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Nurses Perceptions of their Competence in Managing Patient Situations in Acute Care

Donna Marie Donilon
University of Rhode Island, ddonilon@schospital.com

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NURSES PERCEPTIONS OF THEIR COMPETENCE IN MANAGING
PATIENT SITUATIONS IN ACUTE CARE

BY

DONNA MARIE DONILON

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

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DOCTOR OF PHILOSOPHY DISSERTATION

OF

DONNA MARIE DONILON

APPROVED:

Dissertation Committee:

Major Professor Dr. Marlene Dufault

Dr. Brian Quilliam

Dr. Diane Martins

Dr. Nasser H. Zawia
DEAN OF THE GRADUATE SCHOOL

UNIVERSITY OF RHODE ISLAND
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ABSTRACT

Nurses are at the forefront of recognizing and managing patient situations which may be potentially life-threatening. This study examines the nature and extent to which nursing experience and selected educational variables have on nurses' perceptions of their competence in managing deteriorating patient situations in acute care. Self-awareness of nurses' competence in managing these types of patient situations is critical. Benner's Novice to Expert Model of developmental competency is the theoretical framework for this study.

A survey methodology was used to gather data on the variables: years of experience in nursing, years working in current specialty, educational preparation, national certification, area of specialization, cross- training in more than one specialty, and advanced life support or rapid response team member training. Attendance at a case review session where actual cases were reviewed was also a variable. Instrumentation included an adapted version of the Nurse Competence Scale, a thirteen- item scale related to managing patient situations. Content validity was established by an expert panel of nurses practicing in acute care in the roles of Clinical Nurse Specialist, Nurse Manager, and staff nurses.

The setting for the study was an acute care community hospital in the Northeast. Of 212 registered nurses eligible to participate in the survey, the data producing sample of 74 subjects resulted in a 35% return rate. Using SAS, data analysis included univariate descriptive statistics and logistic regression to determine predictive values on nurses' self-perceived competence in managing deteriorating

patient situations. Of special interest was the potential association with attendance at case review sessions.

Results indicate the overall score for nurses' competence in managing patient situations is in the "good" range (between 8 and 9 on the study scale). Those who attended a case review session had higher overall scores in eleven of the thirteen aspects on the study scale. Cross-training to more than one specialty was predictive of nurses' self-perceived competence in managing patient situations.

Limitations of this study include the small sample size, and that it was conducted in one community hospital and so findings may not be generalizable to other settings.

This study contributes to the knowledge base in nurse competence and nurses' role in managing patient deterioration. Implications for nursing education and practice include integrating such competencies in program planning for orientation and continuing education.

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TABLE OF CONTENTS

ABSTRACT.....	ii
ACKNOWLEDGEMENTS.....	iv
TABLE OF CONTENTS.....	vi
LIST OF TABLES.....	vii
LIST OF FIGURES.....	viii
CHAPTER 1	1
INTRODUCTION	1
CHAPTER 2	4
REVIEW OF LITERATURE	4
CHAPTER 3.....	50
METHODOLOGY.....	50
CHAPTER 4.....	62
FINDINGS.....	62
CHAPTER 5.....	83
CONCLUSION	83
APPENDICES.....	101
BIBLIOGRAPHY.....	108

LIST OF TABLES

TABLE	PAGE
Table 1. Descriptive Table of Sample.....	75
Table 2. Overall Total Score Overall Domains (Managing Patient Situations and Therapeutic Interventions Domains).....	77
Table 3. Therapeutic Interventions Domain (T_).....	80
Table 4. Managing Patient Situations Domain (M_).....	81
Table 5. Prediction Model: Logistic Regression Model to Identify Independent Predictors of Excellent Self Perceived Competence.....	82

LIST OF FIGURES

FIGURE	PAGE
Figure 1. Histogram: Number of Nurses with Each Total Score.....	78
Figure 2. Histogram: Number of Nurses with Each Total Score by Attended or Not Attended a Case Review Session.....	79

CHAPTER 1

INTRODUCTION

Justification for and Significance of the Study

Patients' clinical situations can change rapidly in the acute care hospital setting. Frontline nurses must be able to recognize and respond effectively and quickly to these changes. Fueled by the recent Institute of Medicine (IOM) report (Institute of Medicine, 1999; 2010), the Agency for Healthcare Research and Quality (AHRQ) initiatives (Agency for Healthcare Research and Quality, 2010), and accreditation groups such as The Joint Commission (TJC), hospitals have focused significant attention on preventing sentinel events or "almost" events called "Near Misses." Because of nurses' 24/7 patient contact, they have significant responsibility in identifying those subtle cues indicating deterioration in patients' condition prior to these sentinel events or near misses.

Self-awareness of nurses' own competency in managing such situations presents a host of challenges for staff development educators in hospitals. Ensuring competence in recognizing and managing these events is a major priority. Hospitals have developed costly programs such as case review sessions (where sentinel events or near misses are analyzed), certification programs in Advanced Cardiac Life Support (ACLS), Pediatric Advanced Life Support (PALS), and training as "Rapid Response" team members, amongst others.

A host of factors have been identified as possible variables associated with nurses' self-perceived competency in preventing and managing near misses and sentinel events. However, no studies to date examine the extent to which these multiple variables are associated with nurses' perceived competency in recognizing and managing such events. The purpose of this step-wise descriptive study is to examine the extent and the manner in which the following variables:

- years of nursing experience
- years of working in a specialized area
- cross-training in more than one specialty
- type of educational preparation (associate degree, diploma, baccalaureate, or advanced degrees)
- national certification
- participation in the care of a patient discussed at a case review session
- attendance at a case review session
- and participation in advanced life support training such as ACLS, PALS, or rapid response team member training

are associated with nurses' self-perceived competency in recognizing and managing potentially life-threatening situations. The knowledge gained in this study will assist in: (1) determining the relative value of educational programs aimed at increasing nurse self-perceived competency in managing these situations; and (2) when to begin this training.

Competence in nursing practice is vital to ensuring the delivery of safe patient care. The outcome of care delivery in a competent manner is a complex myriad of

knowledge and skills within the Registered Nurse's scope of practice. Developing educational methods that will predict competent practice is a challenge for Nurse Educators. The concern for competent nursing practice is evident in the literature as well as in the clinical setting (Del Bueno, 2001; Flanagan, Baldwin & Clark, 2000). Areas impacted by nursing competency include patient outcomes, leadership development, quality, accountability, patient, nurse and physician satisfaction, and the fiscal health of the organization (Alspach, 2000; Del Bueno, 2001; Maynard, 1996). Nurse competence is a component of the American Nurses Credentialing Center's Magnet and Pathway to Excellence Programs® (ANCC, 2004; ANCC 2008). Ensuring competence in nursing practice is a major priority for staff development departments in hospitals. In accordance with the American Nurses Association (ANA) Scope and Standards of Practice, nurses are accountable to deliver the best possible care to patients (ANA, 2004), a significant component of which is to recognize and respond to subtle cues and changes in patient's condition.

CHAPTER 2

REVIEW OF THE LITERATURE

Definition of competency

Competency is referred to as a desired outcome of nursing education and professional development (Alspach, 2000; Del Bueno, 1990a; Maynard, 1996). Despite the concern and requirement for competency in nursing practice, there is not a universal definition of competency in the literature. Webster defines competency as “the quality of being competent, adequacy; possession of a required skill, knowledge, qualification, or capacity” (Webster, 1993). Webster (1993) defines the term “competent” as “having suitable or sufficient skill, knowledge, experience, etc. for some purpose; properly qualified. 2. adequate but not exceptional.” Although there is lack of a universal definition, common themes that emerge across the literature are competency being comprised of knowledge, skills and attitudes (Del Bueno, 1990, Gurvis & Grey, 1995; Watson, Stimpson, Topping, & Porock, 2002).

Performance as an outcome of competency is addressed in several studies (Flanagan, Baldwin & Clark, 2000; Short, 1984; While, 1994). Utilizing the definition of competence by the Unit for Development of Continuing Education (UDACE), While (1994) discusses linkages between competency and performance. This definition states “competence is concerned with what people can do rather than with what they know” (While, 1994, p. 526). While (1994) notes a limitation of this definition is that observation of performance at one time does not necessarily predict competence in the future. Other considerations include the identification of effective

methodologies to assess competence (While, 1994). Although it is clear that safety for the patient and nurse in the delivery of care is of prominent concern, methods to promote the development and refinement of these abilities in nurses is not always so apparent.

Although there is not a universal definition of competency, Alspach captures common elements which are referred to throughout the nursing literature. Alspach (2000) describes competency as a “simultaneous integration of the knowledge, skills and attitudes that are required for performance in a designated role and setting” (p.2). Competency assessment is “the review and documentation of an individual’s demonstrated ability to achieve the expectations stated in his or her job description” (Alspach, 2000, p.2). The Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) describes competency as “a determination of an individual’s capability to perform up to defined expectations” (JCAHO, 2002, p. 333). The report of the American Nurse’s Association, Expert Panel on Continuing Competence defines professional nursing competency as “behavior based on beliefs, attitudes, and knowledge matched to and in the context of a set of expected outcomes as defined by nursing scope of practice policy, code of ethics, standards, guidelines, and benchmarks that assure safe performance of professional activities” (Whitaker, 2000, p. 11).

Notable in the initiative on competency, the Taskforce on Health Care Workforce Regulation Pew Commission in 1995-1998 declared that practice acts should be based on demonstrated initial and continuing competence (Whitaker, 2000, p. 15). The National League for Nursing included in its research priorities for the 21st century the competencies of graduates for practice (AACN, 2002). The National

Council of State Boards of Nursing defines competency as “ the application of knowledge and the interpersonal, decision making, and psychomotor skills expected for the nurse’s practice role, within the context of health, welfare and safety” (Green & Ogden, 2002).

The attributes of a clinically competent nurse were described in a study from interviews with staff nurses in Magnet Hospitals (Schmalenberg, Kramer, Brewer, Burke, Chmielewski, Cox, Kishner, Krugman, Meeks-Sjostrom & Waldo, 2008). Six domains of competent performance were identified in this study. In order of highest to lowest frequency, the domains were: autonomous decision making; prioritizing and multitasking; interpersonal competence; technical skill competence; knowledge competence; and quality of patient outcomes (Schmalenberg et al., 2008). The importance of synthesis and application of knowledge to managing patient situations is highlighted by this statement from one of the nurses interviewed:

A clinically competent nurse is able to assess the level of acuity, pick up subtle changes in the patient’s condition, effectively communicate this, and deliver the proper treatment and care with compassion and understanding.
(Schmalenberg et al., 2008, p. 57)

Theoretical Framework

As competent practice is of utmost concern in all areas of nursing, identification of a theoretical framework is needed to provide a foundation for the description, development and assessment of competency in nursing. A model of knowledge and skill acquisition was developed by Patricia Benner in 1984 and described in the book “From Novice to Expert: Excellence and Power in Clinical Nursing Practice”. The model is based on Benner’s research with beginning nurses and nurses who were considered expert by their staff development instructors with

input from head nurses and peers. Hospital settings included community, teaching and inner city. Based on an interpretative, phenomenological epistemology, the research utilized interviews and observations to identify the process of knowledge acquisition and nature of knowledge that is acquired through nursing practice and experience. The notion of knowledge being embedded in practice is an underlying assumption of the research. Outcomes of the study provide a delineation of practical and theoretical knowledge denoted in levels of proficiency, competencies of nursing practice, and aspects, or attributes, of practical knowledge (Benner, 1984, p. 2).

The Dreyfus Model of Skill Acquisition provides the theoretical framework for Benner's research. Stuart Dreyfus and his brother, Hubert Dreyfus, developed the Model of Skill Acquisition from work they had done in their respective fields of mathematics and philosophy. Their work was done in the 1960's and focused on knowledge acquisition related to pilots and automobile drivers (Dreyfus & Dreyfus, 1986). They found that "a person usually passes through at least five stages of qualitatively different perceptions of his task and/ or mode of decision making as his skill improves (Dreyfus & Dreyfus, 1986, p. 19). The five stages are: novice, advanced beginner, competent, proficient, and expert. Not all will reach the level of expert. Stages are referred to because "(1) each individual, when confronting a particular type of situation in his or her skill domain, will usually approach it first in the manner of the novice, then of the advanced beginner, and so on through the five stages, and, (2) the most talented individuals employing the kind of thinking that characterizes a certain stage will perform more skillfully than the most talented individuals at an earlier stage in the model" (Dreyfus & Dreyfus, 1986, p. 21). An

outcome of the study was the delineation of the levels of proficiency in skill acquisition development.

With the complexities of nursing practice and the knowledge required to deliver competent, safe care, it is imperative to identify the “knowing – how” in nursing knowledge and skill acquisition. The rationale for generalizing the Dreyfus model to nursing by Patricia Benner as a theoretical framework is “it takes into account increments in skilled performance based on experience as well as education. It also provides a basis for clinical knowledge development and career progression in clinical nursing” (Benner, 1982, p. 402). Underlying assumptions of Benner’s Novice to Expert Model are:

1. In the acquisition of knowledge, a student passes through five levels of proficiency: novice, advanced beginner, competent, proficient and expert
2. These different levels reflect changes in three general aspects of skill performance:
 - a. A movement from reliance on abstract principles to the use of past concrete experience as paradigms.
 - b. A change in the learners perception of the demands of a situation from a compilation of equally relevant bits to a complete whole in which only certain bits are relevant.
3. Movement from detached observer to involved performer.

(Benner, 1984, p. 13)

Through a deductive process that is generalizable to new graduate nurses as well as experienced nurses in new clinical situations or specialties, the theory presents

overriding principles that describe a process and stages that the learner progresses through with outcomes for each stage as described in an analysis of concepts. The assumptions outline relational statements of progression with resultant prediction of the outcome of knowledge acquisition as a result of experience. The statements relate the concepts of clinical situation, experience, level of proficiency, skill performance, and competencies. The concepts are related in a consistent manner through the focus on the impact of each to knowledge and performance.

Analysis of the concepts within the theory begins with a description of the stages of proficiency. In the novice stage, learners are inexperienced and practice according to rules as they have no contextual basis on which to make judgments. Nursing students and new graduate nurses are novices, as well as nurses who may be experienced but are new to a particular specialty area. This stage illustrates the premise that there is a difference in knowledge gained in a classroom setting and that attained through context dependent situations in practice (Benner, 1984, p. 21).

As the learner is exposed to and manages more clinical situations, experience is gained and the level of proficiency progresses to the second stage of the model, the advanced beginner stage. The nurse at this stage has been exposed to enough situations to be knowledgeable about recurring components that have meaning. These are termed “aspects of the situation”. Experience with similar situations affords the nurse the ability to assign meaning to these aspects, as opposed to following context-free procedures of the novice stage. “Aspects include overall, global characteristics that can be identified only through prior experience” (Benner, 1984, p.22).

In the competent or third stage, the nurse has two to three years of experience and is able to evaluate the importance of aspects of the situation and establish a plan “based on considerable, abstract, analytic contemplation of the problem” (Benner, 1982, p. 404). The nurse in the competent stage has confidence in managing the prioritization necessary in a clinical assignment, although speed and flexibility are not mastered at this stage.

In the proficient stage, the nurse’s perspective shifts from viewing aspects of the situation to seeing the situation as a whole, with the ability to recognize aspects that are different than what would normally be expected. The nurse in this stage has worked with a similar population for three to five years. The broader perspective of the nurse in this stage includes a strong analytical component and facilitates decision making based on judgment of the importance of particular aspects. Progression from the competent stage to the proficient stage involves a transformation whereby the nurse is not following the rules and guidelines of earlier stages, but rather is using past experiences as the reference to guide practice (Benner, 1982, p. 406). The nurse at the proficient stage has a keen awareness to changes in patient condition before vital signs changes become explicit (Benner, 1984, p. 31). Despite performance being guided by maxims in this stage, the nurse will need more experience before maxims can be used to decipher the nuances of situations. “Maxims reflect what would appear to the competent or novice performer as unintelligible nuances of the situation; they can mean one thing at one time and quite another thing later. Once one has a deep understanding of the situation, however, the maxim provides direction as to what must be taken into consideration” (Benner, 1984, p. 29).

Intuition guides the nurse at the expert level, as opposed to the rules, guidelines and maxims of the earlier stages. The nurse in this stage has assimilated knowledge through experience, and no longer proceeds in a formal, analytical fashion before making a decision. Nurses at the expert level are able to utilize their analytical skills in situations that are new or not occurring according to their expectations (Benner, 1982, p. 406). Due to the intuitive nature of practice at the expert stage, it may be difficult for nurses in this stage to articulate the rationale for their decisions.

Knowledge is embedded in practice at the expert level, and through the discovery of this knowledge “it is possible to obtain a rich description of the kinds of goals and patient outcomes that are possible in excellent nursing practice” (Benner, 1982, p. 406). Benner notes that the interpretive, narrative approach using exemplars to describe the characteristics of nursing practice is especially important and useful with nurses at the expert stage.

Experience is a major concept in the in the Novice to Expert Model. An underlying assumption is that the expert stage is attained through experience in situations in the clinical arena. Benner describes the meaning of experience as it relates to the model. “Experience, as the word is used here, does not refer to the mere passage of time or longevity. Rather, it is the refinement of preconceived notions and theory through encounters with many actual practical situations that add nuances or shades of differences to theory. Theory offers what can be made explicit and formalized, but clinical practice is always more complex and presents many more realities than can be captured by theory alone” (Benner, 1984, p. 36).

In the progression toward the expert level of practice, a change occurs from reliance on rules and guidelines in the novice, advanced beginner and competent stages to decision making based on contextual, situational experience that becomes intuitive in nature. An underlying assumption in the Dreyfus Model and applied in Benner's work is that this change involves a transformation that improves skill. The concept of transformation relates to "a change that brings about improvement in performance" (Benner, 1984, p. 38).

As noted previously, the development of Benner's model was inductively derived through interviews and observations with nurses in a variety of clinical settings. Exemplars were used to extract the "knowledge embedded in practice" (Benner, 1984). The research process yielded seven domains of nursing practice. These domains were derived inductively from 31 competencies that emerged from an analysis of descriptive patient care episodes. The domains are: the helping role, the teaching- coaching function; the diagnostic and patient monitoring function; effective management of rapidly changing situations; administering and monitoring therapeutic interventions and regimens; monitoring and ensuring the quality of health- care practices; and organizational and work-role competencies (Carlson, Crawford & Contrades, 1989, p. 188). Within each domain, concepts and "relational steps" became evident from which competencies for each domain were identified.

