Content Analysis Of Applied Learning From High Fidelity Patient Simulation Orientation to Critical Care

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CONTENT ANALYSIS OF APPLIED LEARNING FROM HIGH FIDELITY PATIENT SIMULATION ORIENTATION TO CRITICAL CARE

by

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A dissertation submitted to the Graduate Faculty in Nursing in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York

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Abstract

CONTENT ANALYSIS OF APPLIED LEARNING FROM HIGH FIDELITY PATIENT SIMULATION ORIENTATION TO CRITICAL CARE

by

PATRICIA M. SPAN

Advisor: Professor Keville Frederickson

The Institute of Medicine (IOM) reported that over 98,000 deaths occur in hospitals from medical errors in the United States. In a follow-up IOM report, it was noted that nurses have a direct impact on patient morbidity and mortality and are often the last line of defense for patient safety. The challenge for nurse educators in hospitals is to ensure that as newly licensed nurses enter the workforce, orientation outcomes reflect acquisition of knowledge and skills, which are applied in practice. When newly licensed registered nurses are hired into critical care units, this puts them in a position where they have to learn basic competencies as well as the specialized practice of critical care. One teaching strategy adopted in acute care hospitals is use of high fidelity patient simulation as a way to address the competency gap of these nurses and improve patient safety and outcomes. However, little is known about the practice application of the skills and knowledge used by nurses who complete such orientation. This qualitative exploratory study analyzed newly licensed nurses’ description of knowledge and skills used in critical care practice following critical care orientation using high fidelity patient simulation. Data collection consisted
of individual, semi-structured, guided interviews based on the Nursing Education Simulation Framework. A sample of 8 registered nurses participated in the interview and completion of a demographic questionnaire. Content analysis was performed using Krippendorf technique. The 8 themes that emerged are consistent with previous research studies that point to the steep learning curve faced by newly licensed nurses in critical care. Implications for nursing practice include expanding high fidelity simulation to specialty practice, developing interdisciplinary orientation and to proactively address the continued experience of culture shock.
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CHAPTER I – INTRODUCTION: AIM OF THE STUDY

“No planes perished because of the influx of new air-traffic controllers in the field. We must plan so that no patient perishes because of the influx of new nurse graduates.”

(Anonymous)

Hospital nursing education departments conduct resource driven orientation programs for newly hired registered nurses (RNs) who will be working in critical care units (Morris et al., 2007, Nagle et al., 2009). These orientation programs utilize costly approaches, including high fidelity simulation (HFPS) in an effort to improve the chances for better performance in a complex and critical care environment. However, little is known about the practice application of the knowledge and skills used by RNs who have completed such orientation. The purpose of this study is to analyze advanced beginner nurses’ description of the knowledge and skills used in critical care nursing practice following critical care orientation using HFPS.

In November of 2000, the Institute of Medicine (IOM) released a report called To Err is Human: Building a Safer Health System. This report indicated that over 98,000 deaths occur in hospitals from medical errors in the United States (2000). In a follow-up report from IOM (2003), researchers found that nurses have a direct impact on patient morbidity and mortality and are often the last line of defense for patient safety. In addition, nurses, doctors and other health professionals lack the necessary training and education to deliver patient centered care, with a focus on safety and quality improvement (IOM, 2003). The challenge for hospital nurse educators is to ensure that as new graduates enter the workforce, orientation outcomes reflect acquisition of knowledge and skills, which are applied in practice. When newly licensed nurses are hired into critical care units, this puts them in a position where they have to learn basic competencies as well as learning the specialized practice of critical care practice (Day, 2007).
One teaching strategy recently adopted in acute care hospitals is the use of high fidelity patient simulation as ways to address competency gaps of new RN graduates and improve patient safety and outcomes.

Critical care orientation is provided to all nurses hired to work in critical care units. In the past, nursing hiring practices reserved critical care positions for expert nurses (Proulx & Bourcier, 2008). However, a nursing workforce trend in some areas of the United States has been to place new graduates from baccalaureate programs directly into critical care areas such as intensive and coronary care units, burn units, emergency units and pediatric intensive care (Eigsti, 2009, Friedman, Cooper, Click, & Fitzpatrick, 2011, Halcomb, Salamonson, & Knox, 2012, Park & Jones, 2010). This is a concern because new graduates in critical care are advanced beginners who Benner (1984) found can only demonstrate marginally acceptable performance, and, who have coped with enough real situations to notice recurring and meaningful situational components, or have them pointed out to them by a more experienced nurse. Principles, based on experiences, begin to be formulated to influence actions of the nurse. Furthermore, Benner (1984) suggests that advanced beginners require focused support and guidance in order to gain skills in their practice. To address these concerns for advanced beginners, hospitals have developed specialized critical care orientation programs that provide learning opportunities with guidelines for recognizing aspects of a patient’s condition and a period to develop knowledge and skills specifically focused on the unique specialty of critical care nursing practice. These observations illustrate the importance of Benners’ (1984) recommendation that experience is needed before the nurse can apply guidelines to individual clinical situations. Training and support form the foundation for the development of knowledge and skills that will be required in
critical care practice. Furthermore, skill acquisition is gained over time through experiences with many patients with varied conditions and at different stages in the illness trajectory (Benner, Tanner & Chesla, 1996).

**Movement from Student Nurse to Advanced Beginner**

As more hospitals rely on new graduates to fill vacancies, concerns over new graduates’ practice readiness have emerged. For example, one report indicated that only 10% of hospital and health system executives believed their new graduates were fully-prepared to provide safe and effective care (Nursing Executive Center, 2008). A central theme was that newly licensed nurses tend not to be fully prepared for the intensity of the hospital situation, let alone the complexities of critical care settings. (Halfer & Graf, 2006). While orientation tends to focus on a variety of clinical skills, the advanced beginner nurse through practical experience in concrete situations begins to intuitively recognize meaningful elements in practice situations. These distinctions are the beginning stages of recognizing situational elements in practice. For example, orientation introduces the guidelines and a policy for managing aspects of a patient situation, however each situation is different and it is only until the nurse experiences different meaningful situations with new elements that skill development occurs. Oversight of the practice of new nurses as advanced beginners requires understanding of the clinical practice from their perspective, which includes the notion that learning occurs from experiences with many situations. An essential aspect of advanced beginner practice is the “experience of coping with enough actual situations to be able to identify recurring meaningful situational components with enough background experience to recognize aspects of situations“. (Benner, Tanner & Chesla, 1996, p. 291).

While all nurses participate in orientation, advanced beginner nurses in critical care
settings have special needs such as gaining a strong foundation in basic clinical situations while learning critical care skills needed in rapidly changing patient situations. As a result, special assistance is needed to gain and apply knowledge and skills essential for transition to practice. One example of a specialized orientation for advanced beginner nurses is the concept of internship programs that extends beyond basic orientation for baccalaureate graduates (Beecroft, Kunzman, & Krozek 2001; Hall & Marshall, 2006). This type of orientation program generally includes extended time to learn new skills, apply skills learned during the formal nursing orientation and learning to work within the social structure of the clinical setting. For those entering critical care units, a significant challenge for educators is providing orientation programs such as internships, which meet complex care demands to perform safely and competently under pressure in life threatening situations.

**Hospital Nursing Orientation**

Hospitals have formal nursing orientation programs to prepare newly licensed nurses to learn and apply knowledge and skills deemed as best practice in providing safe and competent care and to enhance self-confidence, (Baxter, 2010; Bullock, 2010, Park & Jones, 2010). Orientation, according to Webster’s New Collegiate Dictionary (2008), is defined as “adjustment or adaptation to a new environment, situation or belief” (p.773). Several authors have described the overall objectives of orientation programs are to influence the behavior of individuals to match organizational needs and effectively assist employees in becoming part of the organizational culture, supporting the mission and assuming new job responsibilities (Avillion, 2006; Buerhaus; 2006). A recent study conducted by Kennedy et al., (2012) noted that despite tremendous increasing complexity in hospitals and the way in which care is delivered, there has
been little change in the way orientation to nursing practice is conducted. Traditionally, content taught during nursing orientation included the vision, mission, philosophy and scope of nursing practice, policies and procedures, resources and support services (Avillion, 2006). Many hospitals are rethinking orientation to nursing practice by developing innovative orientation programs which seek to develop knowledge, skills and analytical ability (Ardoin & Pryor, 2006, Hall & Marshall 2006, Beecroft, Kunzman & Krozek, 2001). A relatively emerging teaching/learning strategy is the integration of high fidelity patient simulation (HFPS) in the orientation process (Buckley & Gordon, 2011).

*Simulation and Clinical Learning*

Simulation models have been used in nursing education since the 1950s (Peteani, 2004) and in recent years, high-fidelity simulation has evolved as a tool for orientation to critical care units (Rauen, 2004). High fidelity patient simulation is defined as an approach that mimics real-life clinical situations and environments in a controlled setting (GABA, 2009). These simulators are programmed to provide reality based physical characteristics and response from the participants in the setting. The increasing use of simulation as a teaching/learning tool has been influenced by a number of initiatives and reports one of which is from the Institute of Medicine which estimates that as many as 98,000 hospitalized patients die each year in America not as a result of their illness but as a result of their care. (IOM, 2000).

Other authors provide preliminary direction on the types of competencies needed to achieve the IOMs competencies for nursing which includes patient-centered care, teamwork and collaboration, evidenced-based practice, quality improvement and safety and informatics (Cronenwett, et al., 2007). This was part of an initiative entitled Quality and Safety Education
for Nursing (QSEN) initiative which, has the challenge of establishing methods of preparing nurses who will have the knowledge, skills and attitude necessary to continuously improve the quality and safety of the healthcare systems in which they work (Cronenwett, et al., 2007). As a result of this initiative, the development of a new vision for clinical education was formed that “is centered first and foremost around meeting patient’s needs, all health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches, and informatics” (p.3). This is followed by proposed definitions where defining attributes of a competent nurse are outlined. Using the definitions, statements of the knowledge, skills and attitude for each competency are outlined. The authors note that the vision is integrated in most academic and practice settings, but is not supported by consistent structures and practices to ensure implementation and transition to practice.

In this context, recognition of evidence, which supports the key role of nurses in keeping patients safe, is supported. While efforts have arisen to integrate the (QSEN) competencies in clinical education for nurses inclusive of hospital nursing orientation programs, research studies are needed to assess the impact of this relatively new model in both the academic and practice settings.

The National League for Nursing (NLN, 2007) in a multi-site, multi method study to build the science related to simulation in nursing education proposed that simulation methods will change the way educators think about teaching and learning while focusing on simulation as a vehicle to transform instruction for preparing nurses for practice (NLN, 2007). Results from this study found that current educational approaches are no longer sufficient to prepare nurses to be
able to synthesize and integrate knowledge and skills into practice and work collaboratively in teams. However, since the study was conducted at schools of nursing, application of findings to practice settings cannot be determined. Jeffries (2007) explored innovative models in teaching and proposed that the challenge of educating nurses in the academic and practice setting requires implementing simulations as an integrated component of the learning experience. Jeffries summarized the NLN (2006) research goals that were to explore how to design simulations, implement simulation as a teaching strategy, and evaluate selected learning outcomes. Jeffries reported that while more research is needed, immersion in simulation provides an opportunity to apply and synthesize knowledge in a realistic and non-threatening environment and that expanded use of simulation in nursing will facilitate increased learning and skill application.

Although the study was conducted in educational settings, development of skills in actual clinical practice requires experience with a variety of patient situations therefore future research should focus on application in actual practice settings.

Recently, a number of healthcare organizations have developed orientation programs that include simulation as a teaching and learning tool (Kaddoura 2010, Nehring & Lashley, 2009). Garbee et al., 2013, conducted a quantitative study to evaluate the efficacy and retention of teaching team-based competencies to interprofessional student teams using high fidelity simulation. A total of 35 students underwent training in the fall of 2009 and 25 of the students returned in the spring of 2010 for repeat training. Participant paired sample t-tests showed a significant increase from simulation scenario one to two (p< .05) in both the fall and spring, The authors concluded that HFPS appears to improve both perceived and actual team-based competencies with retention over time and that future research is needed based on the interval
between training to assess skill retention and optimal structures and processes to support education and training which ensure translation of knowledge to the clinical setting.

