noticing stems from the nurse’s context of the situation, background, and relationship, this leads to what the expectation is and initial grasp of what is going on.
Interpreting drives the use of reasoning patterns: analytical, intuitive, and narrative. The nurse uses data to come to an understanding of what is being presented. Responding occurs with a clinical judgment for action from the interpretation which leads to a desired outcome. Reflection “in-action” is the evaluation of the interventions taken while present in the clinical situation. Reflection “on-action” is the examination of what learning occurred from the situation. It is understood that clinical judgment may not always end in the outcome desired but the ability to recognize the need for readjustments next time the like situation arises is key (Tanner, 2006).

The result of Tanner’s research was the clinical judgment model. The model was developed to assist the student to recognize areas for growth. The model also provides the instructor information on where the students’ needs are and allows for individualization of learning. The model can be used in both real life post conference or post simulation. Tanner (2006) states that the model can assist students in improving clinical reasoning and developing clinical judgment by allowing recognition through reflection of areas failed during clinical or simulation.

The focus of this study was on assisting students on ‘thinking like a nurse’ and identifying clinical judgment among themselves as opposed to faculty measuring clinical judgment in the actual simulated scenarios. The study supports that clinical reasoning is strengthened through reflection and debriefing. Data demonstrating the model’s effectiveness were not presented in the article. A strong point to the proposed model was that it provided students a language which they can apply to their thinking to guide them in the next best step to take. It promoted students’ engagement with the patient and not
just a diagnosis. “Connecting with the patient” is seen as an essential competency as cited by the National Council of State Boards of Nursing (2005, p. 4).

Lasater’s Clinical Model Rubric

Using the four phases of Tanner’s (2006) Clinical Judgment Model – noticing, interpreting, responding and reflecting, Lasater (2007b) implemented an exploratory study piloting her adaptation of Tanner’s clinical judgment model which would evaluate students’ development of clinical judgment. The rubric not only evaluates but gives students a language to identify ways to improve clinical judgment.

Lasater (2007b) used a qualitative and quantitative approach and included third semester students who were enrolled in a baccalaureate nursing program that included simulation as a learning strategy. The purpose of the study was to have students describe their responses to the simulated scenarios using the four phases of clinical judgment, develop a rubric that describes levels of performance, and to pilot test the rubric in scoring students’ performance in the scenarios (Lasater, 2007b. The students participated in a seven-week study in which Lasater developed and refined her rubrics with each group performance. Her goal was to have the rubrics in place prior to scoring the students on performance but due to the continued development demonstrated by the students the refinement of the rubric continued past the scoring phase. A definition of levels reflective of Benner’s (2001) novice to expert was incorporated into the rubric to better define the students’ performance level.

Five themes emerged from this study. The first theme was the strengths and limitations of the high fidelity simulation. The students were challenged to think about
the information presented and analyze it while deciding on a response. The second theme was students’ heightened awareness of anxiety and feelings of being stupid. The third theme was the students’ intense desire for more feedback on their performance. This finding was recognized as having a strong impact on the rubric. The students asked for validation of their responses to the simulation, alternate responses and feedback for improvement. The fourth theme supports the need for socialization (i.e., being part of a group). The student relies on discussion and collaboration from the group to develop clinical judgment; experience and sharing information leads to learning. The fifth theme referred to general recommendations for improved facilitation.

The study provided a rubric which can be used to evaluate performance in the simulation lab. The rubric benefits students by “allowing them to learn what clinical judgment involves, evaluate their growth and identify goals toward its achievement” (Lasater, 2007b, p. 499). The rubric benefits evaluators by giving them an assessment tool to evaluate clinical judgment and developmental level and provides a familiar language for feedback that the student can relate to his/her performance in the simulation scenario.

Lasater (2007b) admits that the study’s validity may have been compromised due to the continuous refinement of the rubric during the scoring phase. The goal was to develop a tool that in the end would be used for evaluation through observation and scoring performance. It is also noted that the inter-rater reliability was not in place during this study but there were plans to complete this. Sample size also limited “statistically significant findings.”
Dillard et al. (2009) state the main goal for simulation is to assist the student’s transition from simulation to real practice. Implementing a project which utilized the LCJR, the authors were focused on developing faculty in the use of the rubric to assist them in evaluating student performance and examine how they transitioned the learning to application at the bedside.

The study introduced the Tanner model of clinical judgment and Lasater’s clinical judgment rubric (LCJR) as the framework. Faculty competency was developed by participating in a workshop to understand the rubric and by applying the rubric to videotaped simulation sessions.

Faculty then participated in a simulation that involved a patient in heart failure. Twenty-five students participated in the scenario. The students were expected to notice the patient in distress and take appropriate action to stabilize and alleviate symptoms. Once the patient was stabilized, the focus shifted to cueing the student towards further exploration of the problem and educational opportunities.

The students were asked to evaluate the scenario to evaluate their understanding of the major concepts. The data revealed that some students demonstrated that they understood the concepts while others had difficulty identifying the concepts. Upon debriefing however, the majority of the students stated they now “got the concepts” (Dillard et al., 2009, p. 103).