With competency as a goal of clinical orientation and nursing practice, it is important to evaluate the causal relationships among the variables in the process. Experience is the major element of causation in Benner's model, with increases in the level of proficiency being the outcome. Attainment of the expert level of practice

may occur naturally as an effect of experience, as was extracted from the interviews and exemplars noted by Benner. It may occur and be embedded in the normal course of events of caring for patients (Benner, 1984). Based on the evidence by Benner and Dreyfus which documents the effect of experience in causing increasing levels of proficiency, practitioners may benefit from this knowledge through the development of programs to enhance the effect of causation on competency in practice. In this respect, a structure would be in place to facilitate causation of the outcome of progressive proficiency in practice. The power of experience as a causative mechanism has strength based on the complexity of skills, knowledge, and clinical scenarios that the nurse needs in order to manage diverse clinical scenarios and events. The complexity of the clinical area, however, adds the possibility of other factors also having a role in the development or impedance of proficiency. Benner identifies strategies to assist the learner during each level of proficiency. For example, case studies are noted to be useful in refining clinical thinking for the nurse at the proficient level of practice, whereas use of rule based protocols may result in frustration (Benner, 1984, p. 31).

The Novice to Expert Model provides a foundation that describes concepts related to the acquisition of expertise. It describes the impact of experience on the refinement of clinical practice. In addition, the model offers strategies to enhance the development of expertise based on the level of proficiency of the nurse. The model predicts that through the experiential process, a transformation from rule based judgment to intuitive knowledge will occur as the nurse moves toward being an expert practitioner. The model is parsimonious in description, but in analysis is complex due

to the external influences that affect the concepts in the model. External influences include the level of development of the preceptor, support of the process by nursing education and nursing leadership, degree to which the hospital and unit support a culture of mentoring and healthy work environment. Throughout the description of the model, Benner (1984) frequently notes that the model is a start to guiding the complex process of the acquisition of expertise, but that more work is needed to continue to uncover and expand the knowledge base related to developing and describing the concepts involved in the process of skill acquisition.

Critical Thinking

Critical thinking in nursing practice is an integral component of competency, and essential for the delivery of safe, quality patient care. Patient's problems are complex, multifaceted, and changes can occur rapidly. It is rare that a patient presents with one problem, rather in an age of technological and pharmaceutical advances, patients frequently present with a myriad of conditions that require identification of the problems, and development of the patient care plan to optimize patient outcomes. Even in patients who present with non-complicated histories or conditions, complications can arise and the nurse needs to have keen assessment skills to identify and act on what often are subtle cues. Nurse Educators face the challenge of structuring an environment and experience in situations that support the development and refinement of the ability to recognize problems, plan, act and evaluate results. This process begins in the undergraduate program, continues when the novice nurse enters clinical practice, and is ongoing in professional development. In the effort to support and enhance new nurses' ability to think through patient care scenarios, nurse

educators struggle with devising programs that facilitate the astute nature of assessing, analyzing assessment data, and delivering patient care in a safe manner.

As with the term “competency”, there is not one universal definition of the term “critical thinking”. In 1990, Facione and Facione developed the following definition of critical thinking for the American Psychological Association (APA):

We understand critical thinking to be purposeful, self- regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based. (Facione & Facione, 1996, p.129)

While this definition is not specific to nursing, Facione & Facione (1996) discuss the relevance to nursing practice and expansion of the knowledge base in the nursing profession. The APA definition of critical thinking (CT) is “ in symmetry with descriptions of developing a nursing knowledge base by carefully examining and delimiting key concepts/ constructs and clarifying meanings, categorizing phenomena, identifying assumptions, testing relationships/hypotheses, as well as conjecturing alternatives for testing, justifying procedures, and stating findings. All are manifestations of CT skills needed for clinical decision making in situations which are often high stakes and time limited” (Facione & Facione, 1996, p.131).

The process of critical thinking as integral to the outcome of competent practice is noted by several authors. May, Edell, Butell, Doughty and Langford (1999) discuss the relationship of competency to critical thinking. “National nursing organizations and nurses in the workplace identify critical thinking skills as essential to competent nursing practice” (May et al., 1999, p. 100). Their findings in the literature conclude that clinical competence includes decision making, clinical

performance, and clinical judgment, attained through a developmental process involving cognitive, affective and psychomotor domains (May et al., 1999, p.101).

“The literature suggests clinical judgment, decision- making, problem solving, clinical performance, nursing process, and clinical competences are various terms to capture the essence of what it takes to practice nursing effectively (May et al., 1999, p. 101).

Del Bueno (1990; 1993) defines competency in the domains of critical thinking skills, interpersonal skills and technical skills. According to Del Bueno, competency is measured qualitatively, and the effectiveness of competency includes improvement in patient outcomes (p.6). Del Bueno (1990; 1993) developed the Performance Based Development System model (PBDS). In this model, nurses are assessed in the technical, interpersonal and clinical judgment domains of competency utilizing videotaped simulations of clinical scenarios. After viewing the scenarios, the nurse writes the problem statement, nursing interventions and rationale for the interventions. The nurse’s responses are rated against model answers for each scenario. The results of the assessment demonstrate meeting or not meeting the expected responses for problem identification, nursing actions and rationales for actions in the clinical vignettes. If the nurse’s responses do not meet the expectations in the assessment, this indicates the nurse may not recognize salient cues, clues or symptoms of what is occurring with the patient, posing a potential safety risk in practice. If this is found on the PBDS assessment, a remediation plan is developed with the nurse, nurse manager and clinical educator to enhance the cognitive aspects of competency.

The importance of competency assessment and educational programs to support competent clinical practice is evident by the findings of assessment data from the PBDS system. Del Bueno (2001) reports that of the 760 new RN's assessed in the year 2000, 30% consistently recognized and safely managed common problems of hospitalized patients on the PBDS assessments. In 2005, PBDS data collected over 10 years from more than 350 healthcare facilities across 46 states indicated that 65% - 76% of inexperienced registered nurses did not meet the baseline clinical judgment competencies on the PBDS assessment (Del Bueno, 2005). With experienced nurses, Del Bueno's data demonstrates that for nurses in labor and delivery, emergency departments and operating rooms, years of experience impacts success on PBDS competency assessment. For other areas, increased experience does not demonstrate a consistent rate of success on the PBDS assessment. Del Bueno's conclusion is that experience with the population cared for, not the years of experience, impacts competency in that area (2001).

Bevis (1993) discusses the importance of reflection and awareness as an integral element of the critical thinking process and knowledge development. Price (2004) agrees that critical thinking involves reflection, but emphasizes that critical thinking is not limited to reflection. While reflection is an approach to practice, critical thinking involves considering the relationships between events. Price (2004) describes critical thinking as being comprised of explicit reasoning, analysis, linked to knowledge base, deconstructing and examining processes, and understanding the differences between empirical information, or facts, and attributed meanings, or perceptions.

Following a review of definitions in the literature for critical thinking, Bittner (1998) described critical thinking as a process influenced by knowledge and experience using strategies such as reflective thinking as a part of learning. Bittner describes clinical decisions as being reached through multiple steps that include the opportunity for ongoing evaluation. Bittner (1998) describes two levels of knowledge that must be present in order for critical thinking to occur. Situational knowledge is knowledge gained from, or having access to, specifics of a situation. Practical knowledge is knowledge gained through experience, such as described by Benner. Once having attained the knowledge, the critical thinker must be able to apply the knowledge, be inquisitive, open- minded and look at the whole while choosing from a multitude of possible solutions (Bittner, 1998, p. 2).

In 2001, Bittner utilized interviews and participatory observation to study critical thinking in nurses working in a cardiac rehabilitation setting. Bittner (2001) identified eight phases of critical thinking. The eight phases were: reference point, congruency check, active questioning, additional gathering, cueing congruency, weighing and selection, action and follow-up/ self- evaluation. Bittner renamed critical thinking in nursing to critical processing based on the mental and behavioral processes identified.

Tanner (2006) developed a model of clinical judgment which consists of four aspects: noticing, interpreting, responding and reflection. Nurses' knowledge of their role, knowing the patient, the context of the situation and the reflection on practice comprise elements that influence critical thinking. Benner, Tanner and Chesla (2009)

differentiated critical thinking from clinical judgment, noting that clinical judgment requires taking action and is influenced by the knowledge and experience the nurse brings to the situation (p.231). It is not enough to have acquisition of knowledge. The nurse must be able to apply knowledge specific to a situation (p.230). The nurse needs to be able to recognize salient changes in the patient, and determine actions to be taken. Salient changes may be acutely evident to the experienced nurse, but may take a longer time and process to be noticed by the novice, or less experienced nurse. Benner, Tanner and Chesla (2009) describe clinical reasoning as the process of noticing, interpreting, and responding to the patient. Patients' responses to nursing actions must be evaluated and the context of the situation considered.

Asselin (1999) conducted a descriptive, exploratory study to evaluate how nurses select and transfer new knowledge in the clinical setting. Two processes were identified: knowledge seeking and problem solving. This study was based on a pilot study using interviews from which four processes of knowledge utilization emerged. The four processes that emerged were: Traditional, Comparative Questioning, Active Comparison/ Analysis, Personal Experiential.

Nurses are at the forefront for recognizing changes in patients' conditions, and determining actions to prevent or minimize injury. As noted by Fero, Witsberg, Wesmiller, Zullo and Hoffman (2008), "Patient safety can be directly affected by the critical thinking ability of a nurse. Nurses must have the ability to recognize changes in patient condition, perform independent nursing interventions, anticipate order and prioritize" (p. 140). Fero et al. (2008) utilized the PBDS assessment to assess critical

thinking in 214 newly hired nurses in a university-affiliated healthcare system (p. 139). The results of their study showed better outcomes in critical thinking than Del Bueno's findings. In their study, 74.9% of nurses met expectations on the assessment, with nurses having greater than 10 years experience having better success in meeting expectations than new graduates (Fero et al., 2008, p. 139).

Critical thinking is an integral component of nursing competency. Further research is needed to identify methods to develop and measure this element in the cognitive domain of competency. An instrument for measurement of critical thinking has been developed by Watson and Glaser (Ennis, 1958; Maynard, 1996). This instrument is used in many disciplines, including nursing, to assess critical thinking (Maynard, 1996). Watson and Glaser describe critical thinking as being influenced by knowledge, attitude and skills (Kataoka-Yahiro & Saylor, 1994). According to Maynard (1996), attitude as described by Watson and Glaser refers to the ability to recognize the existence of a problem, and acceptance of the need to have evidence to support what is asserted to be true. Watson and Glaser's definition of knowledge refers to inferences, abstractions and generalizations in which the weight of accuracy and different kinds of evidence are logically determined (Maynard, 1996, p. 13). Skills are the application of knowledge and attitude (Maynard, 1996, p. 13).

Measuring Nurse Competence

In addition to the lack of consensus on definition, there is also a need for consensus and an evidence base in measurement regarding the most effective methods for performing competency assessment as well as the outcomes of competency on patient care, quality and nursing practice (Allen, Lauchner, Bridges, Francis-Johnson, McBride, &

Olivarez, 2008; Jordan, Thomas, Evans, & Green, 2008; Meretoja, 2004; Meretoja & Leino-Kilpi, 2001). Meretoja and Leino-Kilpi (2001) identified the need for instruments to measure competency, noting that a lack of psychometric data makes it difficult for nursing administrators and practicing nurses to benefit from research in the area of competency. “Although competence recognition offers a way to motivate practicing nurses to produce quality care, few measuring tools are available for this purpose” (Meretoja, Isoaho & Leino-Kilpi, 2004, p. 124). Two tools are prevalent in the nursing literature related to evaluating nurse competence. In response to this need, Meretoja et al., 2004) developed the Nurse Competence Scale. The Nurse Competence Scale is applicable for nurses’ self-assessment of their competency, or for nurse managers to use to assess their perceived competency of their staff. The Nurse Competence Scale consists of 73 items in seven categories. The seven categories are based on the domains and nursing competencies within Benner’s Novice to Expert Model. The categories within the Nurse Competence Scale are: the Helping Role, Teaching-Coaching, Diagnostic Functions; Managing Situations; Therapeutic Interventions; Ensuring Quality; and Work Role. Responses to the questions in the scale are through the use of a visual analogue scale with rating from 0 to 100, with 0 being the self-assessment that the respondent has a low level of competence in the item, and 100 being the perception of the highest level of competence (Meretoja, Isoaho, & Leino- Kilpi, 2004). The Nurse Competence Scale has established reliability and validity.

Another scale used to measure competency is The Six- Dimension Scale of Performance (6D Scale). Meretoja et al. (2004) referenced the 6D Scale in the development of the Nurse Competence Scale (Meretoja et al., 2004; Meretoja & Leino-Kilpi, 2001). The 6D Scale is comprised of 52 items within six categories (Schwirian,

1978; 1981). The six categories are: Leadership, Critical Care, Teaching/Collaboration, Planning/Evaluation, Interpersonal Relationships/Communication and Professional Development. Responses to the questions are on a likert scale. The 6D scale is applicable for self- assessment as well as assessment by nurse managers of where they believe their staff is performing relative to each item on the scale (Rafferty & Lindell, 2011). The 6D Scale has established validity and reliability.

Due to established reliability and validity of the 6D Scale and The Nurse Competence Scale, these are important to consider for use in nursing research (Meretoja et al., 2004; Meretoja & Leino-Kilpi, 2001). The Nurse Competence Scale has Benner's Novice to Expert Model as a theoretical foundation, and utilizes Benner's nurse competencies to categorize items on the scale. The Nurse Competence Scale has two categories which focus on the nurse managing changing patient conditions. These categories are titled: Managing Situations and Therapeutic Interventions. For these reasons, the Nurse Competence Scale provides a tool to assess nurses' assessment of their competence in managing patient's clinical changes.

Patient Centered Care in Nursing Competency

The work by Tanner and Benner in Expertise in Nursing Practice (1996) provides an in- depth study of the significance of the nurse's experience and interaction with patients in fostering nursing expertise, understanding the unique and salient aspects of each patient, and meeting individual patient needs. At the expert level of practice, the nurse has a global and comprehensive understanding of the complexities of patient needs. Experience has afforded the nurse the ability and know how concerning technical, interpersonal and moral agency aspects of patient care. In

an earlier study by Tanner, Benner, Chesla & Gordon, (1993), 130 nurses interviewed individually and in groups were asked to describe the meaning and importance of knowing their patient. The narratives revealed “knowing the patient means both knowing the patient’s typical pattern of responses and knowing the patient as a person. Knowing the patient is central to skilled clinical judgment, requires involvement, and sets up the possibility for patient advocacy and for learning about patient populations” (p. 273).

The Relationship- Based Care (RBC) Model is a professional practice model with the patient and family at the center. The basis of the RBC model is that all care delivery processes are focused on the patient and family, and are supportive of the relationship with the patient and family and healthcare provider (Koloroutis, 2004). There are three crucial relationships in the Relationship- Based Care Model: the relationship the care provider has with self, with colleagues and with the patient and family. In this model, the patient- nurse interaction is the pivotal point where patient needs are identified and met. Due to the crucial relationship of the care provider with the patient and family, the Relationship – Based Care model is applicable as a guide for practice that is focused on patient centered care. This model exemplifies the patient- nurse interaction as an essential way of knowing the patient and individualizing patient care.

Nurses’ Perceptions of Competence

Intrinsic as well as extrinsic factors influence nurses development of competency in nursing practice. Tabari-Khomeiran, Parsa- Yekta, Kiger, and Ahmadi (2006) conducted interviews of 26 nurses and identified the following factors to be

influential in competency development: experience, opportunities, environment, personal characteristics, motivation and knowledge (p.66). Tabari-Khomeiran, Kiger, Parsa- Yekta and Ahmadi (2007) found through a grounded theory method exploring nurses' perceptions of their professional competency development and the processes it entails that the nurse's interaction with his or her surroundings, or "constant interaction", is essential to development (p. 217). "The constant interaction process that emerged from this study indicates that nurses need to take an active role in their own competence development if the efforts they employ in this way are to be successful" (Tabari-Khomeiran et al., 2007, p. 217).

A descriptive correlational design study by Marshburn, Engelke and Swanson in 2009 evaluated self-perceptions of clinical competence in new graduates, and found only 53% of the nurses in the study felt comfortable making suggestions for changes to the nursing plan of care. Jacobson, Belcher, Sarr, Riutta, Ferrier, and Botten (2010) found the use of actual cases in clinical vignettes was demonstrated to increase nurses' confidence and skill in managing critical patient situations.

Meretoja and Leino-Kilpi (2004) utilized the Nurse Competence Scale to evaluate nurses self-perceived competence in medical- surgical, intensive care and operating room areas. Overall, nurses reported self-perceived competency as good, with the highest self-perceived competency in the domains of managing patient situations, diagnostic functions and the helping role. Differences were found in the frequency of use of the competencies in the domains between work areas (Meretoja & Leino-Kilpi, 2004, p. 329). The Nurse Competence Scale was also used by Salonen, Kaunonen, Meretoja and Tarkka (2007) to assess self-perceived competency of nurses

working in emergency and intensive care settings. A statistically significant relationship was demonstrated between length of current work experience and frequency of using the competencies in the domains (Salonen et al., 2007, p. 792). Lofmark, Smide and Wikblad (2006) found newly graduated nurses perceived their competence in practice to be higher than perceived by nursing peers who had graduated in the previous 5 years.

Meretoja and Koponen (2011) utilized the Nurse Competence Scale to study nurses' self-perceived competence and nurse manager assessed level of actual competence. Using a group consensus method to determine the optimal level of competence in the setting, the findings were that the optimal competence level was significantly higher than the nurses' self-perceived and nurse manager assessed level of staff competence (Meretoja & Koponen, 2011, p. 414).

Assessing nurses' perceptions of their competence provides an opportunity for nurses to reflect on their practice (Meretoja, Isoaho & Leino-Kilpi, 2004). As an active participant in the assessment, areas for development as well as areas of achievement may be identified by the nurse. Information from the self-perceived competency assessment may assist in identifying areas for professional development to meet goals. Self-perceptions of competency provide information for the nurse regarding the level of competency in knowledge, skills and attitude, and if the nurse's performance matches the self-report on the assessment. Utilizing nurses' self-perceptions in research offers an understanding of nurses' perceptions of their needs and can be useful in providing professional development initiatives to assist nurses on the novice to expert continuum (Marshburn, Engelke & Swanson, 2009).