Nehring and Lashley, 2004 developed a Critical Incident Nursing Management modeled after a framework conceptualized by Gaba, Fish and Howard (1994). The model proposes that the capabilities of human patient simulation are geared towards competency-based instruction in undergraduate and graduate education as a means to facilitate safe patient care. The authors’ further note that the patient, and the environment influence nurses and their actions. Identifying the antecedents of a critical patient situation and intervening prior to untoward consequences requires experience and clinical knowledge development which is in its infancy in the advanced beginner (Benner, Tanner and Chesla, 1996). Utilizing recommendations from the IOM Report (1999), this model highlights teamwork and communication as a primary contributing factor in adverse events among healthcare professionals. Regarding new nurse orientation, it appears that orientation to practice is not an isolated process but one that entails integration of practitioner knowledge and skills, multiple providers, clinical scenarios, and effective communication. Although the body of literature on simulation in education settings is growing, relatively few studies address application of knowledge and skills in advanced beginner nurse to critical care practice (Beyea, Slattery and Reyn, 2010, Cato and Murray, 2010). In one exploratory qualitative descriptive study, Kaddoura, (2010) examined use of simulation with 10 new BSN nursing graduates employed in the intensive care unit at an academic medical center. The author indicated that knowledge related to complex patient situations as well as confidence is required in effective nurses. The study explored the perceptions of new graduate nurses of how clinical simulation developed their critical thinking skills, learning, and confidence throughout their
hospital clinical training. Ten new baccalaureate nursing graduates voluntarily participated in this study. Data were collected by demographic questionnaires and semi-structured interviews as a means to explore perceptions of critical thinking promotion within the context of clinical simulation in critical care preparation. Data was analyzed using content analysis. Participants reported that simulation prepared them well to care confidently for critically ill patients. Simulation also helped them learn to make sound clinical decisions to improve patient outcomes. The findings serve as a basis to support the use of simulation as one teaching method for advanced beginners in critical care.

In an article focusing on high-fidelity simulation as it relates to clinical education and nurse competency in the intensive care unit, Cato and Murray (2010) documented the increasing support for the integration of simulation in nursing continuing education. These include organizations such as the National League for Nursing, American College of Surgeons, American Nurses Association, the Agency for Healthcare Research and Quality, and the American Association Of Critical Care Nurses. The authors recommend that in addition to enhanced learning, simulation have a critical role in education for intensive care units. Details cited were enhanced learning, improved patient safety, enhanced recruitment and retention strategies, and addressing quality and risk management concerns. Although this was not a research study, the authors establish a basic case for using simulation for acquisition of new knowledge and practice skills in intensive care units.

The literature regarding simulation in nursing orientation suggests that there is a gap that may be addressed with studies aimed at examining how knowledge and skills covered in orientation are applied in clinical practice (Bremner, et al., Leigh, 2011, 2006, Nickerson,
Morrison & Pollard, 2011). The first phase is to conduct orientation with HFPS. The next phase is for advanced beginners to experience a variety of clinical situations with guidance and support followed by a study that fosters understanding of applied knowledge and skills.

**Significance of the Study**

Hospital nursing orientation has not changed significantly over the years despite rapid changes in healthcare and the way in which care is delivered. Given the ebbs and flows to the registered nurse workforce supply though, the shortage of experienced nurses has prompted hiring of advanced beginner nurses into critical care units (Morris et al., 2007). As a result, advance beginner nurses need to learn the specialty of critical care while transitioning to the work setting and professional role responsibilities (Day, 2007). Hospital educators are also challenged to find flexible and innovative teaching methods for advanced beginners which facilitates acquisition and application of essential knowledge and skills in critical care. One approach is the use of HFPS during orientation to critical care practice.

As both a scientific and applied discipline though, development of nursing practice consists of integrating practical knowledge, theory-based scientific evidence and ultimately, application of knowledge gained in real time clinical situations. Researchers have studied the way in which knowledge and skills are developed and applied in practice situations where experience is essential (Benner, 1994; Benner, Tanner & Chesla 1996). Fundamentally, it was noted that knowledge and skills occur over time with experience in a variety of clinical situations. It is also important to know what nurses think they have learned and how it helped them to provide safe and effective nursing care in clinical situations. This information will contribute to an orientation process that builds evidenced based practice and useful data to
generate knowledge and skills that can improve nursing orientation and patient outcomes. Exploration into the phenomena of applied knowledge and skills with the use of high fidelity simulation in critical care orientation will be important to the nursing profession in ascertaining the outcomes of HFPS as a strategy to better prepare advanced beginner nurses for actual practice in critical care settings.

Relevance to Nursing

The need to understand how nurses apply knowledge and skills gained in orientation to actual clinical scenarios is timely and a fundamental component of improving patient safety. Day (2007) stated that the steep learning curve faced by advanced beginners in critical care adds to an alarming awareness of the potential to make significant errors in patient care that results in patient harm. In an examination of how changes in science, technology, market driven health care and the settings of nursing practice have transformed nursing education and practice, Benner et al., (2010) noted that changes in nursing practice such as the increase in bedside monitoring and managing multiple intrusive technologies, where the margin for error is low, suggest the need to change nursing education in academic and practice settings. Furthermore, there is an assumption that students learn abstract information and then applies that information in practice. To practice safely though, nurses must a draw on and apply a broad scope of knowledge and skills in an increasingly complex environment where early identification of changes in patient status and appropriate interventions are critical (Benner, Sutphen, Leonard & Day, 2010). As a result, hospital based educators are seeking new and innovative ways to orient new nurses into critical care practice that meet both learning needs and facilitate patient safety.

Moreover, turnover of new graduate nurses is of concern. Bowles and Candela (2005)
reported that 30% of new graduates left their job within 1 year of employment and 57% within the first two years. As a result of the turnover, higher replacement costs are incurred by organizations. Casey, Fink, Krugman, and Propst (2004) estimated replacement costs, including orientation to be $33,841 for the loss of a nurse and Baggot, Hensinger, Parry, Valdes & Zaim (2005) reported that 35-60% of new nurses will leave their position within the first year of practice, resulting in estimated costs which may exceed $60,000. Even before the current environment in which greater patient acuity, complexities of care, increase use of high technology, and nursing shortage, Benner (1984), maintained that new graduates needed at least 18-24 months to move from advanced beginner to one of competence; otherwise, quality and safe patient care is a risk. Casey et al., (2004) emphasized the need for educational support for new nurses to facilitate knowledge and skills acquisition and integration into the clinical setting.

To meet the challenge of providing effective learning experiences for new graduate nurses, simulation as a teaching and learning methodology is gaining increased focus and integration into hospital nursing orientation programs (Nagle, McHale, Alexander & French, 2009). While the majority of studies investigated simulation in the academic setting (Solnick & Weiss, 2009, Alinier et al., 2006; Rystedt & Lindstrom 2001), few studies have explored the use of simulation for orienting advance beginner nurses in critical care (Cato & Murray, 2010; Nagle et al., 2009)). Orientation continues to be a major accountability of hospital education departments and as a result, substantive work is needed to explore how HFPS is actually impacting applied knowledge and skills in the clinical setting.

Exploration into the phenomena of applied knowledge and skills using a qualitative research method will contribute to improved understanding of the concept. Concurrently, it will
offer hospital nurse educators an opportunity to use research based results to inform methods for orientation programs which will advance applied knowledge and skills, improve patient safety and outcomes as well as advance methods of orienting nurses to critical care practice

**Purpose of the Study**

The purpose of this study is to analyze advanced beginner nurses’ description of the knowledge and skills used in critical care nursing practice following critical care orientation using HFPS.

The following question guided the research study:

A. What are the experiences of applying knowledge and skills gained from critical care orientation using HFPS for critical care nurses who began as advanced beginners?

**Definition of Terms**

1. **Orientation** – The educational process of introducing individual who are new to the organization or department to the philosophy, goals, policies, procedures, role expectations, and other factors needed to function in a specific work setting (ANA, 2010). For the purposes of this study, orientation will be specific to critical care orientation for newly licensed BS prepared RNs.

2. **High Fidelity Patient Simulation (HFPS)** – For the purposes of this study, simulation is an attempt to replicate some or nearly all of the essential aspects of a clinical situation with full body simulators that are programmed to respond to affective and psychomotor changes so that the situation may be more readily understood and managed when it occurs for real in clinical practice. (Jeffries, 2007, p.113, Morton, 1995, p.76).

3. **Critical Care** – Specialty nursing practice that entails human response to life
threatening problems (AACN, 2013). For the purposes of this study, critical care nursing practice is limited to units that are designated for acute and immediate life threatening health problems in both pediatric and adult patient populations.

4. Advanced Beginner – Newly registered nurses who have worked for 6 months (Benner, 1984).

For the purposes of this study, advanced beginner nurses are newly licensed, baccalaureate-prepared Registered Nurses who have worked for 6 months or less after the completion of orientation.

5. Applied knowledge and skills - For this study, applied knowledge and skills refers to using the knowledge and skills included in orientation with HFPS in actual critical care clinical situations.
CHAPTER I: SUMMARY

This research study is presented in six chapters. Chapter I includes the background of the study including an overview of hospital orientation to nursing practice, simulation in learning, statement of the problem, purpose of the study, significance of the study, definitions of terms, research question and established the significance and relevance of the study to applied knowledge and skills in nursing practice.
CHAPTER II: LITERATURE REVIEW

Chapter II focuses on a review of the literature to include the historical perspective of hospital nursing orientation, models of critical care orientation, applied knowledge and skills in critical care practice, and patient simulation in nursing orientation. Theories, models and research related to new graduate nurse orientation, critical care and simulation are describe

Overview

Orientation is an important accountability for hospital nurse educators. Concurrently, hospital educators have a critical role in supporting the provision of quality and safe care by planning and implementing optimal strategies which promote learning and effective application of knowledge and skills to clinical situations (ANA, 2010). In several studies, researchers proposed that use of simulation in education and orientation, including critical care settings offers an innovative learning option however, little has been written about the process of applying knowledge and skills to actual clinical situations (Jeffries, 2007; Leigh, 2011; Nehring & Lashley, 2009). In a report on the historical and foundational knowledge about simulation in educational practice, Overstreet (2008) wrote that there are no studies that provide evidence that patient simulation practice transfers to nursing clinical practice.

A study by Ford et al. (2010) was conducted to compare medication administration error rates and assess knowledge of information before and after education conducted as either traditional didactic lecture or a simulation based intervention. In this study, 24 critical care nurses were observed administering medications. After simulation-based interventions, medication administration rates decreased from 30.8% to 4.0%. Although the results of this study indicate a significant advantage in using simulation-based interventions, the lack of a
robust body of studies points to the need to conduct further research to evaluate the effectiveness of simulation-based education in critical care settings. Also, the authors note that critical care represents one of the most complex care environments and recommend exploration in this setting.

In 2005, the U.S. Department of Labor, Bureau of Labor Statistics predicted that the need for nurses would increase 27% between 2004 and 2014 (Park & Jones, 2010). This is likely to continue and consequently, healthcare care leaders are responding by increasingly recruiting newly licensed nurses to work in specialty areas such as critical care. Consequently, the breadth and depth of knowledge and skills required in these settings often overwhelms new graduates and may impact quality and safe patient care. This review will illuminate the basic foundation and current state of hospital nursing orientation and trends that influences the need to understand and inform the way in which orientation is conducted.

Applied Knowledge and Skills in Critical Care Practice

It is essential for advanced beginners to apply knowledge and skills gained in orientation to actual clinical situations. According to Benner, Tanner & Chesla (1996) though, nursing practice as an advanced beginner is a time of significant transitions to the level of nursing practice needed to perform at even a marginally acceptable level. The development of clinical knowledge is primarily focused on concrete aspects of clinical situations after practical experience with meaningful elements. The advanced beginner thus begins to intuitively recognize patient situations based on how they appear and how the nurse is influenced by factors such as the clinical agency in which they work. One example of the former is viewing clinical situations as a set of requirements for action including the application of appropriate knowledge. Agency
refers to external rules such as policies, procedures and physician orders (Benner, 1996). It is necessary then to uncover application of knowledge and skills applied in actual clinical situations by baccalaureate prepared nurses who completed the HFPS component of critical care orientation within the context of teaching/learning aspects of advanced beginners.

Critical care nursing is a specialty that is focused specifically with human responses to life-threatening problems (AACN, 2013). The more critically ill a patient is, the more likely they are unstable, and therefore requires intense and vigilant nursing care. Although nurses have always cared for critically ill patients, advances in technology and medicine have made patient care more complex and demanding. Nurses require specialized knowledge and skills, and in particular, the ability to continuously monitor and treat patients as condition changes.