A reflective piece was added to the study post scenario to evaluate clinical judgment. Through the students’ written reflections the faculty assessed the teaching
needs of the student with simulation (i.e., those demonstrating they understood the concepts could be challenged with more complex scenarios and those who struggled would require a less complex scenario with built in support and guidance to develop their clinical judgment skills). Simulation provides for the customizing of scenarios to the learners’ needs.

In assisting the student to transition from simulation to practice the study also included a clinical practicum in a cardiovascular unit. The students were assigned a patient with heart failure. Post practicum the students were then required to do a guided reflection which was evaluated by the faculty using the LCJR. Scoring from the journals ranged from beginning to developing. The reflections assisted the faculty to assess which students were able to handle a more complex case and which required remediation to understand concepts.

Limitations to this study were (a) the results were qualitative, (b) students who stated they “got the concepts” in debriefing did not get the opportunity to demonstrate their learning prior to the clinical practicum, (c) the workshop limited one faculty to one student and did not allow the faculty to adapt the framework to multiple students and (d) faculty were required to be familiar with the Tanner models and LCJR to utilize them. Though the focus was training faculty and students in the use of the LCJR, the strength of the study could have been validated through repetition of scenarios to validate the faculty’s competency with the LCJR while also validating the student’s perception of “getting the concept” and evaluating the skill of clinical judgment acquisition from experiential learning.
Clinical judgment ability was demonstrated through some students’ reflections. This positive outcome demonstrates that learning acquired in simulation has the potential to be transferred to the clinical setting. It also demonstrated that those who missed concepts in simulation missed them in the clinical practicum as well. Debriefing and reflection assists the student in making connections that otherwise may have been missed while being engaged in tasks. Continued use of a rubric to evaluate clinical judgment is recommended to reinforce the strengths of simulation in student learning.

High-Fidelity Nursing Simulation: Impact on Student Self-Confidence and Clinical Competence

Simulation’s role in nursing education continues to evolve. In a quasi-experimental and quantitative study by Blum, Borglund and Parcells (2010) both Tanner’s Clinical Judgment model and LCJR were used to evaluate student self-confidence and clinical competency in a simulation setting. The sample size was 53 students at the end of the study.

Entry-level nursing students were involved in a 13-week course which included didactic and skills lab. The student was exposed to a variety of conditions each week which required different skills. Randomization occurred by the student’s schedule and prior commitments. The control group utilized traditional learning methodology in lab while the experimental group used the HPS.

Findings reflected equal acquisition of confidence and competency with no difference in the methodology used. The LCJR was found to be effective in validation of the Tanner clinical judgment model (Blum, Borglund, & Parcells, 2010). The LCJR was
able to demonstrate the learning pattern of entry-level nurses from “novice to developing ranges in self-confidence and clinical competence to accomplished and exemplary” (Blum et al., 2010, p. 10).

Significant statistical data did not emerge from the study. The sample size and the developmental level of the student limited results. The entry-level nurses’ focus was on learning assessment and skill acquisition to practice safely at the bedside. Entry-level nurses are in the novice stage in which they lack experience, focus is on tasks and their behavior is dictated by rules to guide them. Critical thinking and clinical judgment have not developed yet. The expectation that simulation would increase learning was also not supported by this study. Traditional methods were as effective if not more so in building confidence and competency.

Summary and Conclusion

The review of the research has demonstrated that clinical judgment is a desired outcome but the ability to measure it objectively continues to be problematic. Much of the research done has been qualitative in nature but quantitative data is needed to justify that simulation is a feasible method for learning and development of clinical judgment. The lack of best practice or establishment of standards of care does little to support simulation, an expensive methodology, in achieving program outcomes.

Implementation and validation of measuring tools is needed to understand the use of HPS in relation to clinical judgment development. Research tools for measuring clinical judgment in the simulation lab are few and still in the process of being validated.
The goal of this project is to measure clinical judgment as demonstrated in simulation validated by the LCJR.
CHAPTER III

METHODS

The purpose of this project was to measure clinical judgment in a HPS setting through the application of the LCJR. A descriptive design was used to apply the LCJR to clinical actions of senior nursing students enrolled in a capstone simulation course. This chapter will describe the research design, protection of human subjects, project sample, data collection, measurement instrument, and data analysis. The research questions were: Can clinical judgment be measured in a controlled environment? Can clinical judgment be measured using an adapted form of Lasater’s clinical judgment rubric (Lasater, 2007b)?

Theoretical Underpinnings

Guiding the study was Patricia’s Benner’s five levels of competency, novice to expert. The five levels of competency describe advancing levels through experiential learning. Through tactic knowledge the student develops the ability to learn, when and how to use the knowledge and skills which guide their decision making skills in a situation (Evans & Donnelly, 2006). It is expected that senior nursing students would display behaviors approaching the ‘advanced beginner’ level (Benner, 2001) (NCBN, 2005). The LCJR language mirror’s Benner’s novice to expert theory using beginning,
developing, accomplished and exemplary to identify levels of performance in clinical judgment acquisition.