Reflection in Practice

Reflection has been identified as an important component in the development of nursing competence (Bevis, 1993; Forneris & Peden- McAlpine, C., 2007; Gustafsson & Fagerberg, 2004; Kuiper & Pesut, 2004; Price, 2004; Tanner, 2006; Teekman, 2000). As described in Benner's model, as the nurse gains experience, a transformation takes place from detached observer to involved performer. As the nurse gains knowledge and skill through being involved in clinical situations, proficiency develops based on the ability to draw from previous experience, synthesize and apply knowledge. As the nurse gains experience, a rich background of information develops that is available for reference to current clinical scenarios. In addition to developing a broadened experience base, the nurse must also assimilate the knowledge gained through experience into their framework of reference, as well as develop knowledge about the applicability of past experiences to current patient care situations. In the process of gaining experience, an internal recognition and assimilation of knowledge occurs. Self -reflection is an important aspect of the transformation from detached learner to involved performer.

Clarke, James and Kelly (1996) discuss the work of Donald Schon who explored and described the importance of reflection on professional practice. Schon (Clark et al., 1996) describes the complexities and intricacies of professional practice, specifically that skills alone do not signify professional practice, context is significant and knowledge is multifaceted (Clark et al., 1996, p. 172). At the time of action, practitioners utilize "reflection- in- action", whereby knowledge from previous experience interacts with the context of the situation. The decision making process may not be articulated at the time. Reflection – on- action is when the practitioner

considers aspects of situations at times other than the moment in practice. Reflection-on- action “brings about a greater understanding of practice and is an important way in which practitioners learn from their experience” (Clarke et al., 1996, p. 172).

The process of reflection allows the nurse the opportunity to think about practice and the rationale for actions, as well as alternatives based on experience or new insights.

Reflection in nursing practice has several purposes. It affords the nurse the opportunity to examine the meaning of actions in patient care situations and make linkages to previous experiences. Alternatives can be considered, learning needs identified and professional growth assessed.

Action Science

Nursing is a complex, dynamic field with a myriad of patient care needs. In order to respond to these needs, the foundation of experience must be combined with an integration of knowledge, skills and affective attributes. Due to the complexity of nursing, it is not possible to predict all the situations that the nurse may need to respond to in the process of patient care delivery. Competency assessment, therefore, must include an evaluation of the nurse’s ability to integrate attributes of particular situations in the domains of knowledge, skill and affect. The integration of attributes from these domains include the nurse making linkages to past experience in similar situations, consideration of alternatives, and self- reflection of the nurse’s clinical knowledge and skill, intentions and actions. The transformation of reliance on rules to integration and application of knowledge in decision making is addressed in Benner’s model and attributed to the impact of experience on nursing practice. Action

science provides a model for understanding the intricacies of transformation in practice.

Intentions for action and actual action sometimes differ. There may be many reasons for this, such as distraction, knowledge deficit or human error. Argyris and Schon (1974) define professional practice as “a sequence of actions undertaken by a person to serve others, who are considered clients, and further propose a theory of practice as consisting of a set of interrelated theories of action that will, under the relevant assumptions, yield intended consequences” (p. 135). The term “theories” in this model refer to meanings, schemata, mental constructs and generalized frameworks for action (Kim, 1994, p. 135). Four areas of theories for action in professional practice are the treatment of client information, who controls the situations or action, commitment to the client, situation or organization and communication appropriate for the situation (Kim, 1994, p. 135). Two types of theories are utilized by practitioners: espoused theories and theories in use. Espoused theories are the articulated basis for action, such as rationales for actions and intentions. Theories in use are theories that are actually used in the situation, and the practitioner may not be able to articulate them, or have awareness of them except through self- reflection (Kim, 1994).

Two types of theories in use have been identified by Argyris and Schon (1974; 1985). These are Model 1 and Model II. Model I theory in use is not conducive to new learning as it is focused on maintaining comfort and stability. The governing principles of Model I are control, winning, suppression of feelings and rationality. “Practitioners entrenched within this type of theory- in – use are routinized in their actions and not actively involved in seeking new solutions and new knowledge to deal

with problems of practice” (Kim, 1994, p. 135). Model II theory- in – use has the principles of valid information, free and informed choice and internal commitment. Whereas Model I results in miscommunication, self- fulfilling prophecies and escalating error, Model II promotes learning, collaboration and openness (Kim, 1994, p. 135). Reflection and design are key elements in the transformation from Model I to Model II (Kim, 1994, p. 135).

Nursing practice environment

Nursing educators and nurse managers are challenged with designing and implementing programs that will support the development of competent nurses. As a major outcome of competent nursing practice is safe patient care, identification of patient outcomes that are directly related to nursing care is essential. Meretoja et al. (2004) describe the importance of isolating outcomes that are directly related to nursing practice, as many outcomes are interdisciplinary in nature. The American Nurses Association (ANA) has developed the National Database for Nursing Quality Indicators (NDNQI). Hospitals that participate in this database follow outcomes for indicators that have been selected as specifically impacted by nursing care. Data is submitted and benchmarks are provided in order to learn and implement best practice (ANA, 2012). Educational programs in the areas being measured are provided to assist in professional development and nursing staff competency.

A nursing structure that promotes nurses’ autonomy and involvement in decisions on the clinical unit positively influences nursing practice and patient outcomes (Hume, 2011; Laschinger & Leiter, 2006). Shared governance provides the framework for a structure in which nurses are empowered in decisions regarding

nursing practice. It is based on the principles of partnership, accountability, equity, and ownership (Porter-O'Grady, 2001, p. 470). Shared governance is a key element in the American Nurses Credentialing Center's designation of a hospital as a Pathway to Excellence® facility (ANCC, 2008; Hume, 2011). In the Pathway to Excellence® program, the nursing department must provide written documentation of meeting 12 Practice Standards with multiple elements of performance within each standard of excellence. The Practice Standards in the Pathway to Excellence® program include nursing autonomy, professional development, competent practice, precepting and mentorship of new nurses, quality outcomes and evidence based practice. Pathway to Excellence® hospitals have demonstrated they have a nursing environment where nurses flourish and are supported in their practice (ANCC, 2008; Hume, 2004). An environment that supports and promotes nursing practice impacts patient and nurse satisfaction, and patient outcomes (Aiken, Cimiotti, Sloane, Smith, Flynn, & Neff, 2011; ANCC, 2004, 2008; Lucero, Lake & Aiken, 2010). Laschinger and Leiter (2006) utilized a questionnaire to study the effect of workplace environment (policy involvement, support for a nursing model of care, staffing levels and nurse/ physician relationships) on the development of burnout and patient outcomes. The findings demonstrated "when the hospital supported a nursing model of care, nurses felt a greater sense of personal accomplishment in their work, which in turn translated into more positive nurse-sensitive patient outcomes" (Laschinger & Leiter, 2006, p. 265). This is consistent with the goals of the Pathway to Excellence® and Magnet programs (ANCC, 2004, 2008; Scott, Sochalski, & Aiken, 1999).

The ability to ask questions within a culture of collaboration is essential for safe care. As nurses enter the profession, it is vital that they remain open to learning and questioning. This has been demonstrated in the studies of the American Association of Critical Care Nurses that have determined communication and collaboration impact patient outcomes (AACN, 2001). In addition, the Joint Commission for the Accreditation of Healthcare Organizations has identified hand-off communication as one of the 2007 National Patient Safety Goals. The focus of this goal is for open, effective communication when transferring patient clinical information between caregivers, such as in nursing report. An integral component of the safety goal is to ensure that the giver and receiver of information have the opportunity to ask questions.

Critical reflective inquiry is a method that examines influences and processes external and internal to the nurse's decision making process. With a basis in Habermas' critical philosophy, and Bourdieu's theory of practice (Kim, 1999), critical reflective inquiry takes into consideration influences that a novice nurse experiences during the orientation process, as well as a method for examination of practice for the experienced nurse. The culture of the unit toward new nurses may be welcoming and open to learning, or inflexible with the goals to have the nurse proceed as rapidly as possible off orientation without regard to the learning process. Emancipation through openness to learning and inquiry are important steps toward professional growth. Kim (1999) cites Habermas (1984), "Hence, any study of practice needs to incorporate an emancipation project through which social life can be freed from domination and distortions (p. 1207). The degree to which a unit is

supportive to new nurses may impact the level of emancipation that occurs. Inquiry and learning may be suppressed if an emancipatory culture is not present on the unit (Cervero in Keiner & Hentschel, 1997; Kim, 1999). Organizational support and the inclusion of preceptor and management development programs are important initiatives for facilitation of a mentorship culture.

Kim describes the context of nursing action as being comprised of two phases: the deliberative phase and the enactment phase (Kim, 1994, p. 134). Within the practice domain, Kim (1994) identifies the goal of nursing action is to produce outcomes that positively impact the patient. The process toward this goal is complex due to patient issues and organizational culture (Kim, 1994). The dynamic and challenging environment of the unit may contribute to the nursing actions being organized or haphazard, familiar or unfamiliar, patient specific or routinized (Kim, 1994). Espoused theories versus theories in use are further challenged by rapidly changing healthcare technologies (Kim, 1994).

Nursing Administration and education concerns

The concern for competent nursing practice is evident in the literature as well as in the clinical setting. Quality patient care, clinical outcomes and patient satisfaction are impacted by competent practice. Nurse satisfaction is impacted which may effect recruitment and retention. Nursing administrators are among the stakeholders in the competency initiative due to the potential effect of competency on quality outcomes, nursing turnover, and the resultant fiscal impact. The Advisory Board (1999) cites a study by Jones in 2005 describing the cost of replacing a professional nurse as being \$48,000- \$62,000.

It is the responsibility of nurse educators and managers to structure nurses for success by designing a system to ensure opportunities for knowledge and skill acquisition for the goal of safe nursing practice and the delivery of the highest quality of patient care. This is highlighted in the Institute of Medicine (IOM) report: “The Future of Nursing: Leading Change, Advancing Health” issued in October 2010. In order to meet the challenges of the complexity of patient needs in a rapidly changing healthcare system, the IOM (2010) report recommends that nurses practice to the full extent of their education and training. In addition, the IOM (2010) recommends that nurses achieve higher levels of education “to ensure the delivery of safe, patient-centered care across settings. Patient needs have become more complicated, and nurses need to attain requisite competencies to deliver high quality care. These competencies include leadership, health policy, system improvement, research and evidence-based practice, and teamwork and collaboration, as well as competency in specific content areas” (IOM, 2010, p. 2). In recognition of the range of competencies included in baccalaureate education, the IOM (2010) report recommends an increase in the number of baccalaureate prepared nurses to be better equipped to meet the increasing demands of the healthcare system. The IOM (2010) reports: “Care within the hospital continues to grow more complex, with nurses having to make critical decisions associated with care for sicker, frailer patients and having to use more sophisticated, life-saving technology coupled with information management systems that require skills in analysis and synthesis” (p.3).

Aiken, Clarke, Cheung, Sloane and Silber (2003) found lower mortality associated with a greater proportion of baccalaureate prepared nurses. In this study,

outcomes data for 232, 342 patients in 168 hospitals were evaluated for risk adjusted mortality and failure to rescue within 30 days of admission and associated with nurse educational level (Aiken et al., 2003, p. 1617). The findings of the study were that each 10% increase in the proportion of nurses with BSN (baccalaureate of science in nursing) degrees or higher decreased the risk of mortality and failure to rescue by 5%, after controlling for patient and hospital characteristics (Aiken et al., 2003, p. 1620). Years of experience in nursing was not found to be a significant predictor of mortality or failure to rescue (Aiken et al., 2003, p. 1620).

The impact of baccalaureate education was also highlighted in the study by Kendall-Gallagher, Aiken, Sloan and Cimiotti (2011) who utilized a logistic regression model to study the effects of specialty certification and educational preparation on mortality and failure to rescue in surgical inpatients. Baccalaureate preparation was found to be associated with lower mortality and failure to rescue. Nursing specialty certification was also found to be similarly associated, but only when combined with a baccalaureate degree in nursing, “ A 10% increase in hospital proportion of baccalaureate and certified baccalaureate staff nurses, respectively, decreased the odds of adjusted inpatient 30-day mortality by 6% and 2%; results for failure to rescue were identical” (Kendall-Gallagher et al., 2011, p. 188).

The American Nurses Credentialing Center (ANCC) offers certification in many nursing specialties. According to the ANCC, certification “validates your nursing skills, knowledge and abilities. ANCC certification empowers nurses in their professional specialty and contributes to better patient outcomes” (ANCC, 2012). Specialty certification is a goal of many hospitals and nurses. The number of certified

nurses, and support for attainment of certification, are questions on the application for Pathway to Excellence® designation. “As of 2000, 410,000 nurses throughout the United States and Canada had attained certifications from 134 specialties” (Watts, 2010). Intrinsic benefits of specialty certification have been demonstrated to include increased confidence in clinical abilities and validation of specialized knowledge (Haskins, Hnatiuk & Yoder, 2011). Safe patient care is a major impetus for nurses to become certified. “Along with safeguarding the public, certification also promotes quality nursing care and excellence. Certification demonstrates clinical expertise, knowledge, and professionalism to patients, the public and nursing peers (Watts, 2010, p. 55). Kendall-Gallagher and Blegen (2009) note that while certification “measures cognitive knowledge against preset principles and standards, it is unknown if the knowledge translates to better care at the bedside” (p. 108). In a study they conducted to explore the relationship between the proportion of certified registered nurses on a clinical unit to quality and safety on the unit, medication errors, falls, skin breakdown and three types of nosocomial infections were dependent variables. The only significant finding of certification in relationship to patient outcomes was a decrease in falls inversely proportional to the number of certified nurses on the unit (Kendall-Gallagher & Blegen, 2009, p. 111). In an article describing the findings of the International Study of the Certified Nurse Workforce, Cary (2001) reports on nurses’ perceptions of the effect of certification on their practice. This study was based on a random sample of 19, 452 nurses from the registries of 23 certifying organizations in the United States, Canada and the U.S territories (Cary, 2001, p. 44). When asked in a survey how certification contributes to their professional development, over 40% of

nurses who had been certified less than five years identified areas of high impact being on aspects of care that include nursing surveillance: “detecting complications and initiating early interventions; effective communication, control of practice, collaboration and autonomy; fewer adverse incidents and errors in patient care; higher patient satisfaction rates” (Cary 2001, p. 49). This study indicates certification may increase the nurse’s ability and confidence in recognizing and responding to changes in patient condition.

In accordance with Benner’s model of exposure to clinical experiences fostering knowledge and skill acquisition, it would seem that nurses who work on various units would have an in- depth experiential base from which to practice. Advantages to having nurses cross train to other areas increases the pool of nurses able to staff units across the nursing department. Quality and safety of care may be positively impacted by supporting the number of nurses on the unit. In addition, the nurse is familiar with the hospital policies, procedures and resources. Cross- training hospital nurses potentially avoids the need to hire agency nurses who are unfamiliar with the routines and resources in the hospital. Inman, Blumenfeld and Ko (2005) cite, “Buchan and Seccombe report that using agency nurses represented the biggest negative impact on continuity and quality of care because agency nurses were often unfamiliar with the particular work environment and care setting” (p. 117). Morale may be increased for nurses who find working in various areas enjoyable, challenging and an opportunity to increase their knowledge and skill set.

Inman et al. (2005) stipulate that in order for a net benefit to be gained from cross- training, it must be carefully planned and followed. Some nurses are not

comfortable going to units outside their usual unit. Nurses who cross- train may become overwhelmed with the volume of skill required. If the nurse does not go to a specific area for a prolonged period of time, proficiency in specific skills may be lost and unit protocols may have changed. Inman et al. (2005) recommend cross- training nurses who are agreeable to be cross- trained, work frequently enough to maintain skills in the various areas of cross- training, and have low absenteeism. The primary consideration, however, is that the nurse has the prerequisites to be able to work in the specific area, such as having the prerequisite of acute care nursing experience (Inman et al., 2005, p. 124). Haag- Heitman (2008) used an exploratory qualitative descriptive design to study nurses' perceptions of factors influencing their development to the expert phase of practice. Nurses expressed self- confidence and enhancement of learning in trying new things, such as working on different units. (p. 207). Other factors that influenced development of expert practice included attaining formal education and specialty certification (Haag-Heitman, 2008, p. 207).

Managing Changes in Patient Situations

Through her interviews with nurses, in addition to delineating the novice to expert stages of skill acquisition in nursing, Benner identified seven domains of nursing practice with related competencies (Benner, 1984). The domain "Effective Management of Rapidly Changing Situations" specifically addresses recognizing and responding to changes in patient conditions. Benner states, "Because it is the nurse who most often picks up the first signs of deterioration in a patient's condition, it is the nurse who must often manage rapidly changing situations until the physician arrives" (Benner, 1984, p. 109). The competencies in this domain are: skilled performance in

extreme life-threatening situations; contingency management; rapid matching of demands and resources in emergency situations; identifying and managing a patient crisis until physician assistance is available (Benner, 1984, p. 111)

The “ Diagnostic and Monitoring Functioning” identified by Benner (1984) describes the nurse’s role in being attuned to subtle changes in patients, knowing the patient in order to be able to detect variations for that patient, anticipating what could happen, and communicating clearly and confidently to other nurses and physicians. Benner (1984) discusses that there is need for attention in these domains due to the increasing acuity levels and “sophisticated treatment regimens that have narrowed margins of therapeutic safety” (p. 166). Benner (1984) offers that for development in this area, nurses could keep a log of their recognition of changes in patient conditions, as well as those situations in which signs of deterioration were missed (p. 167). The competencies in the Diagnostic and Monitoring Function are: detection and documentation of significant changes in a patient condition; providing an early warning signal; anticipating breakdown and deterioration prior to explicit confirming diagnostic signs; anticipating problems: future think; understanding the particular demands and experiences of an illness: anticipating patient care needs; assessing the patient’s potential for wellness and for responding to various treatment strategies (Benner, 1984, p. 97).

Brykczynski (1998) utilized interviews and participant observation with 134 nurses in a study that validated Benner’s domains and competencies. In this study, 16 new competencies were identified, including “thinking critically about data collection” in the diagnostic and monitoring function domain (p.353).