According to the Department of Health and Human Resources (DHHS) study on the Registered Nurse Population (2008), over three hundred thousand nurse’s work in critical care settings and account for 20.9% of nurses who work in a hospital settings. The practice of critical care nursing requires complex assessment, high-intensity interventions and therapies combined with constant vigilance by competent nurses. The thought of hiring new graduates in critical care units can be perceived as a significant challenge and risky strategy for hospital educators. Standards that guide critical care practice build upon ANA’s Nursing Scope and Standards of Practice which delineate expectations in this area of specialty (AACN, 2008). In 2001, the AACN made a commitment to actively promote the creation of healthy work environments to support and foster excellence in patient care. The standards for establishing and sustaining healthy work environments are: skilled communication, true collaboration, effective decision-making, appropriate staffing, meaningful recognition and authentic leadership (AACN, 2005).
These standards are flexible and should be adapted and integrated in orientation processes. In critical care environments, where monitoring is more frequent, invasive and technologically challenging, this supports the case to improve methods of orientation to assess and monitor patients safely (IOM, 2003). Casey et al., (2004) used a survey to evaluate stresses and challenges experienced by new graduates’ in the transition from student to new graduates into a critical care setting in six acute care hospitals during a one year period. Several themes were identified regarding what was most difficult from student to advanced beginner nurse; Lack of confidence in skill performance, deficits in critical thinking and clinical knowledge, relationships with peers and preceptors, struggle with dependency and independency, frustration with the work environment, organization and priority setting and communication with physicians. Although the themes reflect the perceptions, the use of simulation was not noted. Understanding the experiences as expressed by new graduates could lead to a broader foundation to plan education interventions and support the needs of new graduates in critical care.

In a review of the literature designed to examine and interpret what is known about graduate nurse role transition from novice to competent practitioner in emergency care settings, the author used a meta-ethnographic comparative review process which allows the reviewer to compare an analyze text and create new interpretations in the process (Valdez, 2008). Results of the review revealed 6 major themes. The themes were categorized into two groups: culture shock (barriers to success) and assimilation (facilitators of success). The author noted that three of the themes were directly related to new graduate discomfort and dissatisfaction in the emergency setting and inadequate preparation for entry to practice. Facilitators of transition to practice were mentoring, social support, and orientation process. While this review included qualitative, quasi-
experimental, and descriptive studies, analysis utilized a meta-ethnographic comparative review
to facilitate comparison and analysis of text and creation of new interpretation, it highlights the
need for development of programs, which support the special needs of new graduates particularly
those in critical care. Hence, opportunities exist for greater collaboration between academic and
practice settings. For example, enhanced clinical experiences, student externs programs and
development of competencies. With little if any exposure to critical care in nursing school, new
graduates in critical care are faced with significant learning curves.

**Historical Perspective of Hospital Nursing Orientation**

Conducting nursing orientation for newly hired nurses is a basic accountability of nursing
education departments; however, orientation was not always the focus. The historical
perspective is important when discussing orientation in hospitals and the concept of applied
knowledge and skills as the outcome of this orientation influences competency and safe patient
care. Historical review of the evolution of nursing orientation point to explicit and repetitive
trends that led to the need for specific orientation as part of education and training in the hospital
setting (Brount, Pack, & Parr, 2001).

In the mid-1800s, Florence Nightingale established training schools for nurses for the
purpose of improving efficiency of patient care delivery in hospitals. She advocated that nurses
embark on a journey of lifelong learning and use acquired skills and knowledge to improve
patient care (Nightingale, 1859). These early schools were affiliated with hospitals where nurses
learned the art and science of nursing and where the students were the primary staff of the
hospitals. Since the students were the primary care providers, the majority of students remained
at the hospital after graduation and therefore orientation was not needed.
However, a shift in the trend to hire former students emerged after the 1930s Great Depression. In a summary describing the evolution of orientation, Avillion (2004) indicated that due to the increase in the number of patients who could not afford private duty nurses, many nurses were forced back into the hospital setting for the first time since initial training (2004). Hospital leaders were now faced with the need to hire graduate nurses in increasing numbers. This shift created the need to orient newly hired nurses and learn the work of caring for more than one patient.

The emergence of hospital departments devoted to nursing orientation and ongoing training evolved from a 1953 Joint Commission proposal that a department should be dedicated to the training and continuing education in nursing. Orientation became a key priority for the departments responsible for nurses and other patient care providers (Avillion, 2006). During the final decades of the 20th century, changes in technology and the management of disease made orientation and training even more important. Adequate orientation to an organization and role responsibilities assumed greater emphasis, and accrediting agencies such as the Joint Commission on Accreditation of Healthcare Organizations (JCAHO 2006 established standards for providing orientation which included a mandate for orientation program. As more nurses entered the workplace, the need for more efficient orientation programs with nurses who were new graduates or experienced resulted in concerns for the outcomes of orientation.

In a review of nursing department orientation (Kennedy et al., 2012) it was reported that the evolution of nursing practice was not reflected in current teaching methods of nursing orientation. A systematic review of over 2,000 articles cited that in over 60 years of nursing orientation, little has changed in the orientation process. The three areas of focus for most
nursing orientation still includes defining the healthcare organization including its mission, vision, philosophy, and scope of nursing practice; support, resources and skills needed within the position (Nugent, 2008). All areas were taught using didactic teaching methods and included some type of competency validation. Canton (1940), described the fundamentals of nursing orientation that is almost identical to the majority of current orientation programs. Even though this was a retrospective examination of nursing orientation, strength in this review reveals that more active, learner focused orientation programs are needed to educate nurses (Thomason, 2006). The authors also note that patient quality and safety are two main reasons why an updated and innovative nursing orientation is needed. Self-reported evaluations by nurses also revealed that nurses who went through the orientation programs believed that they were not adequately prepared to provide safe patient care (Dunn & Fought, 1994).

Another theme uncovered was the correlation between learner focused orientation and nurse retention. It was noted that replacing a critical care nurse can cost up to $145,000 (Friedman, Cooper, Click & Fitzpatrick, 2011). This review largely supports the need for improvements in nursing orientation based on research to understand the adult learner experience, while considering the high cost related to replacing new nurses, retention rates, knowledge of the risk of harm to patients and improvements in safety and quality.

**Models of Critical Care Orientation**

Orientation to critical care nursing continues to evolve however; basic methods have not changed significantly over the past decade. Abruzzese (1996) noted that throughout the past twenty-five years, six models have been used to orient nursing staff. These six models consist of a combination of different components as follows; The standard model of orientation consists of
lectures and a buddy system with experienced nurses combined with a series of lectures covering different topics by a variety of speakers. Topics included are nursing table of organization, mission, vision, and core nursing practice such as policies. Preceptors emerged as a popular method in the 1970s as a way to facilitate orientation and assimilation of new nurses in the work setting. Each nurse was assigned a preceptor who met criteria as a competent or expert nurse who had excellent team and teaching skills. Preceptors were also provided development by specific learning activities followed by assignments with one or more new nurses. Nurse internships and rotations in the early 1970s were designed primarily for new graduates and provided a transition time that lasted from 3 to 6 months.

Competency-based orientation was another method that focused on the outcomes of orientation. Specifically, the ability of the new nurses to perform identified role responsibilities in the practice setting. Self-directed learning involves the learners making contracts with unit staff instructors which include performing activities that must be completed within an agreed upon timeframe. The competency method formed the basis of the Performance-Based Development system. This model used assessment centers for competency based learning and provided opportunities for skill demonstration. Del Bueno (1984) created a model consisting of three interlocking circles in a square that denotes technical skills, interpersonal skills, and critical thinking skills. The square represents the context or situation within which the skill is applied for performance-based assessment consisting of standards.

More recently, online learning modules and simulation has been added to the models for nursing orientation. On-line modules may consist of both self-authored material or published modules. One example of a published module for critical care is the AACN (2013). Essentials of
Critical Care Orientation (ECCO). It is comprised of 10 critical care training modules, each with in-depth multiple lessons and graphics that are designed to cover basic content and keep learners engaged. Over 700 hospitals currently utilize the modules as a component of critical care orientation. This model is currently in use at the study site. Results from evaluations of the effectiveness of these on-line modules indicate retention with module test and standardization of content however this does not consist of applied content in practice.

Approaches to critical care orientation combine a number of different methods. In a customary approach to critical care orientation, Morris et al., (2007) listed the primary components of a new comprehensive orientation as classroom education and clinical instruction with a preceptor. Nurses were hired into a variety of critical care units for example, neuroscience, coronary, cardiothoracic medical and surgical units. Length of orientation ranged from 8-12 weeks taking into consideration level of experience and years in nursing. New nurse graduates in the program expressed motivation and a desire to participate in the program while also feeling frustrated in the amount of didactic information and anxiety when clinical experiences were lacking.

**Patient Simulation in Nursing Orientation**

Increasingly, simulation is becoming a teaching tool in hospital orientation to address the academic practice gap and facilitate development and application of knowledge and skills in practice (Hauber, 2010). The use of simulation though has been a fundamental part of the history of nursing education however, as hospital practice environment continues to evolve and become more complex, technology has also changed and improved the precision and reality of educational tools such as high fidelity patient simulation. This tool is being used more often in
hospital orientation to address concerns related to patient safety, training cost and medical error (Nagle, 2009). Over the past decade, trends indicate a shift and definite urgency to improve clinical competency of new graduates in an effort to improve patient safety (Bullock, Paris and Terhaar 2011). A review of the literature addressing the topic of simulation in nursing staff development point towards few research-based studies to support use of results in the science simulation as a learning intervention in hospital settings. Priority areas to focus on would be critical care. Critical care areas are identified as high risk yet few studies focus on critical practice.

**Theoretical Frameworks for Simulation in Education**

In a review of theoretical frameworks used in simulation over the past 40 years, Nehring & Lashley (2010) summarized a variety of frameworks for nursing education as a method to augment curriculum support. This review indicated that the majority of frameworks were applied in academic settings and establishes an opportunity to examine how the framework can be applied in an actual work environment.

One of the frameworks developed as part of a study for the NLN in collaboration with the Laerdal Company, (Jeffries (2007) is the Nursing Education Simulation Framework. The framework describes teacher and student characteristics combined with educational practices that affect student outcomes. The model has been used to guide educators in designing implementing and evaluating simulations and is based on established models in learning and cognition. Although the model is being used across educational settings as a standard framework for simulation programs, application of the framework in a hospital practice setting was not found which presents opportunities for extending learner outcomes within the practice setting.
Implementing simulation entails high technical costs, human resource allocation and educator development in the use and application of this new tool as an educational intervention. This is another area in which there are few articles that address learning outcomes to inform instructional practices in hospital settings. One study highlighted the need for those conducting simulation to recognize what brings adult learners to the simulation experience and what can be done to create learning experience the best with strategies to use in creating a clinical workforce that thrives on self-improvement and lifelong learning with the integration of adult learning theory (Clapper, 2010).

Another model used as a framework for simulation education is the Experiential Education Theory (Kolb, 1984). Key concepts of this model stipulate that learning involves transactions between the person and the environment and learning is a process whereby knowledge is created through the transformation of information. These frameworks are all similar to some degree as they include adult learning principles, behavioral interactive components, reflective practice, situated learning, feedback and mastery of learning. As integration of simulation in nursing orientation evolves, it will be important for hospital nurse educators to study various models related to applied knowledge and skills in addition to developing the skills and knowledge required in educating with this new tool. The use of simulation as a learning tool must be given careful thought and planning to ensure effective enhancement and support of the educational curriculum. Durham & Alden (2009) acknowledge that experience-based skill acquisition is safer and quicker when it is built on a sound educational base. The authors cite one report that dispels the myth that simulation is a one-dimensional concept but rather a multidimensional concept that requires the educator to examine not only the equipment, but also the environment
and the psychological perceptions of the learner.

According to Britt, 2009, new nurses enter practice with basic critical thinking skills and have minimal experience applying learned concepts into clinical practice. Del Bueno, (2005), indicated that “only 35% of new RN graduates, regardless of educational preparation and credentials, meet entry expectations for clinical judgment…and the majority are unable or have considerable difficulty translating knowledge and theory into practice”(p.278). As the environment of frontline nurses continues to change with more acutely ill patients, there is an increase demand for nurses who can function independently and make sound clinical judgment, assess patient status and deliver quality and evidenced based care with optimal patient outcomes (Rhodes & Curran, 2005).

The need to understand how theoretical frameworks construct studies by allowing researchers to link observation and data in an orderly manner is fundamental. Polit and Beck (2008), indicate that theories and conceptual models also guide researchers in understanding the phenomena and why it occurs. This study utilized The Nursing Education Simulation Framework (2007), to guide the design and to assess learning outcomes related to actual clinical practice. According to Jeffries (2007), a framework for simulating learning is the foundation to assist scholars in coordinating research in an organized and systematic manner.

Simulation Defined and Features

There are numerous descriptions of simulation as it relates to hospital based nursing education. (Morton et.al, 1995) indicated that simulation resembles reality. Simulation is an attempt to replicate some or nearly all of the essential aspects of a clinical situation so that the situation may be more readily understood and managed when it occurs for real in clinical
practice. Simulations are also described along a continuum from low to high fidelity with a greater degree of reality as one approaches high fidelity. Full scale, high fidelity patient simulators are very realistic and provide the learners with a high degree of interaction and reality.