Research Methodology, Population and Sample

Using a descriptive design a convenience sample of BSN senior nursing students enrolled in a capstone simulation course were used for the project with permission from the course faculty. The students were enrolled in a capstone project using HPS and were accustomed to the simulation process. The students had participated in over 30 medical-surgical scenarios over a semester. The final scenarios and corresponding reflections were used for the project. There were no specific limitations applied to the sample other than they needed to be senior students, be enrolled in the course and gave informed consent. The students were also not known to the researcher.

The students were assigned in 12 random teams of two and performed in a randomly chosen scenario out of three possibilities. The students in a team were evaluated for performance as a team and not individually. The only role of the team was to perform in the scenario. There was no comparison of teams. Burns and Grove (2001) state “types and relationships is not the primary purpose of a descriptive study” (p. 248). Clinical judgment was the phenomenon being examined and the scenario was the independent variable.

The performance was rated using the descriptive language used in the LCJR. The scenarios were taped and debriefing occurred following the scenario. Debriefing was not recorded for further review and therefore not reflected in the scoring. Following debriefing the students submitted individual written reflections.
Two simulation experts and the researcher reviewed the taped scenarios scoring them using the LCJR (Appendices A & B) and scoring sheet (Appendix C) developed for this project. The descriptive nature of the evaluation rubric provides for measuring clinical judgment. The LCJR consists of “11 dimensions representing the 4 phases of clinical judgment: noticing (12 points possible, interpreting (8 points possible), responding (16 points possible), and reflecting (8 points possible for a total of 44 possible points” (Lasater & Nielson, 2009, p. 441). The LCJR scoring sheet consisted of the dimensions and letter rating where E stood for exemplary, A for Accomplished, D for developing and B for Beginning. The scoring tool was revised to allow for the rating of performance that fell between two levels; the letters were changed to points ranging from 4 for exemplary and 1 for beginning. It was understood that a .5 would reflect performance between two levels. Dimensions were rated using a numerical score which was applied to the descriptive score. It should be noted that permission was obtained prior to the project from the author of the rubric to adjust tools as deemed necessary to gather data. The LCJR is reflective of Patricia Benner’s novice to expert scale and includes Tanner’s clinical judgment model of noticing, interpreting, responding and reflecting (Lasater, 2007b). Raters individually scored each performance independently. The raters’ raw scores for each scenario were then averaged and mean scores were divided by the number of dimensions to obtain an overall rating which corresponded to a single descriptor, i.e., beginner, advanced beginner, accomplished or exemplary.
Ethical Considerations

Permission to conduct the project was submitted to the Institutional Review Board. This project was submitted as a sub-study of an ongoing study, using existing data.

As part of the course, students granted permission for videotaping. An added informed consent was obtained to use selected scenarios for ongoing educational research on simulation outcomes. Human subject’s approval was obtained for research in the course by the course faculty. Students in the course were informed of potential educational uses of taped scenarios and written reflections to evaluate simulation outcomes and were assured consent was voluntary and would have no impact on their course grades. The participants were assured of confidentiality. The right for fair treatment was discussed and the participants were assured there would be no anticipated discomfort or harm during the simulation process. Students who opted not to participate were not included in the project.

Scenario Selection

Senior students participated in one of three scenarios designed to demonstrate decision points that allowed for use of clinical judgment. The scenarios selected have been used previously with senior nursing students and have been validated for use in simulation by clinical experts. Concepts included in the final scenarios had been introduced early in the semester through different scenarios. Students participated in the scenarios while being videotaped.
The first scenario involved a fresh post-op patient who has received a large amount of pain medication in recovery. The patient experiences respiratory distress and requires the students to take appropriate intervention. The students are challenged to identify the cues and integrate their assessment to recognize respiratory distress and take appropriate interventions to rescue the patient. Cues are provided through the initial report, vital signs, decrease respiratory effort, and decreased level of consciousness.

The second scenario focused on post-operative teaching to avoid complications. The students were expected to follow a routine post-operative assessment recognizing abnormal assessments that would lead them to interventions and education. Cues in place were the infiltration of the IV, malposition of the patient, lack of sequential stockings, low oxygen saturation, an elevated temperature and the lack of knowledge on the use for the incentive spirometer.

The third scenario involved a patient who was experiencing pain and respiratory distress from a complication of pulmonary emboli. The students were expected to follow the cues of immobility, increased respiratory effort, and pain in the extremity. Upon their findings they were expected to call the physician for further orders using an SBAR reporting format.

The scenarios ran about 10-15 minutes. Following the scenario, the students were debriefed by the course faculty and were asked to write a reflection on the simulation experience, using a previously developed simulation reflection tool (Appendix D) (Fox, 2010).
Measurement Tool

Permission to use the LCJR was obtained from the author, Kathie Lasater, with additional permission to modify the rubric as necessary to accomplish the project. The LCJR, adapted from Tanners’ Model of Clinical Judgment, delineates categories of Noticing, Interpreting, Responding, and Reflecting and adapts Benner’s stages of novice to expert using Beginning, Developing, Accomplished and Exemplary as levels in the evaluation process. This tool has been published and is one of the few evaluation rubrics for quantitative available for simulation.