Wong (2009) proposes new nursing terminology to improve clarity and consistency when communicating about life threatening events in the clinical area. Research in the realm of Rapid Response would be facilitated through the use of a refined terminology specific to life- threatening events (Wong, 2009). The recommendations are for The North American Diagnosis Association International Classification to include:

critical incident nursing diagnosis (CIND) “ defined as the recognition of an acute life-threatening event that occurs as a result of disease, surgery, treatment or medication; and critical incident nursing intervention (CINI) defined as any indirect or direct care registered nurse- initiated treatment , based upon clinical judgment and knowledge that a registered nurse performs in response to a CIND; and critical incident control, defined as a response that attempts to reverse a life-threatening condition. (Wong, 2009, p. 53)

Failure to Rescue

Patient deterioration is a phenomenon of relevance for the client population in the acute medical- surgical population. In the course of caring for a patient, it is possible that the patient may develop deterioration in condition. The nurse caring for the patient needs to be knowledgeable and aware of the subtle changes that may indicate deterioration in the patient’s condition. Subtle changes that take place in a patient may not be recognized until the patient is physically decompensated. Nurse educators are challenged to educate staff nurses about problems a patient may present with and the accompanying signs and symptoms indicating deterioration in condition to be alert to. While it is not possible to address every situation the nurse may encounter in clinical practice, the broad ranges of possible clinical problems are presented with the intent of applying knowledge learned in a classroom setting and in the clinical arena to a wide range of situations. It is important for the nurse to be able to critically think through

signs and symptoms and put the “big picture” together. Even if the nurse is unsure of what the problem is, just knowing that there is a problem and summoning assistance is crucial to the patient’s well- being.

In March 2003, the Agency for Healthcare Research and Quality (AHRQ) set forth Patient Safety Indicators for healthcare organizations. AHRQ (2010) describes the patient safety indicators as “a set of measures that screen for adverse events that patients experience as a result of exposure to the health care system. Widespread consensus exists that health care organizations can reduce patient injuries by improving the environment for safety- from implementing technical changes, such as the electronic medical record systems, to improving staff awareness of patient safety risks. Clinical process interventions also have strong evidence for reducing the risk of adverse events related to a patient’s exposure to hospital care” (AHRQ, 2010).

One of the AHRQ patient safety indicators is “failure to rescue”. Clarke and Aiken (2003) describe failure to rescue as “the inability to save a hospitalized patient’s life when he experiences a complication (a condition not present on admission). Failure to rescue is based on the premise that although deaths in hospitals are sometimes unavoidable, many can be prevented” (p. 43). Based on the work of Silber and colleagues, the AHRQ defines failure to rescue as the patient dying from one of five complications that are preventable: sepsis, gastrointestinal bleeding, deep vein thrombosis/pulmonary embolism, cardiac arrest/ shock, or pneumonia (Bobay, Fiorelli & Anderson, 2008; Manojlovich & Talsma, 2007). The failure to rescue indicator has been studied for linkages to specific patient populations, organizational structure and patient characteristics. Silber initially identified the five complications of failure to

rescue within the hospitalized surgical patient population. “Elective patients are the most frequently studied population because these are typically healthy patients on admission who can reasonably expect to have surgery, recover, and be discharged to home” (Bobay et al., 2008, p. 211). Needleman and colleagues expanded the definition to include patients in the medical population, with the criticism that patients in this population are often sicker and with co- morbid conditions that blur the issue of failure to rescue (Manojlovich & Talsma, 2007).

Manojlovich and Talsma (2007) describe the expansion of the failure to rescue concept by nurse researchers to include nurse sensitive indicators. Clarke and Aiken (2003) describe the research linking lower patient- nurse ratios to lower failure to rescue rates in hospitals. Boyle (in Manojlovich & Talsma, 2007) developed a version of failure to rescue to include falls as a nurse sensitive indicator. Seago (in Manojlovich & Talsma, 2007) and colleagues expanded the definition of failure to rescue to include nurse sensitive measures of medication errors, falls and pressure ulcers.

While it is clear that the failure to rescue indicator is undergoing an evolution of definition, the major concept remains that patient deterioration in a hospital environment occurs, and staff need to be vigilant to the signs, symptoms and be timely with intervention. Despite the effort to clearly identify specific conditions for purposes of defining and measuring failure to rescue in the hospital, nurses need to be vigilant with all patients who at any time may experience deterioration. As noted in Bobay et al.(2008), “Needleman et al. found that up to 19.7% of elective surgical patients developed complications that were potentially treatable, and of these, as many as 1.6% of the patients died from the complications” (p. 211). Meyer and Lavin (in Bobay et

al., 2008) describe vigilance as “identification of clinically significant signals or cues as a readiness to act appropriately” (p. 211). Clarke and Aiken (in Bobay et al., 2008) describe rescuing as “a combination of surveillance and action. Surveillance involves detecting signs and symptoms of a complication in a timely manner and then acting by mobilizing necessary resources” (p. 211).

Noting that there have been few patient level studies related to failure to rescue, Bobay et al. (2008) conducted a retrospective, descriptive correlation study using a chart review format. From the chart reviews, data was collected related to physiologic parameters, laboratory values and patient specific characteristics. The AHRQ patient safety indicator for failure to rescue was used to identify potential failure to rescue cases. The study was conducted in five metropolitan hospitals in the Midwest with bed ranges from 71- 938. The sample population was elective surgical patients. Data collection included postoperative nurse sensitive indicators using the AHRQ and NQF (National Quality Forum) criteria and software. Clinical information was collected from the chart reviews based on the Early Warning Score developed by Subbe et al. (Bobay et al., 2008, p. 212). Subbe et al. found that certain physiological parameters were often abnormal up to three days before the patient deteriorated (Bobay et al., 2008). These parameters included blood pressure, heart rate, respiratory rate, body temperature, neurologic status and urine output (Bobay et al., 2008, p. 212). The study demonstrated subtle but significant changes in parameters similar to the Early Warning Score: heart rate, respiratory rate, temperature, serum sodium levels and urine output. These parameters showed deterioration up to three days before the patient was transferred to the intensive care unit. The patient population consisted of 51.8% male, 63.4% older

than age 70 and 30.9% between the ages of 50 and 69. Conclusions of the study were that trending simple physiologic parameters was effective in determining patients at risk for deterioration and potential failure to rescue, and older patients may require closer monitoring. “Despite increasingly high-tech care, it may be the tracking of vital signs that nurses have always done that provides the best prediction of impending failure to rescue” (Bobay et al., 2008, p. 213).

Bleyer, Vidya, Russell, Jones, Sujata, Daeihagh, and Hire (2011) conducted a longitudinal study of 1.15 million vital signs using a database of computerized vital signs in a large academic medical center to validate the use of a Modified Early Warning Score. Findings demonstrated an increase in inpatient mortality of 0.92% if the patient had one critical vital sign, and a mortality of 23.6% if the patient simultaneously had three critical vital signs (Bleyer et al., 2011, p. 1387). The use of an early warning score was validated in this study. Vital signs were shown to change at any time in the hospital stay, but more likely to occur within 48 hours of the admission (Bleyer et al., 2011, p.1392). This study demonstrates the importance of nursing vigilance in monitoring patient status, and recognizing changes that necessitate early intervention, such as the activation of a Rapid Response Team.

In 2005, the Institute for Healthcare Improvement (IHI) launched the 100,000 Lives Campaign (IHI, 2010). The goal of the campaign is to significantly reduce morbidity and mortality in American health care, apply best practices across the country to save as many as 100,000 lives (IHI, 2010). The IHI encouraged hospitals to implement steps to reduce harm and deaths. One of the steps was to implement Rapid Response Teams in order to respond to patients at the first sign of decline (IHI, 2010).

Simmonds (2005) cites three problems that may lead to a failure to rescue. These are a failure to plan, such as through assessments, treatments and goals; failure to communicate among the staff, and failure to recognize deterioration in the patient's condition (p. 58). Activation of the Rapid Response Team (RRT) is done by the nurse caring for the patient. Some hospitals have criteria for nurses to use when contemplating calling the RRT. Simmonds (2005) provides a sample of adult criteria for calling the RRT which includes parameters for changes in respiratory rate, heart rate, blood pressure, pulse oximetry, urine output and level of consciousness (p. 42). Studies demonstrate signs and symptoms of physiologic instability may be present in patients for a period of time, such as 6 to 8 hours prior to a cardiac arrest (Simmonds, 2005, p. 42). In addition to specific criteria, most hospitals encourage nurses to call the RRT even if the patient doesn't meet specific criteria but the nurse is concerned about the patient and feels immediate attention is needed. Nurses with advanced training, such as Advanced Cardiac Life Support, are members of the Rapid Response Team. These nurses are often staff members from the Intensive Care Unit. A concern exists in many hospitals that the use of Rapid Response Teams may decrease the development of critical thinking in non- ICU nurses. Simmonds (2005) notes that the opposite may occur and nurses on the medical-surgical unit may benefit from real time learning from their Rapid Response Team colleagues in the actual setting of a critical patient situation. Nurses must feel confident in their assessment that the Rapid Response Team is needed. Even if unsure, if the nurse is concerned about the patient and feels that patient needs immediate attention, nurses are encouraged to trust their judgment and call. Simmonds (2005) cites the benefits of Rapid Response Teams as a reduction in the incidence of

cardiac arrests outside the ICU by 50% and prior to ICU transfer by 25%- 30%, and an overall decrease in hospital mortality by as much as 26% (p. 42).

With the recognition of the need to identify and act upon patient deterioration in a timely manner, nurses are challenged to be knowledgeable and aware of the signs and symptoms that indicate physiological decline. Leach, Mayo and O'Rourke (2010) conducted a qualitative study using semi-structured interviews with fifty nurses in six California hospitals. The purpose of the study was to explore how nurses rescue patients in hospitals where Rapid Response Teams were in place. Regarding patient characteristics related to the decision to activate the Rapid Response Team, the nurses in the study identified using physiological and vital signs parameters, as well as their knowledge of the patient to identify that "something is not right" (p. 2).

Registered nurses (RN's) are in a position to recognize subtle and critical changes in order to rescue patients and make decisions to intervene at the most opportune moments to prevent adverse outcomes. Rescuing involves recognition of diagnostic cues and patient risks, intensive resource application and prevention of life-threatening events. RN's are authorized to and responsible for observing the patient condition, determining abnormal signs and symptoms, and making decisions to act in the best interests of the patient. However, since clinical diagnostic cues are not always distinct when they first emerge, and initial cues are may be subtle, disparate and unrelated, there are times when rescuing requires expert clinical decision making to prevent an adverse outcome. (Leach et al., 2010, p. 1)

Strategies to enhance nurses' recognition of changes in patient condition are needed to decrease the failure to rescue potential in the acute care setting. Courses in Advanced Cardiac Life Support provide knowledge about signs, symptoms and treatments for critical conditions. Case study reviews have been demonstrated to be effective in increasing nurses' self- perceived competence and confidence in

recognizing and managing changes in patient conditions (Jacobson, Belcher, Sarr, Riutta, Ferrier, & Botten, 2010).

Recognition of patient deterioration and timely intervention is a vital role of nursing. Patients often have medical problems that place them at risk for deterioration. While the clinical unit is very busy and complex, especially with advancing technologies in patient care and computerized documentation, it is crucial that the focus of care remain on the patient. Nurses must be vigilant guardians of their patient (Jacobson et al., 2010). Failure to rescue has been identified as a safety problem for patients who are hospitalized. With attention to the characteristics and needs of the patient, nurses are at the forefront of care, able to and have a duty to rescue patients, and act as a vigilant guardian.

The nurse acts as a vigilant guardian by recognizing the significance of subtle changes in a patient's condition. Early recognition may be enhanced when nurses know their patients directly through the family and are attentive to subtle changes in patients (Minick and Harvey, 2003, in Jacobson et al., 2010). The skill set identified as important to enhancing the role of the nurse as a vigilant guardian includes assessment, synthesis of data, ability to think critically, specialty knowledge, advocacy, communication and collaboration. (Jacobson et al., 2010, p. 348)

Case reviews

Case reviews of actual patient cases with nurses provides an opportunity for nurses to reflect on their nursing actions, discuss the rationale for these actions and identify alternative actions that might impact patient outcomes. It is also an opportunity for nurses to share knowledge that may be helpful in future situations. In addition to an educational strategy, system issues such as the need for policy changes or global education across clinical units may be identified. The few studies that reference the use of case studies as a method in nursing education describe the creating of cases to use as a case review

(Davidson, 2009; Hasegawa, Ogasawara & Katz, 2007; Jones & Sheridan, 1999; Kim, Phillips, Pinsky, Brock, Phillips, & Keary, 2006). The nursing literature sporadically addresses the use of actual patient cases in nursing education, most often in the form of nursing grand rounds (Armola, Brandeburg, & Tucker, 2010; Lannon, 2005).

The use of actual cases in clinical vignettes has been shown to increase nurses' confidence and skill in managing critical patient situations (Jacobson, Belcher, Sarr, Riutta, Ferrier & Botten, 2010). The study by Jacobson et al. (2010) using actual patient cases as an educational strategy to enhance nursing competence and critical thinking is unique in the nursing literature. Winkelman, Kelley and Savrin, (2012) also identify the use of actual case scenarios as a specific strategy for developing critical thinking in nurses. Referring to the use of actual case situations as "case histories", they state:

Because case histories are usually based on individuals, they provide contextual nuances that address variability in patients' conditions, situations, and communities. Surprisingly, the use of case histories does not have a long history in the education of nurses but is recommended by expert teachers. Case-based teaching is advocated to help nurses develop habits of thought essential to practice, case-based methods are congruent with adult learning theory as they present knowledge and skills that are contextual and engaging. Case histories provide opportunity for educators to facilitate clinical reasoning- the cognitive and self-reflective skills to solve clinical problems. (Winkelman, Kelley and Savrin, 2012, p. e2)

Summary

Competency in nursing is vital to safe patient care. While there is not one universal definition of competency, there is consensus throughout the literature and in clinical practice that the domains of nursing competency are knowledge, skill and attitudes. Benner's Novice to Expert Model provides a framework for knowledge and skill acquisition through experience in clinical practice. Experience is not limited to length of time in practice, but is related to exposure to clinical situations. Through

the experiential process, the nurse is able to move from relying on rules to being able to recognize and respond to salient features of patient situations. Critical thinking is an integral component of competency and the process of critical reasoning. In clinical reasoning, the nurse utilizes knowledge to respond, determine a clinical judgment, and evaluate the patient's response to the action. Knowledge is enhanced, and future responses to patient situations informed, through the use of reflection.

Nursing educators are challenged to develop strategies to enhance nursing competency. Healthcare organizations that have a shared governance structure have been recognized by the American Nurses Credentialing Center as facilitating an environment where nurses can flourish. Nurses' involvement and voice in nursing practice is an essential element of the ANCC Pathway to Excellence® program. There is a need for research to provide an evidence based foundation to guide educators in the development of strategies to develop nursing competency. In order to accurately formulate programs, in accordance with shared governance, and aligned with the process of reflection, it is important for nurses to provide insight into their perceived level of competency.

The results of this study will provide information about nurses' perceptions of their competence in managing patient situations. Benner's Novice to Expert Model will provide the theoretical framework for this study. The independent variables have been identified through the review of the literature in the areas of nursing competence and managing patient situations: years of nursing experience; years of working in a specialized area; cross-training in more than one specialty; type of educational preparation (associate degree, diploma, baccalaureate, or advanced degrees); national

certification; participation in the care of a patient discussed at a case review session; attendance at a case review session; and participation in advanced life support training such as ACLS, PALS, or Rapid Response Team member training.

This study will add to the nursing knowledge base through research, and provide information that will be used to develop future educational programs to enhance nurses' perceptions of competence in practice.

CHAPTER 3

METHODOLOGY

Research Design

This study was a step-wise, multivariate, descriptive study to examine the question: to what extent and in what manner are specific nurse characteristics related to the nurses' perceptions of their competence in managing patient situations. The purpose of this study was to examine the extent and the manner in which the following variables:

- Years of nursing experience
- Years of working in a specialized area
- Cross-training in more than one specialty
- Type of educational preparation (associate degree, diploma, baccalaureate, or advanced degrees)
- National certification
- Attendance at a case review session
- Participation in the care of a patient discussed at a case review session
- And participation in advanced life support training such as Advanced Cardiac Life support (ACLS), Pediatric Advanced Life Support (PALS), or rapid response team member training

are associated with nurses' self-perceived competency in recognizing and managing potentially life-threatening situations. The knowledge gained in this study will assist in: (1) determining the relative value of educational programs at increasing nurse self-

perceived competency in managing these situations; and (2) when to begin this training.

To achieve this aim, a survey was utilized to collect information on nurses who work in the acute care hospital setting and may encounter changes in patients' conditions. The survey was designed following a review of the literature using the databases of CINAHL and Medline from 1981-2012, using the key words of nursing competency, critical thinking, and failure to rescue. The survey questions were drafted and checked for face validity with nurse managers, a clinical nurse specialist, a clinical educator and registered nurses practicing in the acute care setting; registered nurses in a leadership nursing course in a college of nursing; and the core dissertation committee.

Setting, Population, and Sample

The study was conducted at a 100- bed acute care community hospital in the Northeast. The study population was all registered nurses who provide direct patient care and who work in the following specialties at the study hospital:

Inpatient: Medical- Surgical, Telemetry, Orthopedic, Obstetrics/Women's Health

Critical/Urgent Care areas: Emergency Department, Intensive Care, Post-Anesthesia Care Unit

Procedural areas: Operating Room, Endoscopy, Interventional Radiology, Cardiac Catheterization Lab

A purposive sample of all registered nurses who work in the designated units of the hospital were invited to participate in the study. There were 212 registered nurses eligible for this study. The study included nurses who work day, evening, and night shifts, full time, part time or per diem, and have been educationally prepared at

the diploma, associate degree, baccalaureate degree or graduate degree level. The 212 eligible nurses represented those who met these criteria and were working during the time frame of the survey (June- August, 2012). The rationale for the timeframe of two months for the survey was based on this being sufficient time for participation for other surveys conducted by the hospital and to avoid survey fatigue of the nursing staff. The timeframe was also identified in consideration of other initiatives occurring with the hospital staff.

Invitation to participate was through explanation of the purpose and procedures of the study in a cover letter posted on the hospital Intranet, and also distributed at informational presentations about the study (Appendix A). The Intranet is accessible to all registered nurses at the study hospital. For informational purposes, the study was presented at the Staff Nurse Practice Council meeting where registered nurses from all units where nursing is practiced attend on a monthly basis. The study was also presented at staff meetings on the designated clinical units. The study survey was available electronically on the hospital Intranet, and accessible only on the hospital computers. Nurses could access the survey at their convenience, responses were anonymous, and the results accessible only to the study investigator. An e-mail announcement was sent to all registered nurses at the study hospital when the survey was available on the hospital Intranet. A screen saver was added to the computers on the clinical units to remind nurses about the availability to participate in the study. Reminders about the study were announced at weekly Nurse Manager meetings and at the monthly Staff Nurse Practice Council. Additionally, a flier was sent to the clinical units inviting nurses to participate (Appendix B). Participation in the survey was

voluntary and anonymous. This was stated verbally when discussing the study and in the e-mails and fliers regarding the study. Also, accessibility of the survey only on the hospital computers was included in the information verbally, through e-mail and in the fliers that were distributed to the clinical units about the study. Participation in the survey conveyed consent.