According to Webster’s definition, (2003) to simulate is to “look or act like.” Given this definition, simulation has been used in nursing at least since World War II in the form of stationary mannequin, role-playing, and actors. Jeffries (2007) defines simulation as “activities that mimic the reality of a clinical environment and are designed to demonstrate procedures, decision making, and critical thinking through techniques such as role playing and the use of devices such as interactive videos or mannequins” (p.97). Gaba (2007) defines simulations as, to replace or amplify real experiences with guided experiences, often immersive in nature, that evoke or replicate substantial aspects of the real world in a fully interactive fashion.

High fidelity patient simulation is a relatively new technology that integrates computers, monitors, actors and debriefing. A high fidelity simulated scenario is an attempt to replicate some or nearly all of the essential aspects of a clinical situation so that the situation may be more readily understood and managed when it occurs for real in the clinical setting (Morton, 1995). The unique factor is realistic re-enactment of clinical situations are done in a setting which allows the nurse to step in and perform without harm to patients and learn in a non-threatening setting.

High fidelity patient simulators are the most recent advances in instructional tools for nursing students and direct care providers. They consist of a computer program that controls an interactive mannequin capable of realistic physiologic responses, including heart and respiratory sounds and irregular, pupil reaction and verbal communication with the learner. Most simulators
have interchangeable anatomical parts so that they can represent male or female patients and the appearance can also be altered to change age range (Jeffries, 2007).

**High Fidelity Patient Simulation in Critical Care Orientation**

According to Day (2007), the goal of using high-fidelity simulation is that new graduate nurses will spend more time in the simulation laboratory practicing skills without real harm to patients and impacting unit workflow. Experienced clinicians participate in and provide supervision in the simulated sessions so that new nurses are more prepared to assume care of critically ill patients. The author notes two major concerns about the role of high-fidelity simulation in nursing education. First, learning is seen as predictable and replicable outcomes can be achieved. Second, teaching and learning are relational practices where meaning is created in the interactions and relationships that occur among participants. These points stress the importance of understanding the need for actual experiences even though the simulated situation as created appears authentic. The context of real patient-family scenarios cannot capture all the dynamics and experiences among nurses and patients. Benner, et al., (2010) and others have identified that knowledge and skill acquisition requires situational experiences and engagement of nurses. Although simulation together with other teaching methods has proven to be an effective tool for learning, it is not a substitute for experiences needed with real patients in actual clinical situations.

In one description of the effort to redesign critical care orientation to provide new nurses with skills necessary to function independently and competently in intensive care units, Cato, 2010, noted concerns. These concerns focused on inconsistencies in validation of competence, assessment of critical thinking skills and dissatisfaction among orientees. The intent was to allow
educators to increase the complexity of patients, increase the number of patients, change
diagnoses and present co-morbidities. Although the author relates the promise of simulation as a
tool for ICU orientation, there are limitations. The challenges indicted were cost, time
commitment, tool development, and outcome evaluation in the clinical setting and scheduling
logistics (p.48). The attitude of nurses can also play a role in effectiveness of simulation. For
nurses practicing in acute care hospitals with little experience, simulation was seen as a positive
tool in learning how to manage uncommon clinical events.

In an article by Beyea et al., (2007), the authors summarized a study of integration of
human simulation in a new graduate registered nurse residency program. In the summary, the
rationale for the integration was referred to as scarce availability of experienced nurses for
employment and more new graduate nurses available with no clinical experience. This rationale
was identified as a burden on both the fiscal and human resources in the hospital (p.77). Using a
structured approach, a “12 week orientation program focused on skill based learning, critical
thinking, human factors engineering, and patient safety using simulated experiences for a wide
variety of high-risk, low frequency, as well as high-frequency, commonly occurring events and
situations”(p.77). A descriptive pilot study was done using a convenience sample of graduate
nurses (n=42). The practice aspects emphasized in the simulations were: professional
development, quality improvement, collaboration and teamwork, patient safety and self-directed
learning. Qualitative and quantitative data was collected with structured evaluations. Feedback
was provided by clinical and leadership staff on the units. They identified that use of simulation
was helpful in identifying clinical care issues and structuring clinical learning that reinforced
simulation laboratory learning. The graduate nurses reported that use of simulation allowed
application of learning as well as satisfaction with orientation. This study supports the use of simulation as a component for enhancing patient safety education as well as staff satisfaction and competency.

In examining how simulation could enhance a preceptor-based orientation program and improve retention of nurses, Ackermann et al. (2006) used a case study approach with 21 new graduates. No instrument was identified. Preceptors were mentors to the new nurses. The learning objectives were designed to focus on clinical decision-making, critical thinking, and professional development. Qualitative data was collected with an evaluation form. High fidelity human patient simulators were used with five patient scenarios and the authors found that overall, simulation added to the quality of the instruction and hands-on experience facilitated learning and retention of education content. The graduate nurses reported increased confidence in managing real clinical situations and the safe environment for learning was a support in the role socialization process. Although the nurses reported positive learning outcomes, it is important to note that the report study was not research based and was conducted shortly after the simulation sessions.

The literature review did not report studies related to perceived facilitators of learning or barriers twelve months after simulation by new nurses. Perceptions of immediate learning impact have been explored but long-term impact on practice and competency has not been studied. A missing component is the analysis of high fidelity simulation effectiveness one-year post graduation. Exploration with nurses of their perception of the experience and preparation for practice can elicit information that can enable nurse educators to improve strategies with simulation as an educational technique.
A review of currently published evaluation instruments for human patient simulation reflected a lack of reliable and valid instruments to evaluate learning outcomes (Kardong-Edgren et al., 2010). In particular, their review of new graduates’ evaluation methods suggest that traditional methods of clinical instruction are not successful. Another author suggested that clinical education has historically consisted of the expectation that if a student spent enough time in the clinical setting they would eventually understand the practice and put the pieces together (Dunn, 2004). Basically, simulation provides clinical experiences that encompass affective, cognitive, and psychomotor domains so the need has evolved for evaluation instruments to measure performance in simulation settings. Measuring actual performance is complex, initial learning outcomes have focused on self-reported satisfaction and confidence (Prion, 2008). Although they are easily obtained evaluation methods, there is no valid instrument to measure impact on patient and staff outcomes over time. Thus, the instruments used in measuring high fidelity simulation are limited in scope and currently do not evaluate overall performance and practice transition. Kardong-Edgren et al. (2010) concluded that additional refinement of both simulation and clinical evaluation instruments is a high priority yet the question still remains about transfer of performance into the clinical setting. The ability to see actions and reactions in real clinical events and understand them with a measurement tool and learner will be a significant step towards advancing applied learning and skill acquisition models in practice.

Inclusion of high fidelity simulation in new graduate orientation as a method of facilitating knowledge and skill application is an emerging teaching practice to improve orientation processes (Hallenbeck, 2012). Likewise, nurse’s educators responsible for orientation are challenged to develop and learn use of this new technique and evaluate learning in complex
acute care settings. As a result, there is a need to conduct more studies as a means of gaining greater understanding of learning and performance with the use of simulation. The majority of studies focused on the use of simulation with nursing students, yet few studies addressed the performance of new graduates. An opportunity exists to expand research studies to the practice setting.

**Contextual Perspective**

Personal perspectives of the qualitative researcher are usually encouraged as a means of understanding both the context of the study and potential biases. With over twenty years of experience in nursing education, administrative operations and quality, I have been described as someone who comes from a background where experiences in the three components intersect to advance clinical practice. I would describe myself as someone who cares deeply about patients, quality and safety and the professional practice of registered nurses. I have worked as a Director of Nursing Education/Research and Practice at several hospitals and also served as a Director of Nursing Quality, Hospital wide Customer Services and Assistant Director for nursing operations. These roles have provided a range of educational and practice experiences and many debates regarding issues and options for orientation in the practice setting. I currently oversee strategic learning for a 1500 bed academic medical center. In this role, I serve as a consultant for operations and innovations that include nursing orientation programs.

With input from nurses, physicians and simulation specialists, a state of the art on site simulation center opened in 2009. The center was designed to create an interactive learning environment where participants can safely practice high risk and error prone clinical scenarios without risk to patients. The simulation center employs a comprehensive array of advanced high-
fidelity patient simulators and partial task trainers, as well as sophisticated audio-visual system to capture real-time simulation events for review and debriefing. We were fortunate to have a center with dedicated staff to support nursing orientation and training through the use of human patient simulation. This led to the need for a simulation steering committee that consisted of an interdisciplinary group of nurses, physicians, and educators focused on developing competencies, interdisciplinary communication and collaboration as a means to improve patient safety and clinical outcomes. One of the first projects was to assess and develop options for reducing the length of orientation in critical care nursing orientation.

In response to the hospitals organizational needs to reduce the length of orientation and improve the practice readiness of newly hired critical care nurses, the nursing education department set out to explore options for the use of HFPS simulation as a learning tool during new nurse critical care orientation. As a nursing leader for education services, my role was to take on this challenge and facilitate development and implementation of an orientation program which integrates patient simulation, accurately tracks the length and cost of orientation, assesses competency and achieves quality and safe care and clinical outcomes. A tool developed for tracking and documenting lengths and cost of orientation was a tracking grid. Objectives for data element collection consisted of accurately tracking the duration of orientation by service line and clinical unit, and identifying trends or reasons for extended orientations in order for corrective action plans to be developed. A unique component of the tracking grid is the development of orientation codes for various levels of nursing experience with projected maximum length of orientation. This included a code used to track advanced beginner nurses in critical care who are oriented with the use of high fidelity patient simulation.
CHAPTER II SUMMARY

The goal of an orientation program should focus on introducing new nurses to actual practice and the work environment as the foundation for competency development, and safety in practice. As the number of new graduates increase in the workforce, the need for innovative programs to facilitate applied knowledge and skills from novice to advanced beginner has increased.

Undoubtedly, there is need is there to identify areas for change and improvement in hospital based orientation of advanced beginner nurses. Keeping patients safe is a high priority in hospital settings and to ensure new clinical nurses have the knowledge, technical and interpersonal skills required for safe practice, a learning environment that facilitates development and competency must be in place. Although there are studies that address simulation in healthcare and schools of nursing, a shift to the integration of high fidelity simulation as an orientation strategy to address safety and competency in actual practice has yet to be elucidated.

Patient simulation in nursing orientation is an emerging learning tool for new graduates; however, additional research is needed to understand the effectiveness of this technology on learner outcomes and clinical outcomes.
CHAPTER III: CONCEPTUAL FRAMEWORK

*Nursing Education Simulation Model*

The Nursing Education Simulation Framework developed and initiated through the National League for nursing offers a conceptual guide for this study (Jeffries, 2005, National League for Nursing (NLN), 2007). The Nursing Education Simulation Framework (Appendix A) specifies relevant variables and their relationship related to learning and outcomes and supports the need to conduct simulation studies in an organized and systematic way (Jeffries, 2005). This framework proposes that all instructional strategies, including simulation should be based on evidence about learning (Knowles, Holton, & Swanson, 2005). Additionally, it can serve as a guide in designing, implementing and evaluating simulations in nursing. According to Jeffries (2007), the framework was developed and has a solid foundation beginning with insights gained from numerous theories and empirical literature related to simulation in nursing and other disciplines, adult learning, diverse learning, reflective thinking, learning and cognition. A group organized by the National League for Nursing in partnership with the Laerdal Corporation led this work to explore how to design simulations, implement simulations as teaching strategies, and evaluate selected outcomes. Laerdal is a corporation that currently produces education and competency tools for healthcare providers such as simulation mannequins. Specifically, the study was aimed at simulations in nursing education (NLN, 2006).

The framework has five conceptual parts each of which is actualized through a number of variables. The five concepts are based on the integration of a number of teaching strategies including learning and cognition, adult learning and experiential growth. The five concepts include best educational practices, teacher factors, student factors, simulation design
characteristics and outcomes. In this study, the focus will be on the outcomes of the simulated experience as expressed by advanced beginner nurses. Outcomes within this framework include learning (knowledge), skill performance, learner satisfaction, critical thinking and self-confidence. Establishing and evaluating learning outcomes is determined in advance by the educator to determine what students have learned and the effectiveness of the learning experience. Through a process of reflective thinking and debriefing immediately following the simulation experience, educators examine what happened and what learning occurred (Jeffries, 2007). The desired outcomes are examined after the immediate simulation experience in a controlled setting. This study will examine experiences from the perspective of the learner as an outcome measure.

Jeffries wrote (2005) that teachers are the first factor and are essential to the success of using learning activities such as simulation in classroom instruction. A major difference though is that the learning environment shifts to both the simulation learning setting and the actual clinical situation. As in educational settings, clinical practice setting also requires educators to shift from teacher to nurse focused instruction as well as developing the skills needed to design simulation curriculum, use the technology, equipment set-up and debriefing. Hence, a significant change for the practice setting is evaluating the outcomes of learning in actual clinical practice.

Student is the second factor in the framework. Students have responsibility for their own learning in the educational setting. In this study, the educational setting is the hospital and as licensed nurses who have completed orientation to critical care practice expectations are now at another level. These new registered nurses are according to Benner (1984); advanced beginners who can demonstrate marginally accepted performance. This performance is evident only after
the nurse has coped with enough real situations to understand the recurring meaningful components of the practice situation.