The assessment of reliability and validity of the LCJR was not available at the start of the project but in 2012, three studies summarized the use of the LCJR in three different approaches. Adamson, Gubrud, Sideras, and Lasater (2012) reported on the use of LCJR in evaluating clinical judgment.

Adamson et al. (2012) was focused on establishing a new method to evaluate measuring tools for simulation. Adamson et al. established a pool of 29 qualified raters using strict criteria. The pool was established from professional contacts and through the use of a faculty list-serve who were interested in simulation. Raters received training in the use of the LCJR and were given a sample scenario with instructions on how to use the LCJR. Training also included packets with additional information related to the study and to ensure consistency and preparation the raters participated in a phone conference.

Interrater reliability was established by having the raters participate in rating weekly scenarios over a six-week period. An intraclass correlation coefficient, a statistical measurement of absolute agreement, confirmed reliability. Validity was established by raters being able to recognize of the levels of the scenarios.
Adamson et al. (2012) focused on understanding clinical judgment development among nursing students. The study included two raters plus the researcher. Each one had been involved with simulation for 18 months, had attended a workshop on clinical judgment, and were nursing instructors. Each lacked formal training in how to evaluate simulation activities. Rater training was done using the (1) performance dimension training where the student performance is reviewed and the rubric is applied and (2) participation in practice scoring where the raters discuss scoring of the rubric and make any adjustments to the rubric if needed.

Interrater reliability was established by raters scoring archived videos and comparing scores. Agreement was noted between scores and rationalization of the scores. After the fifth video it was determined that interrater reliability had been achieved.

The actual study was a pretest and posttest design with each team observed twice in a ten-week course. Each rater observed the scenarios and debriefing without collaboration among themselves. The taped scenarios were viewed separately and were not discussed among the raters.

Data from the preliminary interrater reliability placed the mean score of 92% agreement between raters using the LCJR. In the larger study mean scores improved to 96% agreement. The LCJR was deemed a reliable instrument to measure clinical judgment in this study (Adamson et al., 2012).

Sideras focused on the hypothesis that BSN seniors would outperform juniors on the LCJR rubric. Using strict criteria, Sideras included four raters who had no knowledge of the student’s level, were masters’ prepared educators, and had previous knowledge of the Tanner model of clinical judgment. Rater training consisted of
performance dimension training and use of the LCJR. The goal was to establish greater than 90% level of agreement. Though each researcher’s focus varied, they were able to establish inter-reliability to validate the use of the LCJR for clinical judgment evaluation of the students.

The LCJR was chosen as a potentially useful tool in measuring clinical judgment in the graduating BSN students for this study. To advance the capabilities of the tool as a quantitative measure, and to facilitate development of an interrater reliability measure, the tool was adapted to convert the qualitative labels to a numerical scale (Fox, 2010). Three faculty familiar with simulation concurred on the usefulness of the numerical rankings, and applied the rankings to existing videotapes of nursing students in scenarios. Numerical rankings ranged from 1 (beginning) to 4 (exemplary). Half points were added to allow for numerical ranking when the performance fell between two levels.

Reliability and Validity

The LCJR inter-rater reliability was yet to be established when data was first gathered for this project as mentioned above. Interrater reliability for this study was established using the LCJR with two faculty proficient in simulation and familiar with the scenarios plus the researcher. Several sessions were held to establish consistency and consensus with the use of the LCJR. Rater training should consist of two processes: (1) performance dimension training and (2) participation in practice scoring sessions (Adamson et al., 2012). Previously taped recordings of the scenarios used for this project, from a different cohort, were evaluated to establish interrater reliability using the LCJR scoring sheet. When ratings differed among the faculty, discussion ensued, leading to
clarification of interpretations and greater consistency in the use of the rating scale with the specific scenarios. Through these discussions, the inter-rater reliability was established. While reviewing the rubric it was noted that some performances fell in the middle of the defined scores and it was agreed to add a half point in between the scoring values to capture that performance.

Using the one-way ANOVA statistical program, data from the inter-rater reliability rating sessions were analyzed. A total of five scenarios were reviewed. Out of the five there were two different scenarios. Each scenario encompassed the concepts that would be addressed in the testing scenario. Each scenario involved a different section of students. It is noted that the third scenario (case 1) only included two raters as the last rater was unavailable.

The one-way ANOVA results noted that no rater was significantly different in their scoring of the different scenarios using the LCJR. The p value was greater than 0.05 (0.725) signifying a large probability that there would not be any difference. The mean based on the pooled standard deviation also confirmed that there was no significant difference as each score intersected with each other. The Tukey method of comparison demonstrated that we could be 95% confident that the difference in the raters scoring would have no significant differences in future scoring using the LCJR. The bar graph (Figure 1) gives a visual of how close rater scoring using the LCJR was.

Data Collection Procedure

Three different scenarios were reviewed for this project. Students were placed in random teams of two. Twelve teams participated in the project with each team
Figure 1. Interrater reliability scores using the LCJR.

performing in a scenario only once. Students were assigned primary or secondary roles in each scenario. However, the scoring for the scenario was applied to the combined actions of both students.