Survey responses were available through the electronic survey tool and accessible to the study investigator for each individual respondent and in a summary format.

Dependent Variable

Utilizing information collected in the survey, an outcome variable summarizing nurses' perceived self-competency was created. To do this, responses were dichotomized on a scale of weak, moderate, good and excellent. The nurse assigned a numerical score based on a visual analogue scale (VAS) to each survey question. The scale indicated the numerical scores for weak (0 -2), moderate (3-5), good (6-8) and excellent (9-10). An average of the scores for each individual was calculated to obtain an overall perceived self-competence score. Averages of scores for each question on the survey were also calculated. For multivariable analyses, these average scores were categorized into a dichotomous variable comparing excellent perceived self-competency (average score ≥ 9) versus weak/moderate/good (average score <9).

Independent Variables

From the survey, information was gathered on years of nursing experience, years of working in a specialized area, cross-training to more than one specialty, type of educational preparation (associate degree, diploma, baccalaureate, or advanced degrees), national certification, attendance at a case review session, participation in the care of a

patient discussed at a case review session, and participation in advanced life support training such as ACLS, PALS, or rapid response team member training. These factors were considered as potential independent predictors of nurses' self-perceived competency in recognizing and managing potentially life-threatening situations.

Instrument

The instrument for this study was inspired by the Nurse Competence Scale (NCS) (Meretoja et al., 2004). The NCS is based on Benner's Novice to Expert model. The NCS is comprised of 73 items that assess nurses' perceptions of their own competence. Items are categorized into the seven domains of nursing practice identified by Benner: The Helping Role, Teaching- Coaching, Diagnostic Functions, Managing Situations, Therapeutic Interventions, Ensuring Quality, Work Role (Meretoja, Isoaho & Leino-Kilpi, 2004). Items in the categories of Managing Situations and Therapeutic Interventions domains were of particular interest for this study.

A visual analogue scale (VAS) is used to rate each item in the NCS. In the VAS, 0 is the lowest level indicating low perception of self-competence, and 100 being the highest indicating high level of self- competence. Further division of the scale for descriptive purposes is a rating of 0-25 as weak, >25-50 as moderate; >50-75 as good, and >75-100 as excellent (Meretoja & Koponen, 2011; Salonen, 2007).

The NCS has established construct and content validity. Internal consistency reliability using Cronbach's alpha for the NCS was 0.79-0.91 (Meretoja et al., 2004). The range for Cronbach's alpha is between .00 and 1.00, with higher values reflecting a higher internal consistency (Polit and Beck, 2008). Burns and Grove (2009) state, "If the Cronbach's alpha coefficient value were 1.00, each item in the instrument would be measuring exactly the same thing. When this occurs, one might question the need for

more than one item. A slightly lower coefficient (0.8-0.9) indicates an instrument that will reflect more richly the fine discriminations of the construct” (p. 379). Concurrent validity was established through correlation with the Six- Dimension Scale of Nursing Performance (Meretoja et al., 2004; Schwirian, 1978). Concurrent validity is “the degree to which scores on an instrument are correlated with an external criterion, measured at the same time” (Polit & Beck, 2008, p. 750). The NCS was found to be more useful in delineating levels of nurse competence, and more sensitive to a wider scope of level of experience and work environments than the Six- Dimension Scale. (Meretoja et al., 2004; Meretoja and Koponen, 2011).

In addition to the items in the NCS, two of Benner’s seven domains of nursing practice provided a basis for developing questions for the survey. The domains “Effective Management of Rapidly Changing Situations” and “Diagnostic and Monitoring Functioning” focus on awareness, anticipation and detection of changes in patient condition, actions to manage these changes, communication and documentation of changes (Benner, 1984). The study instrument was comprised of a total of 24 questions (Appendix C). The first 11 questions focused on information related to the independent variable: number of years practicing nursing, number of years in current specialty, educational preparation as a registered nurse, holding national certification, attendance at a case review session, cared for a patient presented at the case review session, perception of case review benefitting the nurse’s practice, cross- trained in more than one specialty, and participated in advance life support training. These were followed by 13 questions which related to aspects of managing patient situations. These aspects were identified through the literature review, Benner’s domains, and the validated NCS scale. Following development of the

questions in the scale, each question was reviewed for correlation to the categories of the validated NCS. This revealed the two domains questions most closely correlated to were the Managing Patient Situations and Therapeutic Intervention categories. For this part of the survey, participants were asked to assign a score to their perceptions of their own competence in aspects of managing patient situations on a scale of 0-10, with 0 being the lowest, and 10 being the highest. The scale was further described as: 0-2 (weak); 3-5 (moderate); 6-8 (good); 9-10(excellent).

Definition of the most important terms and concepts

Case review: The process of reviewing the nursing care rendered to a patient for the purpose of staff education.

Competent: The integration of the cognitive, affective and psychomotor domains of practice that are required for performance in a particular role (Alspach,1984; Del Bueno et al., 1987,Gurvis & Grey, 1995; Jeska,1998; Nagelsmith, 1995, Ramritu & Barnard, 2001 in Meretoja et al., 2004); Having suitable or sufficient skill, knowledge, experience, etc. for some purpose” (Webster’s Encyclopedic Unabridged Dictionary (1993); “A determination of an individual’s capability to perform up to defined expectations” (JCAHO, 2002, p. 333).

Competency: “The quality of being competent; adequacy; possession of required skill, knowledge, qualification, or capacity” (Webster’s Encyclopedic Unabridged Dictionary (1993).

Critical Thinking: The use of interpretation, analysis, evaluation, and inference to make a judgment and determine action.

Managing situations: Recognition of and responding to changes in the clinical condition of a patient.

Data Considerations

The use of case review sessions utilizing actual patient cases has been noted in the nursing literature as a tool to enhance the critical thinking domain of nursing competency (Jacobson, Belcher, Sarr, Riutta, Ferrier & Botten, 2010). At the study hospital, case review sessions have been implemented for the past two years as a method to review the care of patients who experienced unexpected deterioration in their condition. The purpose of the case reviews is educational. There are several avenues of cases being identified for a case review. A patient case may be recommended for review by the Nursing Peer Review Committee, Patient Safety and Quality Committee, or Clinical Performance Improvement Committee. Nursing leadership or staff nurses may request a case review session. Case review sessions are facilitated by the Clinical Nurse Specialist through the Nursing Education Department. Nurses from the unit where the patient was cared for are invited to attend. The sessions may be opened to nurses from other units if the factors of the case are applicable to more than one unit. Attendance at the case review sessions is voluntary.

Anecdotal feedback from participants in the case review sessions has been positive. An increase in knowledge, perception of increased competency in practice and confidence has been verbally reported from staff nurses who attended.

While the reports from attendees are promising in the use of case review sessions of actual patient cases as an educational strategy to enhance nurses' perceptions of their competency, this study will provide data to measure this variable related to staff attendance at a case review and the association with nurses' self-perceived competency in recognizing and managing potentially life-threatening situations. To achieve this aim, attending and not attending a case review session will be considered in the data.

Human Subjects Protection, Confidentiality

In accordance with the Code of Federal Regulations, Title 45, Public Welfare Department of Health and Human Services, Part 46, Protection of Human Subjects, research involving human subjects must be reviewed by an Institutional Review Board (U.S. Department of Health and Human Service, 2009, Part 46.101). This is to protect the welfare of participants in research studies as defined by the ethical principles of respect for persons, beneficence and justice in the Belmont Report (U.S. Department of Health and Human Service, 2009, Part 46). The study was presented to the Institutional Review Board (IRB) at the University of Rhode Island, and the study hospital's IRB. Both IRB's deemed the study to have exempt status (Appendix D). The study investigator and major professor completed Human Subject Protection Training, and submitted certificates of completion to the university and hospital IRB's. Additionally, permission was granted for the study to be conducted at the study hospital from nursing administration.

The specific exempt criteria pertinent to this study were that the study was of minimal risk, and "conducted involving research on the effectiveness of or comparison among instructional techniques" (U.S. Department of Health and Human Service, 2009, Part 46.101). In this study, educational offerings for staff nurses such as case reviews and life support training were examined and related to the nurses' self-perceived competence in managing patient situations. Also, minimal risk research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, qualifies as exempt unless information obtained is recorded in such a manner that human subjects can be identified directly or through identifiers linked to the subjects and any

disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability or reputation"(U.S. Department of Health and Human Service, 2009, Part 46.101). In this study, a survey methodology was utilized and participants were anonymous.

Confidentiality was protected for study participants in several ways. First, participation was voluntary and anonymous. There were no identifiers for any participant. Neither a code nor password was required for access to the study. The study was available and labeled on the home page of the hospital intranet as "Nursing Research Study". When nurses interested in participating in the study clicked on this link an information page opened explaining that the study was voluntary, anonymous and confidential. Secondly, in order to further protect anonymity, participants were not required to sign an informed consent. This is permissible under the Code of Regulations criteria for IRB's waiving a signed consent which states that "the research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context" (U.S. Department of Health and Human Services, 2009, Part 46.117). Thirdly, rather than indicating the clinical unit the participant worked on, participants were asked to indicate their area of practice. This provided additional anonymity as participants were not linked to a particular unit.

Risks and Benefits

For those participants, the risk of participation in the study was minimal, and associated with the inconvenience of completing the survey itself. Benefits were that

the study provided an opportunity for the individual participant to reflect on practice. Participation in the study provided data that will be used to develop educational offerings for nursing staff related to nursing competence.

Data analysis

Bivariate analyses was conducted to describe the characteristics of the sample and summarize responses to individual survey questions utilizing means, medians, ranges and frequencies. An overall mean and standard deviation was calculated for each question in the survey. The sample was then analyzed by those who attended and did not attend a case review session. Means and standard deviations were calculated for each independent variable. For the dependent variable, a mean score was calculated for all participants across all questions to determine the overall mean score for nurses' perceptions of their competence in managing patient situations. Then, an overall mean score for each question in the scale was calculated. A mean score was calculated for each participant, and categorized into attended or did not attend a case review session. Each question was further analyzed by determining a mean overall score for those who attended and did not attend a case review session. For each question, a *t*-test (p -value < 0.05) was calculated and analyzed between the mean scores of those who attended and those who did not attend a case review session. The purpose of the *t*-test is to examine if there is any difference between the groups (Munro, 2005, p. 138).

Frequencies of the total number of nurses who responded to each score on the scale of 0-10 were calculated, and further calculated by the number who had attended or not attended a case review session.

The questions were then categorized into two domains as correlated with the NCS, Managing Patient Situations and Therapeutic Interventions, which were determined during instrument development. Overall mean scores were calculated and analyzed for each domain, and then for the categories of attended and did not attend a case review session within each domain.

To identify independent predictors, multivariate statistical modeling was used. Step-wise multiple regression was used to analyze and predict these relationships. Variables were selected based on Benner's model regarding experience as a predictor of competence (years of nursing experience, years in specialty, cross-trained to more than one specialty), variables related to development of expertise (advanced life support classes, national certification), and variables related to educational support (case review and caring for patient presented at the case review). Model diagnostics included entering the variables in a varied sequence and results analyzed for variances. The purpose of the model was to indicate which variables have the highest prediction for nurses' perceived self-competence. Variables were assessed for statistical significance. A code book was developed to facilitate statistical analysis of data. Data was analyzed using Statistical Analysis Software (SAS).

CHAPTER 4

FINDINGS

Descriptive Statistics: Sample

The descriptive table of the sample is contained in Table 1. Seventy four of the 212 registered nurses eligible to participate in the study responded to the survey. This represents a 35% response rate. The majority of nurses (73%) had greater than 6 years of experience. In accordance with Benner's Novice to Expert Model, this represents the majority of respondents being at the Proficient or Expert stage of practice. The number of respondents in practice for 2-3, and 4-5 years, was equal at 9.5% of the sample. Respondents in practice for 0-1 years, or at the Novice Stage, represented 8.1% of the sample.

Nurses from the inpatient areas comprised 52.1% (N=38) of the sample. Inpatient areas are: medical-surgical, telemetry, orthopedics and obstetrical. Nurses from the emergency department, intensive care unit, post-anesthesia care unit, and procedural areas (cardiac catheterization laboratory, interventional radiology and operating room) comprised 48% (N=35) of the sample.

The majority of nurses (56.2%) had worked in their current specialty for 6 -10 years. Those who had been in their current specialty for 2- 3 years represented 16.4% of the sample. Those practicing in their current specialty for 4-5 years, and 0-1 year represented 13.7% of the sample for each category. Due to the majority of nurses in the 6-10 year experience range in their specialty, the sample has a high number of

nurses in the Proficient to Expert stage. When those in the Competent (4-5 year), and Advanced Beginner (2-3 years) are combined (30.1%), the sample remains more highly comprised of those with more experience, as well as those who have spent more time in their current specialty.

With Benner's Novice to Expert Model being based on the development of an experiential base in order to acquire knowledge and skill in nursing practice, in addition to time spent in current specialty, participants were asked to indicate if they were trained in more than one specialty area. The participants who were cross-trained in more than one specialty represented 54.8% (n=40) of the sample, with 45.2% (N=33) not being cross-trained. Of those who were cross-trained, the majority represented nurses who had six or more years in practice (N=27), were prepared at the baccalaureate educational level, and worked in the inpatient care area (N= 18).

Educational preparation at the baccalaureate level was represented by 56.2% (N=41) of the sample. With the aim of the IOM (2010) report to increase the number of nurses educated at the baccalaureate level or higher in order to meet the complexity of patient care needs, it is positive that the majority of nurses participating in the study had a baccalaureate degree. It is also positive when correlated with findings of lower mortality associated with a greater proportion of baccalaureate prepared nurses (Aiken, Clarke, Cheung, Sloane & Silber, 2003; Kendall-Gallagher, Aiken, Sloan & Cimiotti, 2011).

Nursing specialty certification was held by 23.3% (N=17) of the participants. A goal of the nursing department at the study hospital is to increase the number of nurses who are certified in their specialty. Nursing specialty certification has been

shown to increase nurses' intrinsic perceptions of knowledge, skill and confidence (Haag- Heitman, 2008; Haskins, Hnatiuk & Yoder, 2011). Specialty certification provides validation of knowledge, professional practice and commitment to one's profession for the nurse and the public (Watts, 2010). Attainment of nursing specialty certification is an achievement that is encouraged by professional organizations and programs such as the Pathway to Excellence Program and Magnet Program as an exemplar of excellence (ANCC, 2012). Positive patient outcomes have been correlated with nursing specialty certification (ANCC, 2012).

Offering educational opportunities for nurses to enhance their knowledge and skills in caring for patients is a priority for nurse educators. Education for staff provides opportunities for nurses to expand their knowledge base for application in clinical practice. The educational process assists with refining critical thinking and reflecting on situations faced in the clinical area. New knowledge is gained which supports knowledge gained through clinical experience.

Advanced Cardiac Life Support (ACLS) supports the attainment of knowledge and skill in recognizing and intervening in patient deterioration. In the ACLS course, competency is assessed through a written test as well as application of concepts to patient care at a skills station. ACLS validates achievement of advanced concepts in rescuing patients. Training to be on the Rapid Response Team requires nurses have knowledge and skill in recognizing and intervening in patients who are in crisis. Nurses who are on the Rapid Response Team complete a competency test validating their knowledge of advanced life support concepts, medications, and treatment protocols. Nurses who were ACLS certified, or had received training as a Rapid

Response Team member, comprised 84.9% (N=62) of the study participants. Of these 62 nurses, 29 worked in the inpatient area, and 33 worked in the emergency department, PACU, ICU, or a procedural area. The Rapid Response Team members are designated nurses in the ICU, as are members of the Code Team, which require ACLS training. It is beneficial for nurses on the inpatient units to have the knowledge and skill provided in the ACLS course to be able to rapidly recognize and take action on signs of patient deterioration.

The use of case presentations as an educational strategy to enhance critical thinking has been identified as a beneficial strategy in clinical practice, as well as in the nursing literature (Jacobson, Belcher, Sarr, Riutta, Ferrier & Botten, 2010; Winkelman, Kelley & Savrin, 2012). Reviewing actual cases scenarios with nurses allows the opportunity to discuss the situation that occurred, patient signs and symptoms, action taken, and review the documentation in the medical record. Case review sessions have been implemented as an educational strategy at the study hospital, with nurses reporting benefits of increased knowledge in recognizing signs and symptoms of clinical problems with patients.

Nurses who attended a case review session comprised 32.4% (N=24) of the study sample. Of those who attended, 100% indicated attending benefitted their practice. Of the 24 nurses that attended the case review sessions, only 8 had cared for the patient being presented in the case review. While it is interesting that the number who had cared for the patient being presented was not higher, it is encouraging that having cared for the patient being presented was not the only reason nurses attended the case review session. The case review sessions offer an opportunity for reflection

for those who cared for the patient, and also an opportunity for sharing experiences and learning from situations that others encounter in clinical practice.

For those nurses who attended a case review session (N=24), 67.3 % (N=16) had greater than six years of nursing experience. The majority of those who attended also had been in their current specialty greater than six years (52.2%, N=12). A baccalaureate degree was held by 56.5% (N=13) of those who attended, while only 16.7% (N=4) held national certification. This may indicate that those holding national certification may have a higher level of confidence in their abilities, as noted in the studies by Cary (2001) and Haskins, Hnatiuk and Yoder, (2011).

Nurses practicing in the inpatient areas comprised 66.7% (N=16) of the 24 nurses who had attended the case review sessions. This large percentage may reflect an increased perception of need of inpatient nurses for exploring the complexities of a variety of patient clinical conditions, signs and symptoms of deterioration, and nursing actions in those situations. Nurses in the inpatient areas tend to be newer to practice than those in critical or urgent care areas, such as the emergency department, ICU, PACU and procedural areas, and have not had the exposure to the volume and variety of patient cases that nurses in other areas may have experienced. The lower number of nurses attending from critical care and urgent areas (33.3%, N=8) may indicate more perceived familiarity and competence in managing situations of changing patient condition. Advanced life support training was held by 79.2% (N= 19) of nurse attending a case review session. With the large percentage of nurses from the inpatient areas attending the case review sessions, this indicates that advanced life

support training is more global, and reaches beyond the critical care, urgent and procedural areas to include the inpatient nurses.