The educational practices factor of the framework addresses active and diverse learning, collaboration, and the expectations that student will do well. Jeffries notes that research regarding teaching shows the importance of utilizing evidenced based learning principles to foster student learning and satisfaction. These activities include active feedback, interaction between learner and teacher and collaborative learning.

Design characteristics is the fourth factor which delineates the need to create instructional activities which are suitable for and supports objectives, required competencies and learning outcomes. Jeffries (2005) gives emphasis to five areas in design, which includes objectives, planning, fidelity, complexity, cues, and debriefing. In nursing education departments, orientation with simulation should be designed to capture both simple and complex care scenarios. This entails integrating information, decision points, interventions and assessment of outcomes.

Finally, outcomes of the learning intervention should be analyzed to determine whether the simulation scenario meets stated objectives and translates to application in actual clinical practice. Jeffries (2005) summarized that results of studies has demonstrated that knowledge gained from simulations is retained longer than knowledge learned from lectures or other presentation methods. The author notes that use of simulation foster quicker acquisition of skills and knowledge however experience in the actual clinical situation builds a stronger foundation for competency. Learner satisfaction, critical thinking and self-confidence are also key components of outcomes in this framework simulation. Identifying expected outcomes and tools
is important in determining effectiveness of simulation as a learning tool as well as how skills and knowledge gained is applied in actual care settings by newly licensed nurses.
CHAPTER III: SUMMARY

This chapter highlights important components of the theoretical framework for this study, The Nursing Education Simulation Framework. Inherently, education of students is the foundation for nurse practice however, it is apparent that there is a gap in transitioning to clinical practice. This becomes more evident when advanced beginner nurses are hired to work in critical care settings. Furthermore, the expectation is for competent practice. What does this signify for nurses who have not even transitioned through situational experiences in which skills and knowledge can be enhanced? Chapter IV will describe the methodology of the study.
CHAPTER IV: METHODOLOGY

Background

The purpose of this chapter is to describe the methodology used to conduct research examining the experience of applying knowledge and skill from critical care orientation using HFPS to actual critical care situations among advanced beginner nurses. This chapter also discusses the sampling procedure used to determine the validity of the study, reliability of the instrument method for data collection, data analysis and protection of human subjects. Lastly, the study limitations and summary of the chapter are noted.

A qualitative exploratory method was selected for a number of reasons as the appropriate research method for elucidating understanding of the phenomena of advanced beginner knowledge and skills application in critical care situations. First, the tradition of qualitative research is grounded in the social sciences and focuses on inquiry, descriptions and interpretations of fundamental patterns of human thought and patterns of behavior (Streubert & Carpenter, 1999). The authors propose that in a humanistic profession as nursing, it is imperative that nurses embrace a research tradition that provides for the most meaningful way to enter into human experiences, grasp the sense of the experience and enter into the world of the participants. as a way to describe and understand human experiences while developing new knowledge within a particular context (Streubert & Carpenter, 2011). Qualitative researchers are motivated to discover ways of understanding and questions are framed to answer the research questions (Streubert S., & Carpenter, R., 2011).

When determining the best approach for this research question, qualitative exploration was a suitable method as this approach goes beyond observing and describing and seeks to
examine the full nature of the phenomena and other related factors (Polit & Beck 2012). For example, in hospital nursing education, educators use multiple types of evaluation tools and methods to assess teaching outcomes. Exploratory qualitative inquiry may provide more in depth probing to determine a broader description of the nature of the phenomena, as well as how the phenomena evolves or is experienced. For the purposes of this study, a qualitative content approach was used to assist in analyzing and understanding descriptions of experiences of advanced beginner nurses. Secondly, there is a belief that there are multiple realities, and the researcher has a commitment to the participant’s description and the conduct of inquiry that limits disruption of the natural context of the phenomena of interest (Streubert & Carpenter, 2011). A fundamental belief is that multiple realities exist and create meaning for individuals and a qualitative method of inquiry can uncover new knowledge and different perspectives about established ways of nursing practice. Use of interview questions grounded the researcher in the experiences of study participants and helped in fully understanding the context of what was studied.

Another reason for selection was the need to conduct inquiry that did not alter the natural context of the phenomena. It was important to understand the experience within the context of new graduate nurses orientation to critical care practice with the use of high fidelity patient simulation.

Third, the qualitative method was appropriate to this study since the researcher believed that it would offer validity and truth about actual critical care practice while generating rich context based data that cannot be obtained with a quantitative method. This author discovered that the literature on simulation primarily addressed the education of nursing students in in
academic settings; accordingly a void exists related to hospital based nursing education. Specifically, the phenomena of knowledge and skill application were explored using an inductive qualitative content analysis design. Inductive qualitative techniques are used to analyze written, verbal or visual communication messages (Elo & Kyngas, 2007). Through inductive reasoning, themes and categories emerge from the data through careful comparison and examination of the data. The aim of this study was to attain a more clear description of the experience of applied knowledge and skills within the context of experiences in actual clinical situations. This method allowed for discerning meaning in the descriptive narratives as expressed by participants while fostering an approach that is systematic and objective (Waltz, Strickland & Lenz, 2010). The rationale for the use of a qualitative content analysis design was to allow the researcher to inquire into the meaning of communication texts as a method of gaining insight into described applications of knowledge. In essence, the communication content is not the whole concern but rather the issue is what can be inferred from the content (Krippendorf, 2004).

Qualitative researchers have recognized the extent to which human experience is shaped, transformed, and understood through linguistic representation (Thorne, 2000). According to Hsieh and Shannon, 2005, qualitative content analysis is one of several approaches used to analyze text data. This method focuses on “characteristics of language as a communication with attention to the content or contextual meaning of the text” (p1278). The approach allowed for a focus on descriptions of situations, meanings and nuances as recognized by the persons involved and allowed closeness to text that can alternate between specific categories and relationships within the text. This method guided the researcher in analyzing the descriptions of experiences by advanced beginner nurses. Using data from individual participant interviews, replicable and
valid inferences within their context provided knowledge and new insights that can be used to
guide action (Krippendorf, 2004).

According to Weber (1990), qualitative content analysis reaches beyond counting words to
examining language intensely for the purpose of classifying large amounts of text into an
efficient number of categories that represent similar meanings as communicated by the
participants. Content analysis was originally used to analyze underlying themes in political
speeches and newspaper texts. Research using qualitative content analysis focuses on analysis of
text data and characteristics of language as communication with attention to the content on
contextual meaning (Hsieh and Shannon, 2005). As a research method, this method consists of
deliberate and purposively selected texts that can inform the research question with a focus on
distinctive themes that elucidate the range of meanings of the phenomenon (Zhang & Wildemuth
2009).

The history of content analysis can be traced through several phases. The first phase
entailed different approaches to analysis and comparisons of texts in hermeneutic contexts such
as bible interpretations and newspaper analysis (Mayring, 1994, p.2). The second phase is
described as the foundation of communication theory where social scientists started to develop a
broader interest in not only subject matter but a more in depth look at symbols, styles and values.
Interdisciplinary differentiation and expansion was a characteristic in the third phase. History,
psychology and the arts were finding use of communication data as a method of understanding
non-verbal aspects of individuals and groups. Since the 20\textsuperscript{th} century, content analysis continued
to expand into various fields and is growing in use due to the use of computers for text
processing (Krippendorf, 2004).
In this study, advance beginner nurses oriented to critical care using high fidelity simulation during orientation provided descriptions of clinical situations from their practice that they feel describe application of knowledge and skills in the HFPS component of orientation. According to Thorne, 2000, content analysis requires the researcher to believe that human experience is shaped, transformed, and understood through linguistic representations and take on meaning when we try to articulate them in communication. Descriptions of these experiences require verbal and or written communication of and analysis of text as a way to get to the main aspects of social interaction and contextual meaning. Watawick et al, (1967) states meaning is partly communicated by how a message is conveyed through the voice or implied feeling that emerges from the reading of the text. Analysis of what the text describes will focus on inductive content analysis as a means of coding, creating categories and abstraction and latent content as a means of interpreting the underlying meaning of the text (Downe-Wamboldt, 1992, Knodracki et al., 2002). The qualitative content analysis method is systemic and offers rule guided classifications to help describe latent content and contexts (Mayring, 2003). Interview responses were recorded and read many times to describe all aspects of the content. All aspects of the inductive process were continued until data saturation was achieved.

Sample Selection/Protection of Human Subjects

Qualitative research design is focused on developing a rich understanding of a phenomenon as it exists in the real world and as it is constructed in the context of actual situations (Polit & Beck, 2012). Qualitative research methods are also conducted when we want participants to share their stories, allowing the stories to be told without constraints by what we expect to find. Further, the researcher understands that one cannot separate what people say from
the context in which they experience it and express it (Cresswell, 2007).

A qualitative research design is considered purposeful which means that participants and sites are selected because they can purposely inform understanding of the problem and phenomena (Cresswell, 2007). Participants in this study consisted of a purposeful sample of advanced beginner graduate nurses who were oriented with the use of HFPS during orientation to critical care practice.

Study setting was a 1541 bed academic medical center in the northeast. Participants were recruited from an orientation-tracking grid. Beginning in June 2010, orientation for all newly hired RNs in critical care included HFPS as a component of the orientation process. As a component of the orientation, a standardized procedure for tracking orientation was developed to capture and monitor lengths of orientation for all orientees who were new nurse graduates. Data elements tracked also included levels of experience such as new graduate to critical care, hire date, budgeted completion date, anticipated completion date and actual completion date and a column to indicate use of simulation. A key component was the education level of new nurses. Given that the Nurse residency program for new nurse graduates was the evidenced based model, this was the target group for participation. Monthly tracking grids were reviewed as a means to identify advanced beginner graduates who were within the timeframe of six months of practice after orientation. Approximately 20 nurses were recruited based upon the grid, however; only 15 RNs met the criteria. Since this is a qualitative exploratory descriptive study, sample size was guided by data saturation in which sampling is to the point at which no new information is obtained and redundancy is achieved (Polit & Beck, 2012).

Advanced beginner nurses were identified from a tracking grid. The orientation grid is a
method to track all new nurse hires by hire date, department, unit, and expected and actual date of date of completion orientation. For the purposes of this study, advanced beginner nurses were newly licensed, baccalaureate-prepared Registered Nurses who worked for 6 months or less after the completion of orientation. Eligible criteria for participants include employment and orientation to critical care with the use of HFPS. In addition, critical care nursing practice is limited to units that are designated for acute and immediate life threatening health problems in both pediatric and adult patient populations.

Prior to submitting the application to the IRB, nursing leaders as well as the hospital attorney were informed and permission was granted to conduct the study with staff nurses who volunteered. The nurse researcher was also a significant resource and support for this study. Communication and support within organizations were crucial in obtaining support for the study and obtaining access.

The application was then submitted for approval at the combined hospital and the university IRB. After IRB approval, nursing leaders at the hospital were informed. The investigator attended staff meetings to communicate information about the study and informational flyers(Appendix B) requesting participation with contact numbers for the investigator was placed in staff mailboxes. If they wish to participate, they were requested to contact the researcher and leave their name, preferred method of communication and a convenient time to speak with the researcher.

Responses were received from 8 nurses who agreed to participate. A mutually agreed upon time and location for the interview was confirmed. At the meeting, purpose of the study, study procedures, risks, benefits, costs, voluntary participation and withdrawal, informed consent
and confidentiality were discussed with each participant. Screening occurred to ensure the criteria are met as advanced beginner nurse and informed consent was obtained. Eligible nurses were told that the interview would be audiotape and that a signed consent form giving permission to be interviewed and tape-recorded was required. After receiving informed consent, participants were asked to complete a demographic questionnaire (Appendix E) followed by the semi-structured interview questions (Appendix F). In addition, participants were informed that they would be compensated $25 in the form of a gift card for their participation. One researcher, the principle investigator, conducted interviews.

To ensure confidentiality, data from participant interviews were assigned a letter code to each participant. Information pertaining to each participant including, questionnaires, interviews, transcripts, and audiotapes were kept in a locked file cabinet in the investigators’ home. The key was placed in a hidden location with no one but the researcher having access. Results are reported with random selected pseudonyms.

DATA COLLECTION: Individual, semi-structured, guided interviews based on the Nursing Education Simulation Framework (Jeffries, 2007) was audio taped. The semi-structured interviews lasted approximately 30-40 minutes. This allowed the investigator time to elicit information from the participant through direct and guided questioning. This method is particularly useful for gathering information from individuals that may have difficulty recalling events or reconstructing critical processes or events. (Waltz, Strickland & Lenz, 2005).