Data were gathered by reviewing both taped simulations and student reflections of the simulation. Debriefing sessions were not used as they were not recorded. The two expert reviewers plus the researcher reviewed the taped scenarios according to a performance checklist of expected behaviors. Using both the LCJR and the LCJR scoring sheet, student performance was evaluated on all 11 areas of the LCJR.
CHAPTER IV

RESULTS

The purpose of this project was to evaluate if clinical judgment could be measured in a HPS environment. Measurement of clinical judgment required a specific tool for use in the simulation setting and the LCJR provided such a tool to gather quantitative data. The LCJR consists of 4 phases: noticing, interpreting, responding, and reflecting. Within the phases are dimensions. The dimensions break down the descriptive language to further define performance in regards to clinical judgment. There are a total of 11 dimensions.

Three scenarios were used for the project and four sets of teams participated in each scenario for a total of 12 opportunities to measure clinical judgment. No team participated in more than one scenario. Raw scores from each scenario using the LCJR were entered into an Excel spreadsheet. The sum of the 11 dimensions of the LCJR was totaled with a possible of 11 minimum points (1 point for each dimension for beginner level) and 44 maximum points (4 points for each dimension for exemplary level). The range of total scores fell between 31 and 44 points. Figure 2 represents the total score for each scenario.

Using the LCJR descriptive scoring sheet, scores of 44 place the performance at exemplary. It would not be expected for a student to be exemplary. Two explanations for the high scores are that the raters have only dealt with evaluating students, not
experienced nurses. When scoring the performance they may have been applying the
descriptions of the performance differently than if evaluating a seasoned nurse. The other
is that, though not a comparison study they may have inadvertently compared one team’s
performance against another.

Each phase of a scenario was then totaled to get one score. The mean of each
score was then obtained (Figure 3). Of the performances 36.4 % \( (n = 12) \) fell in the
accomplished level, 63.6% \( (n = 21) \) fell in the developing level. The students mean scores
ranged from 2.18 to 2.95. In general the mean scores of the LCJR placed the students at
the developing level (Figure 4) which translates to Benner’s advanced beginner.

The overall snapshot of clinical judgment suggests that the first and third
scenario scores for clinical judgment were stronger than the second scenario. The first
scenario dealt with respiratory distress and the third dealt with pulmonary emboli. The
second scenario dealt with post-operative complications.

Scenario 1 (respiratory distress) and scenario 3 (pulmonary emboli) lead the
students to determine interventions and take action more readily than scenario 2 (post-
operative complications). In scenario 1 the patient has a change of level of consciousness, decreased oxygen saturations and depressed respiations. In scenario 3 the patient complains of trouble breathing after complaining of pain in his extremity. In scenario 2 the cues are subtle, the patient is askew in the bed, the sequential stockings are off, there is presence of fever and lack of knowledge regarding post-operative pulmonary toiletry.

Three possible explanations for stronger performance in scenario 1 and 3 could be that the students participating in the scenarios were currently engaged in a clinical focused in specialty units with high acuity patients. Respiratory distress is more commonly seen than the pulmonary emboli and both scenarios had strong cues. Students tend to wait for a crisis when engaging in simulation where the post-op assessment (typical of a routine medical surgical patient in second semester patient) might have been too subtle for them to follow due to being invested in the “crisis” thinking to consider the cues.
Another explanation is that not all students encounter the same experiences in clinical. In reviewing the pre assessment for the capstone simulation course, the student was asked to share experiences encountered in simulation and clinical. The pre-assessment was used to assess experience and to have a direction in which to build on scenarios. Simulation experience was noted to be in maternal child and some mentioned having simulation in their medical surgical course. It should be noted that less than half of the students involved in the project completed a pre-assessment. Higher scores could reflect the student who was able to experience a wide variety in their clinical experiences. Experiential learning assists the student to build on knowledge, skills, confidence and critical thinking, promoting autonomy to make clinical decisions (Evans & Donnelly, 2006).

Observed performance was noted to be strongest in responding (Figure 4). Students were rated on calm and confident manner, clear communication, well planned interventions/flexibility and being skillful. Interpretation was the lowest scoring phase. The student was rated for prioritization of data and being able to make sense of it all. Common missteps were attending to less important data.

Though reflection was the highest scored phase it proved to be problematic. Students’ reflections were not solely focused on the scenario that they participated in but encompassed the evaluation of all three scenarios. Students were rated for being able to evaluate their scenario and self-analyze their performance as well as identifying a commitment to improvement. Mean scores may reflect higher ratings due to the fact that those who made a plan for change were rated at the exemplary level.
Figure 4. Mean scores of LCJR phases.

The faculty found the LCJR to be user friendly. The descriptive language was clear and directive. Consistency of the use of the tool required a fair amount of preparation, discussion, practice and time. Establishing interrater reliability was essential to achieve validity. At times performance was not equal between the two students. When one student performed well, the scenario objectives were met, even if the second student contributed little to the outcomes. It was suggested the tool would be best applied to the behaviors of a single student, acting alone.