Knowledge and skill in nursing practice is acquired through experience in clinical practice (Benner, 1984). While experience in a specialty area adds depth to knowledge, exposure to situations across specialties adds breadth. This depth and breadth of knowledge leads to an experiential knowledge base on which to base critical thinking, and transferability of knowledge across situations. Working in more than one specialty offers the nurse more diverse opportunities for learning, which may decrease feelings of discomfort when faced with new clinical situations or when having to float from one unit to another (Haag- Heitman, 2008; Inman, Blumenfeld & Ko, 2005).

Of the 24 nurses who attended a case review session, 62.5 % (N=15) had been cross- trained in more than one specialty. This may indicate that nurses who are cross-trained recognize the benefit of discussing actual patient scenarios in building a skill set to care for patients across populations with a variety of complex needs. If an area of practice is very specialized, the nurse may not encounter the wide spectrum of illnesses seen on other units. If nurses practice in more than one specialty, expertise in being able to recognize changes and manage patient conditions increases.

Of the 50 participants who did not attend a case review session, 76% (N=38) had been practice greater than 6 years. Twenty nine of these nurses (58%) had been in their current specialty for greater than 6 years, and 51% (N=25) had been cross-trained to more than one specialty. Those who did not attend a case review session were more highly representative of the critical and urgent care areas (55%, N=27), and 87.8%

(N=43) of these nurses had advanced life support training. Baccalaureate preparation as a registered nurse was held by 56% (N=28) of the nurses who did not attend a case review session, and 26.5% (N=13) held national certification. Based on these findings, nurses who work in a critical care or urgent care area are less likely to attend a case review session than those working in the inpatient area. Nurses who work in critical care or urgent areas generally are required to have previous experience, whereas the inpatient area is usually where new nurses begin clinical practice. Inpatient nurses, therefore, may perceive the case review session as more beneficial in development of their knowledge and skill base.

Aspects of managing patient situations

Nurses who attended a case review session scored themselves higher in self-perceived competency than those who did not attend a case review session in several aspects of managing patient situations. None of the scores in the individual aspects of managing patient situations were statistically significant at the $p < .05$ level for nurses who attended a case review session. Similarly, the overall score for the two domains in the study, Managing Patient Situations and Therapeutic Interventions, did not demonstrate statistical significance at the $p < .05$ level for nurses who attended a case review session. Despite the lack of statistical significance, the scores of the nurses on each aspect of managing patient situations, and overall in each domain is useful in exploring nurses perceptions of their competence.

The overall score of participants' perceptions of their competence in managing patient situations in acute care on the scale of 0 (lowest self-perceived competence) to 10 (highest self-perceived competence) was 8.56 ± 1.13 (Table 2). The majority of nurses scored themselves between 8 and 9 (Figure 1). This is in the 'good' range for

the scale: 0-2 (weak); 3-5 (moderate); 6-8 (good); 9-10(excellent). For those attending a case review session, the overall score was 8.71+/- .912. Those who did not attend a case review session had an overall score of 8.52+/-1.23. The t-test value for these two groups was $t = .72$. While those attending a case review session scored themselves somewhat higher in their self-perceived competence, the p-value was 0.4769, which was not significant at $p < .05$ level. While attendance at a case review session was not statistically significant, those who assigned themselves lower scores (at the “moderate” level and at the lower range of the “good” level), had not attended a case review session (Figure 2).

The variable of managing patient situations with the highest overall score was “Reporting findings to the healthcare team”. This variable was in the Therapeutic Interventions domain (Table 3). The overall score for this variable was 9.03+/- 1.06. Scores for this variable were similar for nurses who attended (9.04+/-1.16) or did not attend (9.02+/-1.02) a case review session. Within the past year the study hospital has undergone a major initiative in the re-education of all nursing staff in hand-off communication. The study hospital has developed tools for the consistent application of the SBAR (Situation, Background, Assessment, and Recommendation) methodology for when communicating about patient care. Hand-off communication is followed closely as a quality measure at the study hospital to ensure accurate patient information is conveyed among members of the healthcare team. The high score of perceived self-competence in this aspect of managing patient situations is reflective of the work that has been done with the nursing staff at the study hospital in reporting findings to members of the healthcare team. This is essential in managing patient

situations to ensure information is conveyed in a manner that facilitates accuracy and consistency in communication.

While the overall score in communication was high, nurses who attended a case review session scored themselves higher (8.96+/-1.08) in the variable of clearly communicating pertinent information about the patient's status than those who did not attend a case review session (8.72+/-1.28). The case review session focuses on specific signs and symptoms that indicate the patient is experiencing deterioration. Reporting findings to the physician and communicating a sense of urgency are educational goals of the case review sessions.

Scores were higher for nurses who attended a case review session in the variable "Evaluating the patient's response to interventions" (8.75 +/-1.07), and "Updating the plan of care to reflect the patient's current condition" (8.54+/-1.10) than for those who did not attend a case review session (Evaluating the patient's response to interventions, 8.56+/-1.36; Updating the plan of care to reflect the patient's current condition, 8.1+/-1.57). The variable "Updating the plan of care to reflect the patient's current clinical condition had the lowest overall average score of all the thirteen items of managing patient situations in the survey. Nursing assessment of interventions provided to the patient is a competency identified by Benner in the Therapeutic Intervention domain of nursing practice (Benner, 1984). Case review sessions provide the opportunity to discuss recognition, nursing actions, as well as patient reassessment in order to evaluate the effectiveness of interventions. In using actual patient cases for case review sessions, documentation in the medical record is accessible and an integral part of the case review. Nurses are able to view the

documentation and determine if it accurately reflected nursing care, or was not complete enough to provide a comprehensive picture of the patient's clinical condition, including response to treatment. The use of decision making skills to determine the plan of care for patients is critical in managing patient situations. Utilizing decision making skills was scored slightly higher by nurses who had attended a case review session (8.58+/-1.28) than those who did not attend (8.28+/-1.57).

A goal of the case review sessions is to provide the opportunity for nurses to review clinical situations, and develop knowledge that can be drawn upon for use in future situations. Knowledge develops from the factors involved in the case, as well as the discussion with peers during the discussion at the case review sessions. This is especially useful for novice nurses who may learn through the interactive process with more experienced staff. Nurses who attended the case review sessions had a higher self-perceived competence score (8.75+/.99) in extrapolating knowledge from the reflection process to apply in managing future patient situations than those who did not attend (8.25+/-1.54).

In the Managing Patient Situations Domain, the variable of recognizing signs and symptoms of deterioration in patient's clinical condition was scored similarly in nurses who attended (8.5+/-1.35) and did not attend (8.52+/- 1.45) a case review session (Table 4). Proceeding with taking action, prioritizing actions and understanding the rationale for those actions were all scored higher by nurses who attended a case review session: taking action to manage patient's changing situations (8.5+/-1.38 attended; 8.22+/-1.64 not attended), prioritizing actions based on

assessment findings (8.79+/.93 attended; 8.38+/1.54 not attended), understanding rationale for actions and orders (8.71+/-1.08 attended; 8.58+/-1.31 not attended). A goal of the case review sessions is to assist the nurses with critical thinking development. Using assessment findings to determine action, prioritize, and understand the reason or rationale for those actions are components of critical thinking. The cognitive aspect of nursing practice, critical thinking, is essential to the ability to determine clinical judgment in patient care and vital to safe nursing practice (Del Bueno, 1990).

Nurses who attended a case review session scored their self-perceived competency higher (8.67+/-1.01) in reflecting on their process of managing rapidly changing patient situations than those who did not attend (8.14+/-1.58). Reflection on practice is a key component of critical thinking and nursing competence (Bevis, 1993; Forneris & Peden- McAlpine, C., 2007; Gustafsson & Fagerberg, 2004; Kuiper & Pesut, 2004; Price, 2004; Tanner, 2006; Teekman, 2000). The case review session is a forum for nurses to reflect on their nursing process to identify opportunities for improvement in practice.

Overall scores of nurses self-perceived competence in managing patient situations scored were higher in the Therapeutic Interventions (_T) domain (8.65+/- 1.11) than in the Managing Patient Situations (_M) domain (8.45+/-1.25). In both domains, overall scores for nurses who attended a case review session were higher than for those who did not attend: _T (8.76+/-0.884 attended; 8.60+/-1.21 not attended); _M (8.65+/- .973 attended; 8.35+/-1.36). Although statistical significance was not demonstrated for having attended a case review session, the data provides important information related to nurses' perceptions of their competence in each domain, as well as similarities and differences for

those attending or not attending a case review session. The scores, while not statistically significant, provide important knowledge upon which to structure further educational opportunities.

Prediction Model

Logistic regression was used to examine if the variables in the study were predictive of the outcomes of nurses self-perceived competency in managing patient situations. Polit and Beck (2008) define logistic regression as “a multivariate regression procedure that analyzes relationships between one or more independent variables and categorical dependent variables” (p. 757). Munro (2005) describes the use of logistic regression “to determine which variables affect the probability of a particular outcome (p. 306).

The only variable that was predictive of nurses’ perceptions of competence in managing patient situations was being cross- trained to more than one specialty (Table 5). Cross- training to more than one specialty affords the nurse experience with a wider spectrum of clinical situations than having experience in one specialty. Benner’s Novice to Expert model illustrates the importance of clinical experiences for the development of expertise in practice. Benner (1984) also notes that specialty practice is important in order to become familiar with the nuances among patients of similar populations (p.180). A balance between familiarity with patient population to understand changes in condition, and having enough diversity in the populations cared for to gain a strong foundation in the clinical experiences, is essential in nursing education.

In a qualitative descriptive study exploring the development of expert performance in nursing, Haag-Heitman (2008) found that nurses who were recognized as experts cited practicing in more than one area of clinical care was instrumental in the development of expert practice. Other factors included deliberate practice which involves the nurse being

goal oriented and achievement motivated (Haag-Heitman, 2008, p. 204). Inman, Blumenfeld and Ko (2005) describe cross training as adding to morale due to the increase in knowledge, skills and professional growth (p. 117). Snyder and Nethersole-Chong (1999) and Dunbar (2000) describe the benefits of cross-training being voluntary for staff to perceive the opportunities and growth potential of working in more than one area.

Summary

The study survey was completed by 74 registered nurses. This represented a 35% response rate. The overall score of nurses' perceptions of their competence in managing patient situations in acute care was 8.56+/1.13. The highest overall average score was in the variable "Reporting findings to members of the healthcare team" (9.03+/-1.06). The lowest overall average score was in the variable "Updating the plan of care to reflect the patient's current condition" (8.24+/-1.44). While the scores were generally higher for nurses who attended a case review session, there was no statistical significance at the $p < .05$ level. The case review sessions were more highly attended by nurses working in the inpatient area than in critical or urgent care areas. Logistic regression was used to examine predictors of nurses' self perceived competence in managing patient situations. Cross- training to more than one specialty area was the only variable predictive of this outcome. Statistical significance may have been impacted by the small sample size, and the scores being skewed toward the higher end of the scale. Despite the data not demonstrating statistical significance for nurses attending a case review session, the data provides information about nurses who attend, and do not attend the case review session that is important for the development of future educational programs.

Table 1
Descriptive Table of Sample

	Overall	Case rev. Attend	Case rev. Not Attend	Test statistic
	N=74	N=24	N=50	
Years: Number of years practicing nursing: frequency(percent)				
0 -1 year	6 (8.1)	3(12.5)	3(6.0)	X ² =1.4684 p=0.8322 DF 4
2- 3 years	7(9.5)	2(8.3)	5(10.0)	
4-5 years	7(9.5)	3(12.5)	4(8.0)	
6 years and greater	54(73)	16(67.3)	38(76.0)	
Specialty: How long worked in current specialty				
0-1year	10(13.7)	3(13.0)	7(14.0)	X ² =1.1854 p=0.9463 DF 5
2 -3years	12(16.4)	5(21.7)	7(14.0)	
4-5 years	10(13.7)	3(13.0)	7(14.0)	
6-10 years	41(56.2)	12(52.2)	29(58.0)	
Education: Educational preparation as a Registered Nurse				
Diploma/Associate Degree	31(42.5)	10(43.5)	21(42.0)	X ² =2.4194 p=0.4900 DF 3
Baccalaureate	41(56.2)	13(56.5)	28(56.0)	
Masters or higher	1(1.4)	0(0)	1(2.0)	
Certification: Do you have national certification				
Yes	17(23.3)	4(16.7)	13(26.5)	X ² =0.8774 p=0.3489 DF 1
No	56(76.7)	20(83.3)	36(73.5)	
Practice Area: What is your area of practice				
Inpatient: Med/Surg, Tele, Ortho, OB	38(52.1)	16(66.7)	22(44.9)	X ² =3.1105 p=0.2111 DF 2
ED, ICU, PACU, Procedural: Cardiac Cath, Interventional, Endo, OR	35(48.0)	8(33.3)	27(55.1)	
Cross- Trained: Are you cross- trained in more than one specialty				
Yes	40(54.8)	15(62.5)	25(51.0)	X ² =0.8571 p=0.3546 DF 1
No	33(45.2)	9(37.5)	24(49.0)	

Adv. Life Support: Have you participated in advanced life support training such as ACLS, PALS, or Rapid Response Team member training				
Yes	62(84.9)	19(79.2)	43(87.8)	X ² =0.9285 p=0.3353 DF 1
No	11(15.1)	5(20.8)	6(12.2)	
Case attended: Have you attended a case review session facilitated by the Education Department?				-----
Yes	24(32.4)			
No	50(67.6)			
Case-cared for pt.: Did you participate in the care of a patient presented at the case review session?				
Yes	8(10.8)	8(100.0)	0(0)	X ² =51.7786 P<.0001 DF 2
No	23(31.1)	16(21.7)	7(30.43)	
Have not attended	43(58.1)	0(0)	43(100.0)	
Case-beneficial: If you attended a case review session, do you feel it benefitted your practice?				
Yes	22(100.0)	22(100.0)	0(0)	X ² =69.9107 P<.0001 DF 2
No	3(4.1)	1(33.3)	2(66.7)	
Have not attended	48(65.6)	0(0)	48(100.0)	

Table 2

Overall Total Scale
Overall Domains (Managing Patient Situations and Therapeutic Interventions
Domains)

Overall N=72 Mean(SD)	Case Att.	Case not att.	<i>t</i> -test *	p-value
8.56+/-1.13	8.71+/-0.912	8.52+/-1.23	0.72	0.4769

*-compares those who attended vs. those who did not

Figure 1 Histogram: Number of Nurses with Each Total Score

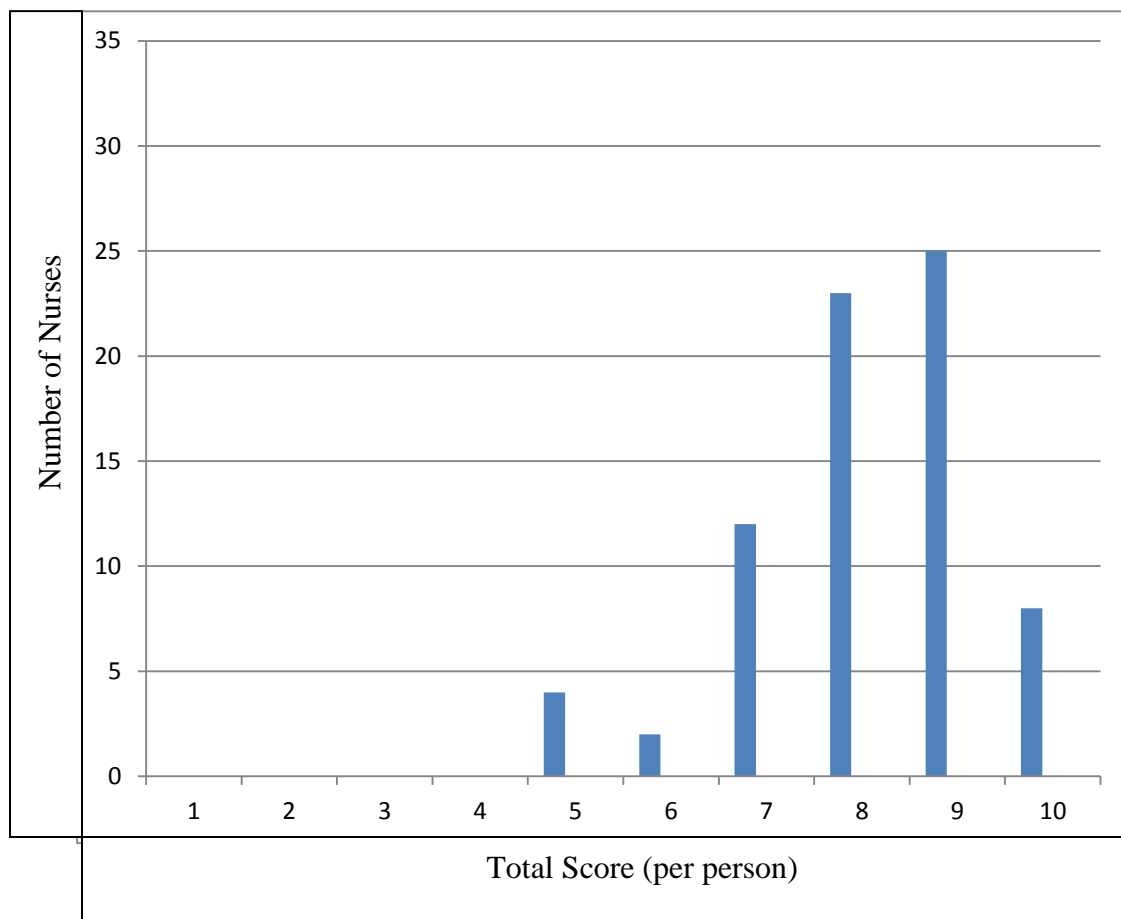


Figure 2

Histogram: Number of Nurses with Each Total Score by Attended or Not Attended a Case Review Session