STUDY INSTRUMENTS: The interview questions (Appendix E) were developed and guided by the Nursing Education Simulation Framework. In addition, the interview guide was reviewed by two experts including a nurse researcher for validity and to determine whether the
questions were reflective of the model. The framework components (Appendix A) served as a guide for the interview and allowed follow-up probing to elicit in-depth and rich descriptions about the actual clinical experience.

The need to be constantly aware of the importance of assuring acceptable checks and balances in the study is established through trustworthiness. (Bowen, 2005). This means that the reader can be confident that interpretive findings are credible, transferable, dependable and confirmable.

Credibility refers to the confidence in the truth of the data and interpretation of them (Polit and Beck, 2008). There are a number of techniques for documenting credibility in the research process. First, the researcher perspectives summarized in chapter 2 established researcher credibility. As a nursing administrator who led the initiative to integrate simulation in orientation, this illustrates a commitment to integrate simulation as a learning tool in critical care orientation. The researcher is familiar with the structure and process for HFPS in this setting and is in communication with the program coordinators. An aspect of interpreting text though is that text involves multiple meanings and interpretation and is influenced by the researcher’s history. According to Graneheim & Lundham(20030, qualitative content analysis interpretation is a balancing act in which one should not add a particular perspective to the text, while letting the text speak for itself. Furthermore, the researcher collaborated with the dissertation chair whose primary focus is qualitative research. Notes were maintained of all communication as a way to filter questions in the interview process.

Transferability refers to the degree that findings can be transferred to other groups and settings (Lincoln & Guba, 1985). The dissertation will be on file at the university so that another
researcher can utilize the data to determine applicability of the data to other contexts.

Dependability refers to the stability of the data over time and conditions. Confirmability entails the objectivity or congruence between two or more people about data accuracy, relevance or meaning. These items were addressed by review of the data with the faculty advisor and a nursing peer.

**Data Analysis**

Content analysis was used to analyze the data. The approach used to interpret meaning from the content of text data and adhere to the naturalistic paradigm is conventional content analysis. In conventional content analysis, coding categories are derived directly from the text data. In this study, descriptions of the knowledge and skills used in critical care nursing practice following critical care orientation using HFPS is examined.

First, verbatim transcripts of the audiotapes were analyzed by inductive content analysis in order to uncover descriptions of thoughts and behavior about the experience. (Hsieh & Shannon, 2005). For this study, inductive content analysis consisted of several steps. (Zhang & Wildemuth, 2009). First step consisted of transcribing the tapes verbatim. This was accomplished with the services of a professional transcription service. After receipt of transcripts, the transcripts were read and re-read. The researcher reviewed for accuracy and notes were read closely and headings in the margins describing aspects of the dialogue.

The transcripts were then imported to an excel spreadsheet where notes were maintained by the researcher. Each transcript was read carefully, highlighting text that had similar characteristics. The next step included defining the unit of text to be abstracted and coded during analysis of the data. The unit of text is the complete interview transcripts of all study
participants. A focus was identifying descriptions in units before they could be coded thus looking for expressions of ideas will lead to assigning codes which then represent a theme of relevance. A theme can be articulated in a single word, sentence, paragraph or the whole document (Minichiello et al., 1990).

The third step required developing categories and coding themes. In this study, the data from the unit analysis was used to generate categories in describing the phenomena of applied knowledge and skills. Meaning units were selected from codes that related to the same central meaning with a focus on shortening while preserving the core. The coding process was repeated as codes emerge or changed until saturation was obtained. Descriptions and interpretations with mutually exclusively and exhaustive creations of categories, sub-themes and themes followed. To improve reliability of the research results, transparent processes for coding and drawing conclusions from the data were implemented such as debriefing and review of the data by the advisor and a peer. This was followed by coding descriptions and checking for consistency in interpretations by the researcher (Weber, 1990). After consistency was achieved, coding of all text was completed. The last three steps concentrated on finalizing code consistency, drawing conclusions from the coded data and finally, reporting patterns, themes and categories uncovered and deemed important to the context. Descriptions provided the background and context while interpretation generally represented personal and theoretical understanding of the phenomena (Hsieh & Shannon, 2005).

When presenting the results, the researcher aimed to balance descriptions and interpretation with the use of visual diagrams. Visual displays generally support the presentation of conclusions and indicate methods of organizing, summarizing and simplifying data. A main
goal of any diagram is to provide ready access to information and convey a message, a
discovery, or a particular perspective on a specific data or topic (Iliinsky, 2010; Lengler &
Eppler, 2007). The goal was to foster insights and a deeper understanding of the new knowledge.
In this study, dendrograms which are treelike diagrams used to display, were used to illuminate
how the data were collapsed into meaning units, sub-themes and themes. The dendrogram
illustration, promotes the understanding of relations by positioning closely related items and
placing relatively dissimilar items at a greater distance. In Appendix G, data for all patterns and
themes are presented in dendrograms.

**Biases**

My interest in this subject was influenced by my role as a nursing administrator in a 1541
bed academic medical center. As the former director of the HFPS program in new nurse
orientation, I acknowledge that interpretations are made within the context of my work
expectations and working in the same environment as the participants. The expectation was that
basic required competencies would be demonstrated after completion of the orientation program.
A major emphasis was the use of simulation to reduce the cost of orientation while ensuring
identified competencies were acquired.
CHAPTER IV: SUMMARY

This chapter outlined the application of an exploratory qualitative content analysis as the methodology for the study to conduct research examining the experience of applying knowledge and skill from critical care orientation using HFPS to actual critical care situations among advanced beginner nurses. A summary of the procedure, sample, description of the interview tool and process, procedure for consent and confidentiality, data analysis and evaluation are outlined. This chapter also discusses the sampling procedure used to determine the validity of the study, reliability of the instrument method for data collection, data analysis and protection of human subjects. Lastly, the study limitations and summary of the chapter are noted. Results of the data analysis are presented in the following chapter.
CHAPTER V: RESULTS

Introduction

This study intended to analyze the experiences of advanced beginner critical care nurses regarding application of knowledge and skills gained from HFPS to critical care nursing practice. The purpose was achieved by using qualitative content analysis of individual interviews to examine applied learning in actual practice. This chapter presents the study procedure, description of participants, and results of the content analysis utilized in data analysis.

Study Procedure

a. Overview

The institutional review board at The Graduate Center, City University of New York and a 1541bed academic medical center granted permission to conduct the study. Critical care units at the hospital consisted of a variety of adult and pediatric specialties. At the time of this study, newly licensed registered nurses were hired to work in critical care units. All nurses in orientation were tracked on a master log for purposes of education data management and this allowed for identification of units where potential participants could be accessed.

First, data were collected using individual interviews with each participant. Face to face interview were digitally audio taped in a private office or conference room. Content analysis was performed using Krippendorf (2004) technique with the unit analysis of themes. Each recorded interview was coded, transcribed verbatim by a professional transcription service, and followed reviewed by the researcher for accuracy.

Transcribed data were read and reread several times to ensure relevant data were not excluded and irrelevant data included. The researcher read the transcribed data closely and wrote
notes and headings in the margins describing aspects of the discussion from interview notes. Trustworthiness was maintained by consistent tracking of the process. Reading and re-reading numerous times to ensure that what the nurses were saying was captured in the themes.

Selecting, abstracting and color-coding of whole interviews into categories of meaning units that relate the experience of orientation with HFPS and actual clinical practice followed. The meaning units consisted of words, phrases or statements that relate to the same characteristics or central meaning through their content or context. A total of 215 meaning units were identified. The categories were then clustered and dendrograms created to condense direct quotes into sub-themes and themes.

**b. Description of Participants**

Sampling was purposive and nurses were invited to participate in the study by distribution of informational flyers (Appendix B) on the critical care units, posting on the clinical units and placement in the unit mailboxes of all nurses. Targeted participants consisted of newly licensed RNs hired to work in adult or pediatric critical care units after completion of orientation with the use of HFPS within the past 12 months. A total of 15 nurses met the criteria and of those, eight registered nurses agreed to be interviewed. The ages of the participants ranged from 23-34. All participants were female, and seven indicated race-ethnicity as white with one indicating mixed or other. All were BSN graduates.

Amongst those who did not participate, 2 relocated out of state, 1 changed her work schedule from full time to casual status and four did not volunteer. Of the eight nurses, three work in the adult cardiothoracic intensive care unit, two in the medical intensive care unit, and one in the surgical intensive care unit and two in the pediatric intensive care unit. The sample
size was appropriate as data saturation was achieved with the eight participants.

Informed consent was obtained and interviews were scheduled during off-duty time (Appendix C & D). All interviews were conducted in the researchers private office or conference room. The interview guide (Appendix F) was developed based on the conceptual components of the Nursing Education Simulation Framework (Appendix A). The guide was composed of several questions about experiences in critical care nursing orientation and actual practice after completion of orientation. Interviews lasted 30-40 minutes. At the completion of the interview, participants were provided with a $25 gift card for their time and participation after work hours.

Results

Eight themes emerged from content analysis of the interview data describing the experiences of newly licensed registered nurses application of learning from high fidelity patient simulation into their practice. The themes were “lose fear of harming, group collaboration, culture shock, feelings of competence/self-confidence, teacher as guide, inter-professional, learning style, and transition to real life. A detailed description of each theme follows (Appendix G).

Theme 1: Lose fear of harming (Table 1)

Participant’s comments illustrated initial fear of harming patients in actual practice that were lessened during HFPS training. Nurses play a significant role in patient safety. These patient safety activities consist of ongoing patient assessment, evaluation or monitoring for detection of errors and prevention of adverse events. When patients’ status changes or declines, the change will notably be distinguished by the nurse’s observation in the status of physical, cognitive status of the patient. In intensive care units, monitoring is more frequenting, invasive
and increasingly technologically complex. By virtue of their training, nurses are well positioned to detect and intervene in threats to patient safety, additionally, performance of this patient monitoring requires attention to detail, knowledge, and responsiveness on the part of the nurse (IOM, 2004).

The complex role competencies and responsibilities needed to prevent harm to patients was evident in opinions about the reality that one’s action can result in harm to patients in practice, however, the simulated experience lessened the fear of harm by the design. The simulation enabled mistakes followed by extensive debriefing. Several explanations referred to the fact that the mannequin “wasn’t a real person, so you can make a lot of mistakes”. Hope talked about feeling comfortable discussing mistakes with other nurses in the simulation briefing and the support by instructors and nurses was a major aspect of losing fear of harm. Sandy stated:

They really wanted us to make mistakes and it was very helpful, especially in code situations. As a new nurse working at an ICU, that can be very intense. The code simulations really help you to practice code situations and take time to make mistakes and therefore when you get in a situation like that on the unit, you’re kind of a little bit more prepared, and you can think back on what you did in simulation.

Bettie indicated that seeing the outcome without harm to patients was very helpful:

Being in a simulation lab, you have the opportunity to do things and see the outcome without obviously being afraid that there’s going to be harm to a patient. So you kind of go with your gut feeling and see how, what turns out?

Additionally, several nurses reported experiencing feelings of being more comfortable and
bold in interventions because they could envision what would happen without having any kind of repercussions. Bradley made the following comments:

> You start using your judgment on different situations and then you start putting your brain to work, if you- they have different situations wherever- they have a scene where the patient is doing a, b, c, and then you have to follow-up with whatever interventions you can, so I think helped us to make like a flow of thinking that helps us with practice, the real world “indicated that it was important to acknowledge mistakes as well as “talking about what mistakes were made and what others would have done differently.

Bradley also emphasized that the, “The whole lesson of the whole thing was to make sure that you really assess your patient and rule out easy things like, easy fixes that could potentially lead to dangerous things.”

**Theme 2: Group collaboration (Table 2)**

Participants frequently mentioned how beneficial the experience of working in groups in the simulation set the example for collaboration in actual clinical practice. The World Health Organization (2010) identified that “group collaborative practice occurs when multiple health workers from different professional backgrounds provide comprehensive services by working with patients, their families and communities to deliver the highest quality of care across all settings” (p. 2). Through their descriptions of group collaborative practices, the organization acknowledged that for health care workers to collaborate effectively and improve health outcomes, two or more from different professional backgrounds must first be provided with opportunities to learn about, from and with each other. According to the Robert Wood Johnson Foundation (RWJF, 2011), “most health care providers today were educated in silos only those
from their own professions. Few were trained to work as part of integrated teams. But when providing care, they must interact with providers from other professions to share-to-share information, execute quality checks and help patient comply with treatment and plans”. RWJF (2011) further delineates that interprofessional collaboration improves coordination, communication, and ultimately quality and safe patient care. This process integrates both individual and collective skills of group members, allowing them to function more effectively in delivering a higher level of service. The following comments by Madison support these themes:

Teamwork aspect of the simulation was good. Always in groups in the simulation, and as a team you go into the room. Taking a role, but still working together, and you’re doing your own assessment. Just the process of kind of bouncing ideas off each other in a group setting was good. Peers could give you feedback, both the instructors and peer. Learning that teamwork and how you function in an intense situation, also under the context of having it be a simulated experience was helpful in real practice. You decided that amongst yourselves, and I guess that was part of the teaching as well, is kind of delegating, and deciding how you are going to work in a room.