The LCJR validated the simulation environment is conducive to measuring clinical judgment. The results place the senior student from this local university between developing and accomplished levels. Overall, the average performance fell in the developing level.

Common themes identified from the reflections were communication, teamwork, confidence, education, early recognition, early intervention, medication delivery and the application of theory to a case. Contributing factors identified for
successful clinical decision making were experiential learning and the pre-scenario prep which was required reading before participating in the scenario. Students stated that teamwork and communication were key skills to early recognition of problems. Students also suggested that increasing the prep and having more clues would assist in improving assessments and taking appropriate intervention quicker. Students acknowledged being able to apply theory and learned skills which were not encountered in the clinical setting were beneficial in increasing their knowledge base and skills and providing a reference for future encounters.

Areas for development were identified in the reflections as well. Medication delivery, complications of common disease process, thorough assessments, and early intervention were areas students hoped to develop for application to their future practice.

Reflective statements to support simulation as a learning environment were also noted. One reflection stated “I think that through these scenarios, I have learned to deal with family members, how to communicate effectively with our patient, how to work as a team during rapid response, the importance of performing the role in the team effectively and efficiently and recognizing deterioration of your patient”. Another reflection stated “I truly believe this was crucial to my clinical success thus far. It has really helped boost my confidence in my skillset and knowledge. I only wish we started regular simulation earlier in the program” while another noted “knowing the appropriate actions to take can ensure better outcomes for the patient and help you become a better advocate as a nurse.”

In summary, the LCJR proved to be a tool which was able to capture behavior and actions to demonstrate clinical judgment. Students were able to glean positive
learning from the scenarios and recognize application to future practice. Simulation is an arena for future learning. Comments from the reflections indicate that simulation experience is extremely valuable component for clinical learning and should be increased in the curriculum.
CHAPTER V

FINDINGS AND RECOMMENDATIONS

Clinical judgment and clinical reasoning are qualities sought in nursing graduates due to the continuous change in patient acuities and the changing health care environment. All entry-level nurses should function at Benner’s level of advanced beginner (Benner, 2001; NCSBN, 2005). The advanced beginner requires “prior experience in actual situations for recognition of meaningful situational components known as aspects” (Benner, 2001, p. 22). It is an expectation that through experiential learning the student gathers clinical judgment skills; however not all students encounter the same clinical experiences. Clinical experiences are limited by facility, by patient mix, and by what the student is allowed to do. In reviewing pre-assessment data on the students in this study, it was apparent that experiences were widely varied. Some, but not all students had experienced administration of blood transfusions and complications, medication drips, chest tubes, and suctioning of endotracheal tubes. The most common encounter for the nursing students involved in the project was insulin administration. Many observed high risk medication delivery or codes but had no hands on experience. Simulation provides the opportunity to ensure common experiences for all students.

Results from this study indicate that at the end of a semester of simulation, senior nursing students performed at the advanced beginner stage. Del Bueno’s (2005) statement that entry level nurses lack ability in making clinical decisions is challenged by
these findings. The lack of variation among the teams supports the presence of similar clinical judgment abilities at the senior students’ level in this nursing program.

The need to improve patient safety will continue to guide practice. Simulation provides the ability to introduce common and high-risk scenarios which can allow application of theory to assist the student with transfer to practice in a safe environment. The IOM statement that practicing at the bedside could be unethical supports the use of simulation to assist the student to gain knowledge, skills, apply develop clinical decision making skills and apply theory. Students have encountered information in theory but may never be able to apply it in clinical. Simulation provides the simulated experiential learning to bridge the gap between theory and practice.

Limitations

There were a few limitations to the study. The small sample size did not lend itself to a variation for comparisons. Mean scores demonstrated little variation. A larger sample may have allowed more variation among student performance to become evident. Each team participated in only one scenario of three scenarios and only one person in the team functioned in the primary role (though the team was scored as a whole). One might wonder if reversing the roles or evaluating each student individually may have altered the results. It was evident to the raters that some students in the team contributed more to the team outcomes than others. The strength of the study could be improved by increasing the sample size, having the students participate individually and by providing the same scenario to all participants. Due to the use of existing data, this was not an option for this study.
Debriefing is seen as one of the most important components of simulation (Decker, 2007). The lack of debriefing data as part of the reflection scores may have omitted some important components of the student’s initial reflection on the scenario. Debriefing allows the student to address their initial reactions and performance. Discussion regarding the objectives and outcomes can allow application of theory, increase decision making skills and clarify key points of the scenario. Debriefing should be included in the scoring for the reflection phase.