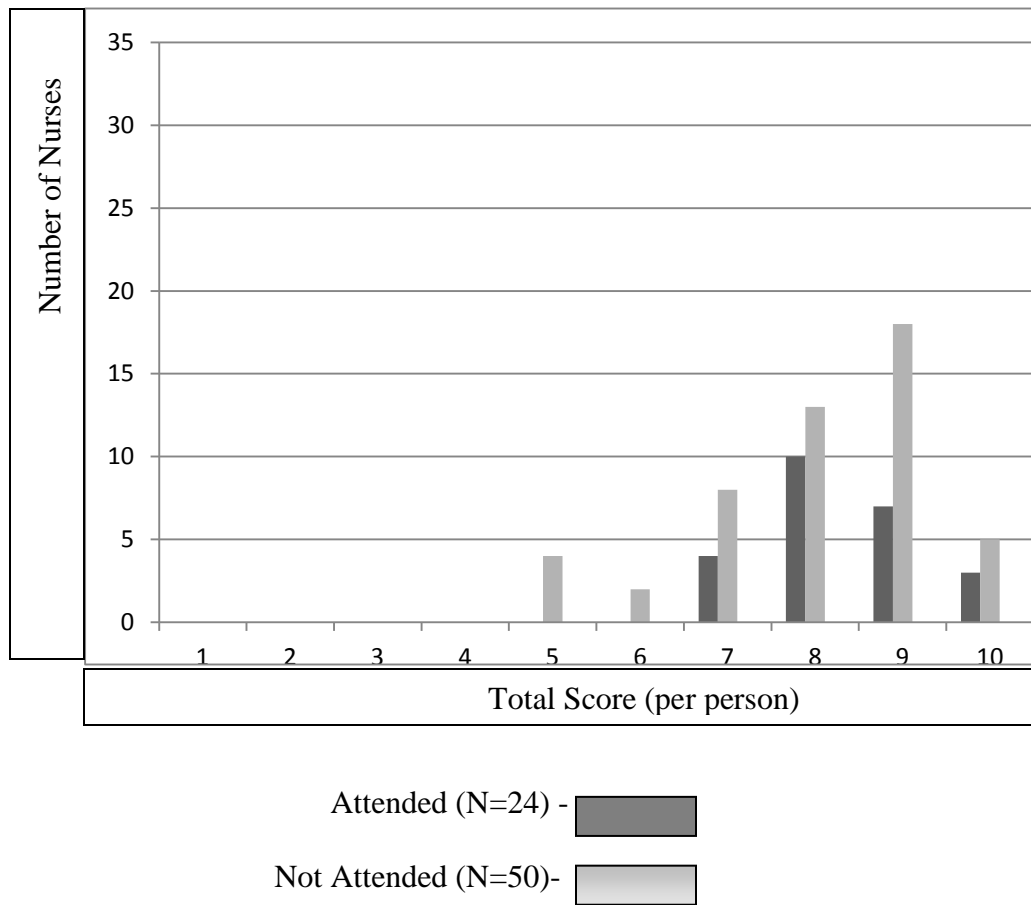


Table 3

Therapeutic Interventions Domain (T_)

Aspect	Overall N=74 Mean(SD) Median Range	Yes case att N=24 Mean(SD) Median Range	No case att N=50 Mean(SD) Median Range	t- test*	p- value
T_ Therapeutic Interventions Domain overall	8.65+/-1.11 8.86 5-10	8.76+/-0.884 8.43 7-10	8.60+/-1.21 8.86 5-10	0.66	0.5090
T_ Utilizing decision making skills to determine action.	8.38+/-1.48 9.00 4-10	8.58+/-1.28 8.50 6-10	8.28+/-1.57 9.00 4-10	0.88	0.3802
T_ Reporting findings to members of the healthcare team.	9.03+/-1.06 9.00 5-10	9.04+/-1.16 9.50 6-10	9.02+/-1.02 9.00 5-10	0.08	0.9381
T_ Clearly communicating pertinent information about the patient's status.	8.80+/-1.22 9.00 5-10	8.96+/-1.08 9.00 6-10	8.72+/-1.28 9.00 5-10	0.83	0.4076
T_ Seeking clarification from the physician or licensed independent provider for questions or concerns regarding the treatment plan.	8.76+/-1.21 9.00 5-10	8.71+/-1.04 8.50 6-10	8.78+/-1.30 9.00 5-10	-0.26	0.7996
T_ Evaluating the patient's response to interventions.	8.62+/-1.27 9.00 5-10	8.75+/-1.07 9.00 7-10	8.56+/-1.36 9.00 5-10	0.65	0.5169
T_ Updating the plan of care to reflect the patient's current clinical condition.	8.24+/-1.44 8.00 5-10	8.54+/-1.10 8.00 6-10	8.1+/-1.57 8.00 5-10	1.40	0.1671
T_ Extrapolate knowledge from the reflection process to apply in managing future patient situations.	8.42+/-1.40 9.00 3-10	8.75+/-0.99 9.00 7-10	8.25+/-1.54 8.50 3-10	1.67	0.1003

*compares those who attended vs. those who did not

Table 4

Managing Patient Situations Domain (M_u)

Aspect	Overall N=74 Mean(SD) Median Range	Yes case att N=24 Mean(SD) Median Range	No case att N=50 Mean(SD) Median Range	t- test*	p- value
M_Managing Patient Situations Domain overall	8.45+/-1.25 8.67 5-10	8.65+/-0.973 8.58 7.17-10.0	8.35+/-1.36 8.67 5-10	1.07	0.2889
M_ Recognizing signs and symptoms of deterioration in patient's clinical condition.	8.51+/-1.41 9.00 4-10	8.5+/-1.35 8.50 6-10	8.52+/-1.45 9.00 4-10	-0.06	0.95
M_ Taking action to manage patient's changing situation.	8.31+/-1.56 9.00 4-10	8.5+/-1.38 8.0 5-10	8.22+/-1.64 9.00 4-10	0.77	0.45
M_ Prioritizing actions based on assessment findings.	8.51+/-1.38 9.00 5-10	8.79+/-0.93 9.00 7-10	8.38+/-1.54 9.00 5-10	1.43	0.16
M_ Accessing resources to assist in managing patient situations.	8.41+/-1.46 9.00 4-10	8.71+/-1.00 9.00 7-10	8.26+/-1.63 9.00 4-10	1.46	0.15
M_ Understanding rationale for actions and orders.	8.62+/-1.24 9.00 5-10	8.71+/-1.08 8.5 7-10	8.58+/-1.31 9.00 5-10	0.44	0.66
M_ Reflecting on your process of managing rapidly changing patient situations.	8.31+/-1.43 8.50 4-10	8.67+/-1.01 9.00 7-10	8.14+/-1.58 8.00 4-10	1.74	0.09

*-compares those who attended vs. those who did not

Table 5

Prediction Model: Logistic Regression Model to Identify Independent Predictors of Excellent Self Perceived Competence

Independent Predictor	Crude Odds Ratio (95% Confidence Interval)	Adjusted Odds Ratio* (95% Confidence Interval)
Case attended: Have you attended a case review session facilitated by the Education Department?	0.76 (0.28-2.06)	0.73 (0.24-2.21)
Cross- Trained: Are you cross- trained in more than one specialty?	3.11 (1.18-8.21)	2.84 (1.01-7.95)
Adv. Life Support: Have you participated in advanced life support training such as ACLS, PALS, or Rapid Response Team member training?	11.37 (1.38-93.5)	9.47 (1.12-80.2)

* Adjusted for all factors listed in the table

CHAPTER 5

CONCLUSION

Discussion of Findings

The findings of this study indicate that nurses in the study sample perceive their competence in managing patient situations is in the “good range” as indicated by the most frequent scores being 8 -9, on the scale of 6-8 being “good”, and 9-10 being “excellent”, with the overall average score being 8.56+/- 1.13. The overall score for nurses’ self-perceived competence is on the higher end of the scale, indicating nurses in the study feel competent in managing patient situations in acute care. The findings provide insight into the level of nurses’ self-perceived competence in specific aspects of managing patient situations.

The highest scored aspect was in the area of communication. Reporting findings to the healthcare provider, clearly communicating pertinent information about the patient’s status, and seeking clarification from the physician or licensed healthcare provider for questions or concerns regarding the treatment plan were the aspects of managing patient situations with the highest overall average scores. Being able to communicate clearly and concisely is an essential component of managing patient situations and preventing failure to rescue (Manojlovich & Talsma, 2007). To accurately and effectively convey patient assessment data, communicate a sense of urgency and summon help when needed, nurses need to be competent in such communication skills. The Joint Commission (2002) has endorsed the use of a consistent approach among the healthcare team in hospitals for communication about

patient information. The study hospital implemented the SBAR methodology for hand-off communication. The emphasis on hand-off communication by the study hospital and use of SBAR is reflected in the highest score being in the aspect of “reporting findings to members of the healthcare team”.

Critical thinking skills are in the cognitive domain of nursing competence (Del Bueno, 1993). Definitions of critical thinking include the use of recognition, prioritization and decision making. Items related to managing patient situations that are concerned with critical thinking were scored lower than those items involving communication, but higher than items involving actions after the situation, such as updating the plan of care, reflection on the process of managing the situation, and extrapolating knowledge from the situation to use in future situations of managing patient situations. These cognitive domain items included recognizing signs and symptoms of deterioration in patient’s clinical condition (8.51+/-1.41), prioritizing actions based on assessment findings (8.51+/-1.38), understanding rationale for actions and orders (8.62+/-1.24). Although the overall scores for these competencies were lower than those related to communication, they are in the “good” range on the study scale. This indicates nurses in the study perceive themselves to have good critical thinking skills in managing patient situations. A goal of education would be to offer programs to foster recognition of signs and symptoms, prioritization and decision making.

Scores related to taking action, including accessing resources to assist in managing patient situations, were scored lower than those related to communication or critical thinking. One of the actions in managing patient situations is calling for help,

such as activating the Rapid Response Team. An important component in rescuing patients is for nurses to feel confident and supported in calling for assistance. The findings of the study indicate that there is an opportunity for improvement for nurses to increase their self-perceived competence in accessing resources to assist in managing deteriorating patient situations. Further exploration would be to delineate if an increase in self-perceived competence in recognition of signs and symptoms regarding patient deterioration would improve the score from the “good” range to the “excellent” range, or if support for calling for assistance is a factor (Cioffi, 2000; Clarke & Aiken, 2003; Ebright, Urden, Patterson & Chalko, 2004; Purling & King, 2012).

The overall score on the aspect of taking action to manage patients’ changing situation indicates nurses’ self-perceived competence in the “good” range, although not as highly scored as that of communication and critical thinking items. Clarke and Aiken (2003) describe taking action as one of the key components of rescuing patients. Early recognition of signs of deterioration and activating assistance needs to be timely in order to treat conditions that may lead to further patient deterioration. To assist nurses in recognizing early signs of patient deterioration, several hospitals have implemented track and trigger strategies, or early warning systems, in their medical record to alert the nurse of downward changes in patient vital signs and other parameters of assessment (Andrews & Waterman, 2006; Bobay, Fiorelli & Anderson, 2008; Duncan, McMullan & Mills, 2012; Jacques, Harrison, McLaws & Kilborn, 2006). While early warning systems are useful tools for alerting to deterioration,

nursing assessment remains vital in recognizing the subtleties of patient changes (Andrews & Waterman, 2006).

Reassessment of the patient's response to treatments is a key element in Benner's Therapeutic Interventions domain (Benner, 1984). Monitoring for therapeutic responses as well as untoward effects can have "life and death implications" (Benner, 1984, p. 127). Evaluating the patient's response to treatment was scored higher than the aspect of taking action. Nurses' self-perceived competence in evaluating response to treatment as "good" is important to ensuring patients continued monitoring for deterioration, or for signs of improvement. Reassessment and evaluating responses to treatments has been an area of focus at the study hospital, specifically in pain management. Education and an alert in the clinical computer system to remind nurses to reassess patients following pain medication administration has been an initiative that has impacted all nursing staff. Reassessment has been an important focus and the findings of the study indicate nurses have self-perceived competence in this aspect. It is also an area to include as part of ongoing education in managing patient situations to ensure nurses continue to reassess patients for responses to interventions.

The study findings indicate nurses have lower self-perceived competence in updating the plan of care to reflect the patient's current condition than in any of the other aspects of managing patient situations. An updated plan of care is essential to document the patient's condition, carrying out interventions and responding to those interventions. Documentation reflects the clinical course of the patient and the work done by nursing. With the transition from paper charting to computer documentation,

there has been a learning curve in assimilation of the technology into clinical practice. Studies have demonstrated nurses' perceptions of the use of computers as complex and time consuming (Carrington & Effken, 2011; Kelley, Brandon & Docherty, 2011; Stevenson & Nilsson, 2011). Benefits of computerized clinical documentation include improved legibility and fewer documentation errors, and retrievability of information (Carrington & Effken, 2011). Including nurses in the development of screens to ensure they accurately reflect care, and continued monitoring of user efficiency to identify barriers, will work toward nurses' improved perception of their competence in updating the plan of care. The implications for patient safety are essential to stress when teaching documentation skills. The importance of monitoring trends in patient vital signs and other assessment parameters is crucial to identifying patient deterioration, and how to navigate the computer to view those trends, is a critical element in educating staff about patient deterioration and managing patient situations (Bobay, Fiorelli & Anderson, 2008).

The nurse participants perceived ability to "reflect on the process of managing patient situations", and "extrapolating knowledge from the reflection process for use in future situations", both scored in the "good" range. A fundamental tenet of Benner's Novice to Expert Model is that expertise in nursing practice is developed through experience in clinical situations. The process of reflection allows the nurse to review the situation, identify gaps in knowledge or approach, and develop new insights for future situations (Asselin & Cullen, 2011). Reflection can "improve critical thinking, change an approach to patient care, promote self-awareness and improve communication skills" (Asselin & Cullen, 2011). Asselin and Cullen (2011) note that

reflection is a deliberative process, and it is helpful to have a facilitator for the process of reflection, such as an educator. Although scored in the “good” range, the skill of reflecting on the process of managing patient situations was the second lowest scored item on the study scale. Utilizing the process of reflection as an educational strategy is an area that is ripe for opportunity in the area of managing patient situations. As nurses encounter situations of patient deterioration they are required to manage, self-perceived competence can be enhanced by having reflection as a goal in the review of nursing practice.

Scores for nurses’ self-perceptions of managing patient situations were higher for those who had attended a case review session than for those who did not attend in all aspects except “seeking clarification from the physician or licensed independent provider for questions or concerns regarding the treatment plan”. This finding may be caused by the significant focus on communication and the use of SBAR at the study hospital. Team training has also been implemented at the study hospital which included teaching about seeking clarification when needed. Scoring on the item “recognizing signs and symptoms of deterioration in the patient’s clinical condition” was also slightly lower score for those attending the case review session than for those who did not attend. A goal of the case review session is to improve recognition of signs and symptoms, so this is an area that would require more focus in future case reviews.

With the aim of this study being to explore the nature and extent of the relationship of several potential variables to nurses’ self-perceived competence in managing potentially life-threatening patient situations, only one variable was found to

be predictive of the outcome. Using a logistic regression model, being cross-trained to more than one specialty was found to be the only statistically significant predictor of nurses' self-perceived competence in managing patient situations. While the literature search did not reveal studies specific to cross-training and nursing competence, Haag-Heitman (2008) conducted an exploratory descriptive study to examine expert nurses' perceptions of factors which influenced the attainment of expert performance. Findings included practicing in more than one specialty area, or cross-training, as one of the factors that influenced the development of expert practice.

With the acquisition of experience as an essential component in the development of expertise, having experience in more than one specialty would assist in the growth of the experiential base. Benner (1984) points out however, that in order for a novice nurse to become familiar with nuances and subtleties of recognizing patient changes, it is important for the novice nurse to become familiar with one area of clinical practice. This is an important consideration for orienting novice nurses to clinical practice. In order to allow for the novice nurse to become accustomed to the process of recognizing changes in patients' condition, limiting orientation to one unit would be beneficial. It would also be beneficial to include in orientation the opportunity to rotate to other areas so the nurse is exposed to a variety of clinical conditions while still having a home unit to bring back experiences and reflect upon for continued development. In a review of the research on expert performance in nursing, Ericsson, Whyte and Ward (2007) found that the deliberative process of seeking out opportunities for growth is important for the development of expertise. "To improve their performance, future experts need to seek out particular kinds of

experiences-activities designed, typically by a teacher, for the sole purpose of effectively improving specific aspects of an individual's performance by offering opportunities to reach performance goals with repetitions, immediate feedback, and time for reflection and problem solving" (Ericsson, Whyte & Ward, 2007, p. E61). As the nurse continues along the novice to expert continuum, reaching out to become specialized in more than one area would continue to expand the experiential base of the nurse who has progressed beyond the novice stage.

Although attendance at a case review session was not statistically significant as a predictor of nurses' self-perceived competence in managing patient situations, the use of case review sessions as an educational strategy, and the findings of this study, provide meaningful information. Munro (2005) describes the importance of determining through knowledge and critical thinking if findings have meaningful, as well as, statistical significance (p. 99). Most of the aspects of managing patient situations had higher scores for those attending a case review than those who did not. While attending the case review sessions cannot be viewed as the cause of the higher score, it may have had some impact that is contributory, although not high enough to result in statistical significance.

The case review sessions provide an opportunity for new knowledge, sharing experiences, and reflection. They are a forum for support which is necessary for nurses to feel confident in taking action (Ebright, Urden, Patterson & Chalko, 2004; Purling & King, 2012). Domains of nursing competence that may be benefited are the cognitive, or critical thinking, and affective, or attitudinal. Jacobson, Belcher, Sarr, Riutta, Ferrier and Botten (2010) found an increase in nurses' confidence and skill in managing critical patient situations following participation in case review session using actual patient cases as

an educational strategy to enhance nursing competence and critical thinking. Davidson (2009) described the use of case vignettes during orientation or as part of a cross- training program. Cooper, Kinsman, Buykx, McConnell-Henry, Endacott and Scholes (2010) conducted a quantitative study to examine knowledge, skill and situation awareness of final year nursing students responding to patient deterioration. The study was conducted in a simulation lab. Findings were that the students had a satisfactory knowledge base, but skill performance declined as the simulated patient's condition deteriorated (Cooper et al., 2010). Further research is needed to examine the impact of case review sessions on components of nurse competence.

The case study review sessions were attended more by nurses who work in the inpatient units than those who work in critical or urgent care areas. Nurses who are new to practice generally work in the inpatient units to gain experience before transitioning to a critical or urgent care area. The findings also indicate that 67.3% of the nurses who attended the case review sessions had six or greater years of experience. This demonstrates the case studies are of interest to experienced nurses as well as newer nurses. Nursing is a dynamic field with development of new knowledge which requires ongoing learning for new and experienced nurses. Offering continuing education opportunities to nurses at all stages of Benner's Novice to Expert model facilitates ongoing learning, professional development, and competence. The case review sessions represent an educational opportunity applicable to all nurses. The higher attendance by the inpatient nurses may indicate the cases being viewed as more pertinent to the inpatient staff, as well as more needed by staff with less clinical experience.