**Theme 3: Culture shock (Table 3)**

Many participants described aspects of critical care practice in which they struggled to balance the needs of patients with the pressures and responsibilities required. Webster Dictionary (2013) defined culture shock as a feeling of confusion, doubt, or nervousness caused by being in a place that is unfamiliar from what you are used to. Participants were vivid in descriptions of the practice experience. Descriptions included:

It was just a nerve-wracking time, I, still don’t feel comfortable with codes. Still don’t know
what is going on, really overwhelming to jump from school to critical care where it is intense all the time. Makes me feel like I don’t belong there, but one thing I have to do is just accept the fact that even those people who are there, and who know more than I do, they once started without knowing anything.

In the seminal work by Kramer (1974), she described the initial work experiences of new nurses as being a type of culture shock which the author termed reality shock. This shock occurs when the nurses transition from the school setting to the practice setting which have complex priorities and pressures. The nurse tries to balance multiple priorities to meet patient needs. Kramer identified reality shock as a significant during the first 12-18 months of employment.

The following comments by Hannah and Faith reinforce the nature of this issue for nurses:

I think all the nervousness that I was feeling got in the way of my thinking, and that is when the simulation-that’s what the simulation does not provide, is the real deal type of thing, so that the first code that I had, I was really all over the place. Still don’t feel comfortable with codes. I still don’t know what’s going on. Really overwhelming to jump from school to critical care where it’s just intense all the time. Makes me feel like I don’t belong there, but one thing I have to do is just accept the fact that even those people who are there, and who know a lot more than I do the once started without knowing anything. Just a very nerve wracking time. You wish you had a little bit more practice or experience.

The biggest culture shock was going from classroom to hospital.

Bradley gave these additional comments; “The biggest culture shock-like I said going from classroom to the hospital, really overwhelming to jump right from school to critical care where it’s just intense all the time”.

**Theme 4: Feelings of competence/self-confidence (Table 4)**

New nurses in critical care expressed how the demands of simulation scenarios impacted competence and self-confidence in practice. Becoming competent and gaining a sense of self-confidence is described as the period which nurses develop increased clinical understanding, technical and organizational skills and the ability to anticipate the course of patient events (Benner, Tanner & Chesla, 1996). The authors emphasize that this is the next progression from advanced beginner nurses, which generally occurs after two years of practice. Descriptions by participants pointed to experiences in which the focus was on the challenge of transition to a competent and self-confident nurse.

Comments by Madison such as it “did not make us feel any less” while Hope and Sandy “felt very intimidated to open my mouth” and “little intimidating at first, just being new, and not really knowing what to expect” contributed to initial lack of competence and confidence level. Faith said:

Little intimidating at first, though to think that everybody was watching you, you kind of went through what you did and it was not very, it was not like critiquing or anything. It was just kind of this is what you did, this was good, and this is what we could have done differently.

For Bradley, the experience in practice was “thinking that I was about to realize how much I did not know”.

Madison shared the perception that simulation builds comfort level needed in practice:

Just reiterating the fact of self-confidence; trusting your knowledge and your instinct; having that conversation with our peers simulation helps you see a scenario before you get
into practice and you feel more comfortable because you know what to expect.

**Theme 5: Teacher as guide (Table 5)**

Teachers were recognized as respected as role models guides in the learning process that helped to facilitate critical thinking in complex situations. As one component in the Nursing Education Simualtion Framework, the role of teacher is identified as essential to success in learning, however the shift in simulated learning is from the traditional teacher role where specific guidance and instructions are given. The teacher role shifts to one of facilitator who provides support and encouragement to learner-centered by asking question, proposing what if situations, and guiding the debriefing process. During the simulation, the teacher role is primarily that of an observer.

This was evident by comments from Hope such as; “They’re very knowledgeable and experienced ICU (intensive care unit) nurse who present us with obstacles of what a real RN would deal with and: I think they helped us and they answered questions when we needed them”. Bettie stated, “we could bounce off our ideas off each other, and we had someone supervising”.

All participants said that they only participated in a few scenarios and their “brain was overloaded” as a result. Bradley and Faith suggested that separate classes for four hours or more would be beneficial as well as ongoing simulations on a monthly basis as preparation for practice. Specialty scenarios such as neurology, cardiac and pediatrics should be included. Sandy and Bettie offered suggestions for instructors such as:

Include more scenarios since most of the simulations only lasted a few minutes in contrast to practice situations. Participation in simulations at least every month would be helpful. It was helpful though in the practice when the teachers presented us with obstacles of what areal RN
would deal with.

**Theme 6: Inter-professional (Table 6)**

As illustrated in the following comments, additional findings were the experience of learning to working with other health care providers and nurses. Teams in health care take many forms, for example, there are unit-based teams that care for specific patient populations and those in the ambulatory care setting. Regardless of the form, interprofessional teamwork is essential to the delivery of coordinated and quality care (Sherwood & Drenkard, 2007), and as demonstrated by levels of cooperation, coordination and collaboration characterizing the relationships between professions in delivering patient-centered care (Interprofessional Education Collaborative Expert Panel, 2011). Historically, nurses as well as other healthcare providers have not been educated together to work as teams. This may contribute to practice experiences where lack of a sense interrelated knowledge and may impact efficient and quality patient care. As such, health care has not been recognized as providers focused on team work (Mitchell et al. 2012). Sherwood & Drenkard, 2007, specified that a high-performing team is recognized as an essential tool for constructing a more patient-centered, coordinated, and effective health care system.

Madison reported that when she was in the simulation learning she thought:

> I always thought that people were ahead of me. It’s working with other people within the room and in chaotic situation, and where you can’t really plan, you kind of just have to do it, and work together. The simulation scenarios consisted primarily of nurses in different roles such as teachers, and other nurses acting as other disciplines such as doctors and respiratory therapists. It was multidisciplinary in that you would page the doctor and the actor would arrive. I think all the nervousness that I was feeling got in the way of my
thinking, and that’s what the simulation- that’s what the simulation does not provide, is the real deal type of thing. You realize it is not real.

Madison’s position was:

So that the first code I had, I was really all over the place. Understanding the effects of if you go by what necessarily people are telling you, which could lead to patient harm. Main thing was calming my nerves and knowing, and realizing how fast things could change, and just being comfortable with my assessment skills and the need to check the authority of the doctor.

**Theme 7: Learning style (Table 7)**

Many comments by participants addressed preferred styles of learning such as “visual, hands on, and see it and do it once, and then I’ll never forget it”. Simulation provides an opportunity to engage all senses as well as a variety of levels of adult learning. According to Durham & Alde, 2008, simulation allows participants “to go beyond knowing to advance to synthesis and application of knowledge as they assess, plan, implement, and evaluate” their practice.

In the Nursing Education Simulation Framework (2007), strategies were designed to address four types of learners. For the visual learner, rooms are set-up to reflect a real-life patient room or work setting. Including details such as clock and calendar. For auditory learners, audiotaped shift reports with programmed verbal along with student role paly as family member. The tactile learner was incorporated with the learner listening to heart and lung sounds, bowel and blood pressure readings. Within the patient room, there were real equipment such as code carets, medications, drainage bags and other equipment so that the nurses could handle actual
Hannah said that she liked that it was fast paced, very interactive, “didn’t feel fake” while Sandy, noted that “you can think back on what you did in simulation and made the process of learning easier”. Hope commented:

Like a stepping stone, it like, got us comfortable in just asking questions in a situation, and being in a high stress situation. I wanted to kind of work on my critical thinking skills. Because I wanted to, you know, have a situation and think, this is the information I’m given. This is what’s happening…figure it out.

Faith stressed:

It met my learning style because my learning style is practicing. Practice makes it not perfect, but good. You’re not going to harm somebody, because it’s a simulator. So that’s the way I like to learn. I need to hear it said to me and then I need to write it down.

Kendra had similar statements to many of the other participants:

Practice…cannot compare to simulation. Nothing is like the practice setting. Felt more real than anything I had ever done before when you do simulations in groups, people see things in different ways, and perhaps things that I saw other people did not see, but then people saw other things before I did. With every scenario, I honestly wanted to learn, OK, what I am going to do when my patient crashes.

**Theme 8: Transition to real life (Tables 8.1 – 8.5)**

The dominant theme was the experience from orientation with HFPS as a stepping-stone to actual clinical practice. A number of reports have been published outlining the experiences of new nurses transition to practice and practice readiness (Berkow, Virkstis, Stewart, & Conway,
Essentially transition to practice refers to ability to perform at levels consistent with experienced nurses while learning organizational policies, complex patient care as well as essential team and organizational skill (Johnstone & Kanitsaki, 2008). Accordingly, after entering the work setting, advanced beginner nurses require guidance and knowledge of more experienced nurses and other healthcare providers (Boychuk-Duchschener, 2001; Ellerton & Gregor, 2003). This allows for focus on thinking through and completing as well as assimilating the meaning of interventions.

Learning in a pressure free environment, sequencing interventions, panicking but in control and seeing the need to assess, intervene and delegate are but a few of the experiences noted in the transition to real life. Hope acknowledged that: “the main thing on my mind was if my patient stops breathing, and if their heart stops, am I going to know what to do?” Similarly, Bettie stated that it is very stressful as new graduate as the realization sets in that you are “treating real patients with real diseases/no longer a textbook”.

The importance of assessing, intervening, dividing and delegating tasks and escalation within chain of command were consistent comments by the majority of nurses. Bradley shared:

I left the patient, I mean, with all the other people, all the other staff, the nurses…to get the cart, but that was not something I should have done. It should have been somebody else, because that was my patient. So the next time I knew I could assign someone to get it.

The following comments articulate similar experiences by Kendra:

It started off and then something happened where you had to intervene, and then I remember you had to call a rapid response or a code or something like that. And it was like step-by-step. It wasn’t you just walked into a code or something. You just, you had to
assess, intervene, and go on. I knew what to do like if my patient becomes unresponsive, there were so many simulations of when your patient becomes unresponsive, what to do and how too. Recognized when something is going wrong, reaching out to the right people, and then taking steps to modify the situation. Not always believing at face value what you’re told. Always being that second pair of eyes that last check.

Sandy distinctly remembered communicating within the chain of command, and assessing critical vital signs, and what would you do, and how do you know that the, what they are ordering, does that make sense, questioning their orders, all those kinds of things.

Panic was also identified in the context of the clinical experiences. Faith recalled, “You know something is going to happen; you’re just looking around waiting for it” “very chaotic”. “Panicked, but not panicked to the point where I froze and did nothing. I was just-I felt an adrenaline rush”.

Despite the challenges faced by transition to actual critical care practice, the majority of participants indicated that HFPS during orientation was preparation for real life. Hannah stated, “It is like a time thing. I think the simulation is so fast that you probably will pick up on signs much faster than real life”. Similarly Bradley noted “any emergency situation, even just patient codes brings me back to simulation”. The following comment from Kendra also illustrates application in actual practice:

Quickly divided up tasks and were able to kind of delegate to each other. Something during simulation that we definitely use now. Knew exactly what meds to give, I knew everything about that med, everything that simulation taught me. I knew I needed to escalate care, I knew what to pay attention to in terms of blood pressure. Pulseless,
electrical activity so I knew how to react, what to do, I immediately called for help, which is what they teach you in simulation. All those things that come to sequence that as a new nurse you don’t necessarily know, but once you experienced them through simulation you can act them out in clinical practice.

Through exploration and analysis of the data, a primary finding was that participants perceived the use of high fidelity patient simulation in critical care orientation as beneficial, a stepping stone for real life, preparation for assessing, intervening, taking charge and escalating in fast moving clinical situations. Conflicting feelings of uncertainty and lack of preparation for critical care practice were also apparent. Perceived lack of preparation for critical care practice, then, represents a considerable experience for advanced beginner nurses.

Through the experiences of training with HFPS, the nurses noted consistent feelings of losing fear of harming patients since it wasn’t a real person and there were no repercussions. In actual practice situations, the nurses approached and reacted with feelings of competence and self-confidence. While acknowledgeable different ways of learning, the nurses indicated the importance of practicing seeing, hearing and writing down key aspects of the experience for individuals as well as in groups and the differences in how individuals see situations. In particular, the experience gained from learning the importance of working with other professionals who bring different perspectives was helpful in actual patient situations as a means of learning group collaboration and inter-professional teamwork.