There were other limitations as well: the project only included one class, one local Bachelor of Science nursing program, no opportunity for comparison of different student levels, and a limited time frame. Increasing the sample size of participants and evaluating each student individually may result in discovery of greater variances in performance. Allowing each student to participate in the role of primary nurse would not only increase the sample size but give insight to individual awareness of clinical decision making and measurement of critical thinking. Isolating further demographics such as age, sex or culture could also provide information that may impact how critical thinking develops among different groups. Expanding the project to include other types of nursing programs, both at the BSN and at the Associate level, may yield further information about the differences of the entry-level registered nurse. Providing the opportunity for each group or individual to participate in each scenario would also provide information about critical thinking and decision making in more than just one complex case. Including debriefing in the evaluation process may capture critical thinking that may have been missed in the reflection since debriefing is current and interactive post scenario.
Implications for Practice

Bridging the gap of theory to practice continues to be the challenge for nursing programs. Including simulation in nursing curriculum allows the student to apply current theory to practice. The simulation capstone course was taught concurrently with an integrative theory nursing course. Weekly simulated scenarios reflected current theory being learned. Students were able to bring current and complex class theory and apply it to the case scenarios. Clinical judgment is developed through experiential learning, reflection and current feedback and clarification. Integrating simulation into each semester’s theory course may enhance the quality and safety of the student nurse in the clinical setting.

Implications for Research

Simulation is an expensive teaching strategy. Validation of its value in preparing student nurses for the real workforce is still lacking. Simulation hours are still limited by the California Board of Registered Nursing. Simulation is limited to 25% of clinical time, as an alternative clinical activity. The possibility for use in academics, certification courses and continued education courses is still unknown. Simulation use in nursing education requires further research. Continued quantitative studies in simulation are needed to demonstrate the effect on student learning outcomes, performance, clinical judgment and eventually patient outcome. Del Bueno (2005) states “most new graduates do not meet expectations for entry level clinical judgment ability” (p. 278). Eight years have passed and this study is still referenced when discussing clinical judgment. Perhaps it is time to consider replicating Del Buenos’s study to assess current data.
Few instruments are in place to measure clinical judgment. The LCJR is only one of them. Continued use of the LCJR and other tools is essential to provide comparative data. With the presence of residency programs for new graduates, the time is right to carry the evaluation of clinical judgment development from the simulation lab to the bedside.

Continued measurement of clinical judgment and decision making is necessary to support the inclusion of simulation in the standard nursing curriculum. Research should expand into all BSN and Associate nursing programs as well as new nurse residency programs. Nursing programs should work together to gather this data to demonstrate the validity of simulation in nursing education.

Implications for Education

The National League for Nursing (2006) challenged educators to provide an educational environment to promote critical thinking and self-reflection. The challenge was to enhance learning through innovative strategies conducive to today’s technological learner. Simulation, through its high fidelity simulators and ability to incorporate real life scenarios, is a teaching strategy that students appreciate. Application of theory to practice is promoted through tactile, visual, auditory and reflection component. Students identified simulation as a positive learning environment, building confidence and knowledge they could apply in future practice.

An issue that must be addressed if we are to include simulation in the curriculum is the training of the educators to provide competent guidance. Training educators to be competent in simulation is a costly endeavor. It requires time and
repetitive practice to understand the process. Time is also required to write or modify scenarios and practice them prior to implementing them. An unprepared educator can hinder the desired outcomes of simulation and can impact the students’ learning in a negative way.

Students recognized in their pre-assessment that the least favorite part of prior simulations had been disorganization, downtime and unclear objectives. Reflections from the scenarios included in this project complimented the educators for organized, challenging and interesting case scenarios. A certification process is now in place for simulation educators. Nursing school administrators must encourage and provide time for educators to meet those standards in order to maintain the quality and integrity of simulation.

Conclusion

As the focus grows on safe patient care it becomes imperative that students are immersed in simulation to learn assessments, early recognition, protocols, management of the disease process and concepts. Experiential learning through simulation has been demonstrated to be effective in developing clinical judgment. Increased integration of simulation with theory throughout a nursing program should be examined as a strategic format to build students’ confidence and ability to make sound clinical decisions. The NLN recommends the development of critical thinkers and decision makers to address the changing health care environment.

In summary, the simulation environment lends itself to providing an environment to develop clinical judgment through evidenced based scenarios. The LCJR
was a useful component to being able to measure simulation performance with senior nursing students. Though the sample size was small, the results of the project provided a snapshot of the entry-level nurse’s ability to demonstrate clinical judgment. The results also supported Benner’s statement that the entry-level nurse should be at the advanced beginner stage which in the LCJR fell in the developing level.
REFERENCES


Dillard, N., Sideras, S., Ryan, M., Carlton, K. H., Lasater, K., & Siktberg, L. (2009). A collaborative project to apply and evaluate the clinical judgment model through simulation. *Nursing Education Perspective, 30*(2), 99-104.


Jeffries, P. R. (2005). Designing, implementing, and evaluating simulations used as teaching strategies in nursing. *Nursing Education Perspectives, 26*(2), 96-103.