Summary

Study findings indicate nurses have the highest self-perceived competence in the aspect of communication when managing patient situations that may be of a life-threatening nature. The aspects of critical thinking were the next highest, followed by reflection, and updating the plan of care. In most cases, scores were higher in those who attended a case review session than for those who did not attend. Variables were tested for statistical significance for prediction of self-perceived competence in managing patient situations using a logistic regression model. The aspect of specialty practice, specifically being cross-trained to more than one specialty, was the only predictor of nurses' self-perceived competence in managing patient situations in acute care. Although not statistically significant, attendance at the case review is meaningful as an opportunity for knowledge enhancement, critical thinking development, reflection and collegial support.

Implications for Nursing

Competence in nursing is essential to providing safe, quality patient care. Nurses are at the forefront of recognizing and responding to changes in patient condition which may be life-threatening, and often subtle. Educational strategies that facilitate the development of nurses' knowledge, skill and competence in managing patient situations are important to identify and measure. As adult learners, having educational programs that are intentional and focused on meeting the learner's needs is beneficial to the learning process (Swihart, 2007). Nurses' perceptions of their competence in managing patient situations is an important consideration for determination of educational programs that are meaningful to staff. Within shared governance framework, such as is in place at the study hospital, the input of nurses is

instrumental in identifying issues related to patient care and strategies to provide the highest quality of safe care to patients.

This study has provided information that has implications for nursing education and practice. Participants had a range of experience across Benner's Novice to Expert spectrum, indicating that nurses at all stages of practice are interested in nursing competence. Consideration of programs to meet the learning needs of the new nurse, as well as the experienced nurse, is necessary when developing programs related to nurse competence. Based on the higher scores for attendance at a case review session in eleven out of the thirteen aspects of managing patient situations, and encouraging findings of the limited studies in the literature, case review sessions using actual case scenarios is a beneficial educational strategy. While case review sessions were not shown to be predictive of increasing nurses' perceptions of their competence in managing patient situations, the findings indicate they are useful for reviewing specific aspects of care involved in managing the patient during a potentially life-threatening situation.

The specific aspects of managing patient situations demonstrates that nurses feel competent in the area of communication during these events. This provides important follow-up information related to the focus on hand-off communication at the study hospital. The study delineates areas that can be focused on in the case review sessions, or in other educational forums such as nursing grand rounds. An educational goal would be to improve scores in the "good" range of the study scale to the "excellent" range. Areas to focus on from the study findings include critical thinking skills, such as prioritization and decision making, taking action, updating the plan of

care, extrapolating knowledge from the case review session for application in practice, and reflection. The case study sessions would be structured to focus on improvement in these areas, with a follow-up study in one year. A goal of the repeat study would be to determine if a structured process in the case review sessions moved the nurses' perceptions of their competence into the "excellent" range. Additionally, correlation with actual performance, such as patient outcomes measures, would be included in the follow-up study.

With the knowledge to be gained from reflection, and the benefits of reflection as a deliberative process, opportunities for this to occur need to be identified. The case review sessions provide an opportunity reflection. An explanation about the process of reflection, and the knowledge to be gained for use in future situations, would be beneficial as an integral part of the case review sessions. Another opportunity would be to consider the debriefings that occur after a Rapid Response Team call as a process of reflection. Providing education about the reflection process, and consideration of changing the name from "debriefing" to "reflection" may further enhance the benefits to be gained from the review process following these events.

The finding of cross- training to more than one specialty as a predictor of nurses' perceptions of competence in managing patient situations has implications for structuring nursing orientation and ongoing education. In accordance with Benner's model, an experiential base is integral to the development of nursing expertise. Having experience in more than one specialty increases the likelihood of an expanded knowledge base from which to draw for making clinical decisions. The implications from this study for nursing education are that the development of expertise requires

recognition of variations in patients' clinical condition, including subtle changes that may occur. As Benner (1984) describes, refinement of this knowledge is benefitted by working in one specialty area (p.180). Nurses identified as experts who were interviewed in Haag-Heitman's (2008) study indicated cross-training, or working in more than one clinical specialty, was instrumental in the development of expertise. They also emphasized that the development of expertise is a deliberative process that requires focus and planning.

The findings of this study are important to the development of orientation programs, as well as ongoing education. In designing an orientation schedule for nurses, it is important to ascertain the stage the nurse is at on the Novice to Expert continuum. For the Novice nurse, orientation on a specific unit with a preceptor would allow for becoming familiar with the patient population, clinical conditions seen on the particular unit, and variations that indicate patient deterioration. Having a structured orientation with a preceptor on a specific unit affords the nurse the opportunity to set goals and track progress toward becoming an autonomous, competent nurse. Including rotation to a unit other than the home unit would be a beneficial addition to the orientation process in order to begin to expand knowledge of another specialty within a structured framework. This is especially beneficial if the nurse is working on a very specialized unit, such as an orthopedic unit. Working within a structured orientation format would afford the assessment of readiness by the orienting nurse, in collaboration with the preceptor or educator, for rotating to another unit for educational purposes. While the nurse may gain familiarity with the one specialty, such as the orthopedic population, and with variations that indicate

problems, experience with patients with other conditions will expand the nurse's experiential base of knowledge and skill. This would be helpful to the nurse if assigned to float to another unit, or if patients in the specialized area, such as orthopedics, develop conditions not normally seen on that unit but had been encountered on the unit the novice nurse rotated to. In addition to the enhancement in knowledge and skill, the nurses' competence and professional development are supported.

For nurses who are beyond the Novice stage, offering the opportunity to cross-train to other areas is an incentive for professional growth. As noted by Snyder and Nethersole-Chong (1999), and Dunbar (2000), offering this on a voluntary basis allows the nurse to determine if working in more than one specialty is an avenue to professional growth. It would be important to share research findings, such as those from this study, to demonstrate the impact of expanding out to more than one specialty has on nurse competence. Consideration for inclusion in initiatives such as a Clinical Ladder would provide recognition for cross-training as a professional goal. As described by Dunbar (2000), and highlighted in adult learning principles (Swihart, 2007), the benefits of cross-training to more than one specialty would be greater if the nurse is motivated and ready for the experience.

Nursing specialty certification is a professional goal for many nurses. It is also recognized as an indicator of excellence and commitment to professional practice by professional organizations such as the American Nurses Credentialing Center, the Pathway to Excellence and Magnet Programs. While the findings of this study do not demonstrate specialty certification to be predictive of nurses' self-perceived

competence in managing patient situations, other studies have demonstrated increased knowledge, clinical skills and confidence (Haskins, Hnatiuk & Yoder, 2011; Haag-Heitman, 2008). The pursuit of specialty certification should be encouraged. The impact of nursing specialty certification on nurse competence and patient outcomes is an area that needs further study.

Implications from this study for nursing practice are on the recognition and management of patient deterioration which may be life-threatening. The information from this study provides insight into where nurses perceive their strengths and areas for growth in managing patient situations. Educational programs can be tailored to improve areas that have been identified by nurses as “good” to “excellent”. Management of patient situations, including recognition of signs and symptoms of patient deterioration, prioritizing, taking action, evaluating the patient’s responses and ensuring communication among the healthcare team about the patient’s condition are vital aspects of preventing failure to rescue. Education focused on the failure to rescue initiative, awareness of early warning signs, and the vital role of nurses in vigilance, surveillance and taking action should be included. Nurses’ perceptions of their competence in aspects of managing patient situations are important in determining tools to offer the nursing staff in the achievement of excellence. Correlation of nurses’ perceptions of their competence with measures of performance would identify gaps in knowledge, or in the ability to apply knowledge to practice. Following quality measures, such as those associated with Rapid Response events, would provide patient outcomes measurement which could be correlated with nurses perceptions of their competence, and educational strategies to foster nurse competence.

Study Limitations

A limitation of this study is that it was conducted with a small sample size in one community hospital setting. Due to this limitation, the study may not be generalizable to the larger population of nurses practicing in other acute care hospitals. It does, however, provide information that may be useful in developing educational programs to improve nurse competence in management of patient situations. The design and scale of the study provides a framework for researching nurse competence in managing patient situations which may be life-threatening, as well as nursing's role in preventing failure to rescue.

Future Directions for Advancing Nursing Knowledge

Competence in nursing practice is vital to safe patient care. Further research is needed to identify educational strategies that will facilitate the development of nursing competence. Educators are in need of an evidence base of research findings on which to base programs to meet the competency needs of nursing staff. An evidence base of research provides justification for the implementation of content and methods to meet the educational needs of nurses.

Nurses' perceptions of their competence are essential to consider when examining nursing competency. Self-assessment of where the nurse perceives his or her competence is meaningful for identification of areas of growth to ensure delivery of excellence in patient care. Further research which correlates nurses' perceptions of their competence with specific educational strategies and patient outcomes would expand the knowledge and theoretical base in nursing education and practice.

Further development of tools is needed to measure nurse competence, identify predictors of nurse competence and its impact on patient outcomes. Tools specific to nursing's role in managing patient deterioration are also needed. The study scale was inspired from a combination of Benner's Novice to Expert Model, the literature on nurse competence, critical thinking and failure to rescue. Input for questions was sought from a Clinical Nurse Specialist, and face validity established with content experts. Further use of the scale would lend support to its validity. As stated by Polit and Beck (2008), "The more evidence that can be gathered that an instrument is measuring what it is supposed to be measuring, the more confidence researchers will have in its validity" (p. 464).

Concluding Remarks

This study contributes to the knowledge base in nursing by providing data on the nature and extent to which variables influence nurses' perceptions of their competence in managing patient situations in acute care. Benner's Novice to Expert Model provided the theoretical framework for the study and highlighted the importance of experience as a foundation to expertise in nursing practice. Strategies to foster nursing competence were examined for influence and prediction of nurses' perceptions of their competence in managing situations of patient deterioration. Participants who attended a case study review session scored themselves higher in self-perceived competency than those who did not attend. Cross-training to more than one specialty area was found to be predictive on nurses' perceptions of competence in managing patient situations. The information that emerged from the study can be used to structure nursing education programs focused on areas that nurses

perceive their competency to be lower in than others. Replication of the study following implementation of programs based on study findings will add further to the knowledge base in nursing competency.

The study findings contribute to the knowledge base of caring for patients who are experiencing potentially life-threatening events. With nurses at the forefront of care, they are in a vital role for recognizing and managing these situations. Research into the components of this process, and how to best educate nurses in this area, is critical for nursing education and practice.

Topics and initiatives addressed in nursing staff development are driven by patients needs and ultimately measured by patient outcomes. The patient is at the center of all nursing practice, whether it is direct patient care or indirect, such as teaching nurses about patient safety and strategies for optimizing patient outcomes. Competence in nursing practice is essential to meet the goals of quality, safety and satisfaction for the patient. Nursing's knowledge base regarding the role of education about the care of patients who are experiencing deterioration has been expanded through the findings of this study.

APPENDICES

Appendix A

The University of Rhode Island
Department of Nursing
White Hall
Kingston, RI 02881

Nurses Perceptions of Their Competence in Managing Patient Situations in Acute Care Study

Dear Participant,

You are invited to participate in a survey examining nurses' perceptions of their competence in managing patient situations, and factors that impact these perceptions. This survey is part of a nursing research study being conducted by Donna Donilon, MS, RN, as part of a doctoral dissertation in the College of Nursing at the University of Rhode Island. The factors being studied include years of experience practicing nursing, years of practice on your current clinical unit, and educational preparation as a registered nurse. Attendance at a case review session that was facilitated by the Education Department, and if you participated in the care of the patient being discussed in the review session, are also part of the survey. Aspects of managing patient situations are included as part of the survey.

The results of this survey will provide information for developing educational programs related to nursing competence and critical thinking. The study will provide program evaluation information about the use of case review sessions as an education tool.

The risk of participation in the study is minimal and is associated with the inconvenience of completing the survey itself. Benefits include the opportunity to reflect on your practice. Research has demonstrated reflection to be beneficial in nursing practice. Your responses will provide important information for nursing education program development. Your participation will also be beneficial as an evaluation of the current use of case reviews in education.

Participation in this study is not expected to be harmful or injurious to you. However, if this study causes you any injury, you should write or call Donna Donilon at 788-1714 and Marlene Dufault at the University of Rhode Island at 401-874-5307.

If you have other concerns about this study or if you have questions about your rights as a research participant you may contact the University of Rhode Island's Vice President for Research, 70 Lower College Road, Suite 2, URI, Kingston, RI, (401) 874-4328.

Participation in this survey is voluntary. You do not have to participate. If you do decide to participate, your access to and responses in the survey will remain anonymous and confidential.

This information is provided so you may make your decision about participation. There is no form to sign for consent to participate in this study. If you decide to participate, your access to and completion of the survey will serve as your consent. Again, your access to the survey and responses are anonymous and confidential.

If you have any questions, you may contact Donna Donilon, MS, RN at 788-1714, or ddonilon@cox.net, or Marlene Dufault, PhD, RN at mdufault@mail.uri.edu, the people mainly responsible for this study.

Thank you,
Donna M. Donilon, MS, RN

Appendix B

Nursing Research Study

- ✚ A study is being conducted by Donna Donilon, MS, RN examining nurses perceptions of their competency in managing patient situations in acute care. This study is part of a doctoral dissertation at the University of Rhode Island, College of Nursing.
- ✚ Registered Nurses who provide direct care in the following areas are eligible to participate:
 - All Inpatient areas
 - Procedural Areas (Operating Room, Endoscopy, Interventional Radiology, Cardiac Catheterization Lab)
 - Critical Critical/Urgent Care areas (Emergency Department, Intensive Care, Post-Anesthesia Care Unit).
- ✚ If you are interested in participating, you will be asked to complete a one- time survey that will take approximately 10 minutes. The survey is available on the hospital Intranet home page in the box titled “Nursing Research study- Survey”. Your participation in the survey is anonymous, confidential and voluntary.
- ✚ If you are interested, please read the Information sheet on the survey site on the Intranet. You will not need to sign any form to participate. Reading the information sheet and participating in the survey conveys your consent.
- ✚ This survey will provide information that will be important in evaluating current educational programs, and developing future programs related to competency in nursing practice.
- ✚ If you have any questions, please contact Donna Donilon @ ddonilon@cox.net, or Marlene Dufault, PhD, RN at mdufault@mail.uri.edu

Thank you for your consideration of participating in this nursing research study.

Appendix C

Nurses Perceptions of Their Competence in Managing Patient Situations in Acute Care Study Survey

1. Please indicate the number of years you have been practicing nursing.
 - a. 0 to 1 year
 - b. 2-3 years
 - c. 4-5 years
 - d. 6-10 years
 - e. Over 10 years
2. How long have you worked in your current specialty?
 - a. 0 to 1 year
 - b. 2-3 years
 - c. 4-5 years
 - d. 6-10 years
 - e. Over 10 years
3. What is your educational preparation as a Registered Nurse?
 - a. Diploma
 - b. Associate degree
 - c. Baccalaureate
 - d. Master's or higher
4. Do you have national certification?
 - a. Yes b. No
5. Have you attended a patient case review session facilitated by the Education Department?
 - a. Yes b. No

6. Did you participate in the care of the patient presented at the case review?
 - a. Yes
 - b. No
 - c. Have not attended

7. If you attended a case review session, do you feel it benefited your practice?
 - a. Yes
 - b. No
 - c. Have not attended

8. What is your area of practice?
 - a. Inpatient : Medical Surgical, Telemetry, Orthopedics or OB
 - b. ED, ICU, PACU
 - c. Procedural areas: Cardiac Catheterization Lab, Interventional, Endoscopy, Operating Room

9. Are you cross trained in more than one specialty?

10. Have you participated in advanced life support training such as ACLS, PALS, or Rapid Response Team member training?
 - a. Yes
 - b. No

11. The following have been identified through nursing research as aspects of managing patient situations. With 0 being the lowest, and 10 being the highest, please indicate your perception of your competence in each aspect by giving yourself a number (score) between 0 and 10.

 Scale: 0 -2(weak); 3-5 (moderate); 6-8 (good); 9-10 (excellent)

Aspect	Score
1. Recognizing signs and symptoms of deterioration in patient's clinical condition.	
2. Utilizing decision making skills to determine action.	
3. Taking action to manage patient's changing situation.	
4. Prioritizing actions based on assessment findings.	
5. Accessing resources to assist in managing patient situations.	
6. Reporting findings to members of the healthcare team.	
7. Clearly communicating pertinent information about the patient's status.	
8. Understanding rationale for actions and orders.	
9. Seeking clarification from the physician or licensed independent provider	

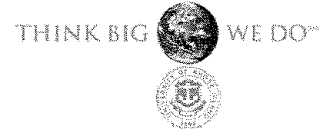
for questions or concerns regarding the treatment plan.	
10. Evaluating the patient's response to interventions.	
11. Updating the plan of care to reflect the patient's current clinical condition.	
12. Reflecting on your process of managing rapidly changing patient situations.	
13. Extrapolate knowledge from the reflection process to apply in managing future patient situations?	

This completes the survey. Your participation is appreciated and will be helpful in evaluating current educational initiatives and developing future programs. Thank you.

Appendix D

THE
UNIVERSITY
OF RHODE ISLAND
DIVISION OF RESEARCH
AND ECONOMIC
DEVELOPMENT

OFFICE OF RESEARCH COMPLIANCE
70 Lower College Road, Suite 2, Kingston, RI 02881 USA
p: 401.874.4328 f: 401.874.4814 uri.edu/research/tro/compliance



DATE: May 14, 2012

TO: Marlene Dufault, PhD
FROM: University of Rhode Island IRB

STUDY TITLE: [334876-2] Nurses Perceptions of Their Competence in Managing Patient Situations in Acute Care

IRB REFERENCE #: HU1112-126
SUBMISSION TYPE: Revision

ACTION: DETERMINATION OF EXEMPT STATUS
DECISION DATE: May 14, 2012

REVIEW CATEGORY: Exemption category # [enter category]

Thank you for your submission of Revision materials for this research study. University of Rhode Island IRB has determined this project falls into the EXEMPT REVIEW category according to federal regulations. Per university policy, the project has been given an administrative review by either the IRB Chair or the Director of Compliance.

Prior to commencing with your research, please correct spelling error on the Informed Consent Form: If you have other "cocerns" about this study..... should be "concerns".

Approval is valid for the duration of the project.

No changes to procedures involving human subjects may be made without prior review and approval. You must promptly notify the Office of Research Compliance of any problems that occur during the course of your work.

If you have any questions, please contact us by email at compliance@ds.uri.edu. Please include your study title and reference number in all correspondence with this office.

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