<table>
<thead>
<tr>
<th>Effective NOTICING involves:</th>
<th>Exemplary</th>
<th>Accomplished</th>
<th>Developing</th>
<th>Beginning</th>
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<tr>
<td><strong>Focused Observation</strong></td>
<td>Focusses observation appropriately; regularly observes and monitors a wide variety of objective and subjective data to uncover any useful information</td>
<td>Regularly observes/monitors a variety of data, including both subjective and objective; most useful information is noticed, may miss the most subtle signs</td>
<td>Attempts to monitor a variety of subjective and objective data, but is overwhelmed by the array of data; focuses on the most obvious data, missing some important information</td>
<td>Confused by the clinical situation and the amount of data; observation is not organized and important data is missed, and/or assessment errors are made</td>
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<tr>
<td><strong>Recognizing Deviations from Expected Patterns</strong></td>
<td>Recognizes subtle patterns and deviations from expected patterns in data and uses these to guide the assessment</td>
<td>Recognizes most obvious patterns and deviations in data and uses these to continually assess</td>
<td>Identifies obvious patterns and deviations, missing some important information; unsure how to continue the assessment</td>
<td>Focuses on one thing at a time and misses most patterns/deviations from expectations; misses opportunities to refine the assessment</td>
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<tr>
<td><strong>Information Seeking</strong></td>
<td>Assertively seeks information to plan intervention; carefully collects useful subjective data from observing the client and family; from interacting with the client and family</td>
<td>Actively seeks subjective information about the client’s situation from the client and family to support planning interventions; occasionally does not pursue important leads</td>
<td>Makes limited efforts to seek additional information from the client/family; often seems not to know what information to seek and/or pursues unrelated information</td>
<td>Is ineffective in seeking information; relies mostly on objective data; has difficulty interacting with the client and family and fails to collect important subjective data</td>
</tr>
<tr>
<td><strong>Effective INTERPRETING involves:</strong></td>
<td>Exemplary</td>
<td>Accomplished</td>
<td>Developing</td>
<td>Beginning</td>
</tr>
<tr>
<td><strong>Prioritizing Data</strong></td>
<td>Focusses on the most relevant and important data useful for explaining the client’s condition</td>
<td>Generally focuses on the most important data and seeks further relevant information, but also may try to attend to less pertinent data</td>
<td>Makes an effort to prioritize data and focus on the most important, but also attends to less relevant/useful data</td>
<td>Has difficulty focusing and appears not to know which data are most important to the diagnosis; attempts to attend to all available data</td>
</tr>
<tr>
<td><strong>Making Sense of Data</strong></td>
<td>Even when facing complex, conflicting or confusing data, is able to (1) note and make sense of patterns in the client’s data, (2) compare these with known patterns (from the nursing knowledge base, research, personal experience, and intuition), and (3) develop plans for interventions that can be justified in terms of their likelihood of success</td>
<td>In most situations, interprets the client’s data patterns and compares with known patterns to develop an intervention plan and accompanying rationale; the exceptions are rare or complicated cases where it is appropriate to seek the guidance of a specialist or more experienced nurse</td>
<td>In simple or common/familiar situations, is able to compare the client’s data patterns with those known and to develop/explain intervention plans; has difficulty, however, with even moderately difficult data/situations that are within the expectations for students, inappropriately requires advice or assistance</td>
<td>Even in simple of familiar/common situations has difficulty interpreting or making sense of data; has trouble distinguishing among competing explanations and appropriate interventions, requiring assistance both in diagnosing the problem and in developing an intervention</td>
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### Lasater Clinical Judgment Rubric Scoring Sheet

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<thead>
<tr>
<th>Clinical Judgment Components</th>
<th>Points</th>
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<th>Scenario #</th>
<th>Observation Notes</th>
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<td><strong>Responding:</strong></td>
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<td>• Clear Communication:</td>
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<td>• Being Skillful:</td>
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<td>• Evaluation/Self-Analysis:</td>
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<td>• Commitment to Improvement:</td>
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**Summary Comments:**

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## Modified Lasater Clinical Judgment Rubric Scoring Sheet

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*Summary comments:*
Simulation Reflection

Name_______________________  Date______________

In reflecting, think about all the scenarios, not just the ones you participated in. In cases where you were an observer, you have the advantage of seeing a bigger picture than those who were in the roles.

1. Were there any surprises about in this scenario? (Consider your own reactions as well as the reactions of those you observed).

2. Did you learn anything about approaches to the patient in this scenario? (Consider your own actions as well as what you observed others doing well, or not so well).

3. Did you learn anything about team function and communication?

4. Did you have the knowledge you needed to manage the case? (If not, what pieces were missing?)

5. What would you need to learn more about or practice to successfully care for patients in this situation?

6. Did this scenario help you to apply prior knowledge? Please describe.

7. What can you apply from this scenario to your practice?

8. Do you have suggestions for improving the scenario for future learners?
Gema Alicia Knipe BSN
109 Dakota Avenue
Biggs, Ca. 95917

April 19, 2013

Dear Ms. Knipe,

This letter is to acknowledge that I gave you permission to use the Lasater Clinical Judgment Rubric for your master's thesis work in 2012. I also provided you a score sheet for use with the rubric which I gave permission for you to modify to suit your needs.

What I asked in return was two-fold: (1) to acknowledge my intellectual by properly citing the rubric; and (2) to provide a short summary of how you used the rubric for your study. I understand that upon completion of your thesis, you will provide the summary.

Please feel free to contact me if you need additional information.

Sincerely yours,

Kathie Lasater, EdD, RN, ANEF
Associate Professor