This was followed by a respect for the instructors not only for their experience and support was provided but also facilitating learning to think critically in complex situations, the dominant theme was transition to real life. Irrespective of the critical care unit that the nurse practiced, the
majority noted that it was essential and necessary especially in fostering group collaboration and inter-professional team skills. Further, all nurses expressed an intense sense of the culture shock in real practice, which was nerve-wracking, overwhelming, and in which they wished for more time in simulation training.
CHAPTER V: SUMMARY

In this chapter, the study procedure, description of participants, and results of the content analysis utilized in data analysis were presented. Eight major themes emerged from analysis of the qualitative data. Through the exploration of the experiences of advanced beginner critical care nurse’s application of knowledge and skills gained from HFPS to their practice, it was found that application of knowledge and skills from HFPS is impacted by numerous, yet consistent factors.

The eight themes included: lose fear of harming, feelings of competence/self-confidence, teacher as guide, transition to real life, culture shock, group collaboration, learning style and inter-professional.
CHAPTER VI: DISCUSSION, IMPLICATIONS FOR NURSING, & FUTURE RESEARCH

In the preceding chapter, presentation and analysis of interview data have been reported. Chapter VI consists of a summary of the study, discussion of the findings, implications for hospital based nursing education, recommendations for further research, and conclusions. The objective of this chapter is to return to the literature review as a means to facilitate understanding of the findings and potential effect on hospital based nursing orientation and offer recommendations for future research aimed at orientation of advanced beginner nurses orientation to critical care practice using HFPS. First, the conceptual framework that frame understanding from the findings of the content analysis is acknowledged. Following is a discussion and summary of how the nurses in this study described their experiences after orientation to critical care using high fidelity patient simulation. The findings of this study and the literature review then; establish a basis for future nursing research and recommended areas of focus for hospital nursing educators.

Summary of the Study

The purpose of this study was to understand the experiences of advanced beginner critical care nurses regarding their application of knowledge and skills gained from HFPS to critical care nursing practice. This was accomplished by qualitative content analysis of their descriptions in transcribed interviews. Content analysis was the method used to analyze the interview data. The process starts with formulating the research question, selecting the sample, defining the categories, outlining and implementing the coding process, trustworthiness and analyzing the results (Hsieh & Shannon, 2005). The Nursing Education Simulation Framework (Jeffries, 2007)
served as a guide for the interview questions. The framework was designed to guide consistency in design, implementation and learner outcomes of simulation training. The framework served as a method for conducting the interviews in an organized way by outlining conceptual variables in simulation education. Components of the framework are; variables such as teacher factors, student factors, educational practices that need to be included into the learning curriculum, simulation design characteristics and expected student outcomes.

Although the framework consisted of terminology geared toward nursing education, it was useful in guiding interview questions by exchanging terms such as student to nurse and teacher to instructor. The use of the term student was limiting as it only referred to a specific role in the simulation. In this study, the term nurse was substituted for student and the term teacher with instructor. The decision to change the terms was affirmed in a recent report that summarized the findings about the simulation construct and the rationale for expanding the term from student to participant and teacher to facilitator (Durham, Cato & Lasater, 2014). The authors described a broader range of simulation participant characteristics, which informs the complexity of the participants and related elements.

In analyzing the data, the goal was to identify important themes within the communication text, and to provide a full description of the genuineness created by the themes as experienced in the practice setting (Zhang, & Wildemuth, 2009). The 8 themes that emerged were, lose fear of harm, group collaboration, culture shock, feelings of competence/self-confidence, teacher as guide, inter-professional, learning style and transition to real life. These themes are consistent with the review of the literature in which the need for development of creative orientation methods for new graduate nurses was identified (Ackermann, Kenny, & Walter, 2006; Beyea,
To meet the challenge of new graduate nurses in critical care, much work is needed to establish programs with measurable outcomes. In particular, this includes the integration of HFPS. Employment in an intensive care setting as a new graduate increases the complexity of the transition since there is little if any exposure to critical care in nursing school.

The literature supports the experience of culture shock when transitioning from school to practice and this is compounded when the advanced beginner is working in the intensive care unit. According to Valdez (2008), rapid immersion into complex intensive care work environment can lead to feelings of inadequacy, disillusionment and unsupported. In their role as critical care nurses, new graduates often struggle with the realities of a complex work environment where life threatening conditions are the norm while coming to terms with their own feeling of competence, self-confidence and skill as a team player. Their experiences support current knowledge in nursing related to skill and knowledge acquisition in advanced beginner nurses.

Hope (Table 6) reported, “You learn from the very beginning, in your clinical experience to always ask questions, and always double check…really overwhelming to jump from school to critical care where it is intense all the time.”

A number of nurses described increasing feelings of competence, as they felt more comfortable, and, therefore confident in their interventions. Hence, although there was uncertainty at times and tense feeling in practice, the approach and actions taken were more thoughtful.

The most dominant theme was the nurse’s transition to real life. This was not surprising
given that in general, exposure to critical care is not a common experience for nursing students because the focus is on gaining knowledge and skills in basic nursing care. There were similar conclusions in the standards of the American Association of Critical Care Nurses (2008), regarding the requirements for critical care practice. Specifically, the “practice of critical care nursing requires complex assessment, high intensity interventions and therapies combined with constant vigilance by competent nurses”. This statement of competency is consistent with Benner’s (2001) stages of moving from novice to expert in which “competency is typified by nurses who has been on the job in the same or similar situations two to three years, develops when the nurse begins to see his or her actions in terms of long-range goals or plans of which he or she is consciously aware. Therefore, participants did not describe attributes of competency as describe by Benner (2001).

As a nurse administrator with a solid foundation in hospital education, it is apparent that the ability to learn and then apply knowledge and skills in actual practice cannot be separated from the experience of recurring meaningful situational components. These components require previous experience in actual situations for recognition. Other nurses and interprofessional team members who can assist in determining and intervening as appropriate in each patient situation provides needed support and recognition.

The nurses described participating in HFPS in which debriefing was beneficial as a guide in understanding and recognizing key aspects of a patient’s condition however, it was limited to those scenarios presented in the simulation lab such as cardiac arrest that leads to full patient code. The challenge was learning to apply guidelines to multiple and varied life threatening situations.
Participants were also able to get cues from group members regarding skills needed in intense situations and delegation are required. In fact, the data revealed that the HFPS was stressful and while it was preparation for what was noted as stressful, chaotic and nerve-wracking practice situations, it did not minimize the sense of culture shock where intense feelings of uncertainty and lack of preparation were noted.

Finally, the most dominant theme of the discussion regarding applied learning was that transition to real life was facilitated by the experience of learning and practicing basic skills such as assessment and interventions. Of note was that the HFPS was focused only on certain types of clinical situations. In this regard, the participants described the need to direct more of the simulations towards pediatric and/or different adult specialties such as neurological patients.

**Study Conclusions**

This study analyzed nurses’ description of the knowledge and skills used in critical care nursing practice following critical care orientation using HFPS. The goal of my study was to answer the question; what are the experiences of applying knowledge and skills gained from critical care orientation using HFPS for critical care nurses who began as advanced beginners? This section discusses conclusions of the findings for this question.

The findings resulting from the research question indicate eight major themes with transition to real life as the most dominant theme. These themes are consistent with previous research (Benner, 2001; Hauber, 2010; Del Bueno; 2005; Day; 2007) that point to the steep learning curve faced by advanced beginner nurses in critical care. Faced with increasing complexity of patients in the hospital work environment such as technology and patient acuity, the potential for harm to patients increases. These suggest the need to focus on new and effective
strategies for advanced beginner orientation.

In particular, critical care nursing is focused on care of patients with life-threatening condition and HFPS is described as an effective tool however it requires integration with other learning strategies. Benner (2001) Indicates that clinical knowledge is gained over time, and clinicians are often unaware of the gains. This entails assessment and learning to recognize subtle changes over time. Basic guidelines are learned in HFPS however application and development of these skills only occurs in practice and over time. The implication here is that advanced beginner nurse in critical care need to be equipped with not only with skills and knowledge but with focused time to practice with mentors in actual clinical situations.

The stress and intensity of critical care practice which can lead to culture shock is well documented and is an added factor in the experience of advanced beginner nurses. Evidence exists in IOM; 2003, Casey et al.; 2004. which points to lack of confidence in skill performance, relationships and ongoing surveillance to detect changes in physical or cognitive status. The results indicates significant concerns related to the experience of being an advanced beginner nurse in critical care practice even with the use of HFPS.

Implications for Nursing Practice

Evidence is accumulating which highlight the need to improve the way in which nursing programs equip students with essential knowledge and skills for nursing practice (Benner, Tanner & Chesla, 1996, Bowles, & Candela, 2005, Institute of Medicine 2011). Many nurse leaders as well as educators have stressed the need to improve orientation of new graduates not only to bridge the gap from pre-licensure to licensed nurse, but as important, the mandate to ensure safe quality patient care. As a shift occurs towards the use of simulation in both the
academic and practice setting, the opportunity exists to examine best evidence that will provide the foundation for developing and applying knowledge and skills within critical care practice. According to Day (2007), the expectation is that with high-fidelity patient simulation, advanced beginner nurses will be able to spend more time in the simulation laboratory developing patient care skills without risking harm to real patients and without impact to unit workflow.

The findings of this study reinforce and highlight recommendations from previous research addressing the future of nursing education as well as simulation and learning of nursing practice. In a call for radical transformation of nursing education, Benner, Sutphen, Leonard & Day (2010) outlined fundamental shifts that need to occur including teaching for a sense of salience, situated cognition, and action in clinical situation as well as integrative teachings for all setting.

This study identified several themes which link patterns between HFPS orientation and applied learning in actual practice. Individuals interested in nursing orientation of new graduates in critical care will find the results of experiences amid post simulation training and advanced beginner practice as keys when making decisions about learning strategies and defining expected outcomes. For example, one strategy is to expand HFPS orientation to include specialty scenarios and integrating the themes within orientation structure and processes. To augment the current recommendations related to health professions education, one example is the benefit of having inter-disciplinary staff as part of the HFPS training. This was described as a valuable part of the simulation training. Gaining support from key inter-disciplinary staff as part of the simulation training may facilitate collaboration and interdisciplinary teamwork. Another example is soliciting learner style and objectives as part of training. In most instances, learning objectives were given without regard to individual learning style, however, it is not reasonable or practical
to address all learning styles in-group training. In simulated training however, this could be addressed by integrating a variety styles during the scenarios.

For nursing leaders, this study offers insight into types of resource allocation that are more likely to positively influence practice of critical care nurses as well as patient outcomes. It provides ideas for strategies that may positively influence outcomes. In particular, result implies using more specialty and pediatric scenarios as a means of building competency across diverse patient care settings. Integration of interdisciplinary staff is also identified as beneficial to participants. This requires a review of program structures, objectives, outcomes and current learning methodology.

Another important finding that relates to nursing orientation and leadership is the theme regarding culture shock. Almost 40 years ago, Marlene Kramer’s (1974) trademark study of new graduated nurses described the challenges new nurses confront in transitioning to practice (Kramer, 1974). As described by participants, culture shock is synonymous with reality shock, which continues to be a persistence occurrence. The experience of culture shock as described by Kramer (1974) is not often addressed in recent studies, however, when viewed with advanced beginner nurses in critical care, culture shock raises to new dimensions. This is an important subject in the current as well as future structure; process and outcome of critical care nursing orientation.

**Recommendations for Future Research**

The purpose of this study was to understand the experiences of advanced beginner critical care nurses regarding their application of knowledge and skills gained from HFPS to critical care nursing practice. With the use of guided interview questions, data was collected to illicit
descriptions of the experiences of advanced beginner nurses. The transcribed information was read and re-reread many times and content analysis was used to determine meaning unit’s codes, categories, sub-themes and themes.

Although the findings support and are consistent with current evidence relating to newly licensed nurses, critical care practice, and HFPS as a learning tool, limitations exist. One limitation is that the findings are limited to only 8 of the total number of nurses who met the criteria for participation. Based on this number and the total number that completed the orientation since 2011, the study design could have been enhanced to address aggregate program participants. This would potentially allow for greater number and depth of descriptions. Another limitation was the use of one study site. An exploration of similar types of simulation training in similar academic hospitals could give broader and more in-depth descriptions of the experiences. Further, a mixed method approach of a quantitative design may contribute to uncovering specific relationships between the components in the Nursing Education Simulation Framework.

Future research into this subject should include more detailed information about the experience of simulation in the pre-licensure nursing program. This study focused on the experience in critical care orientation. Additional studies with varying types of simulations scenarios such as pediatrics and neurology could potentially impact application of knowledge and skills as well as patient centered outcomes.

Another important recommendation related to health professions education is applicability of the theme related to group collaboration and inter-professional. For example, structured orientation programs that include interdisciplinary staff could facilitate development of competencies needed to work in interdisciplinary teams. These include collaboration,
communication, support, and integrated care in teams to ensure that care is continuous and reliable. Further, this approach to orientation could result in improved quality as educators begin to have more data on outcomes, which can lead to better care and outcomes.

Another avenue of research could be to create scenarios of different types of critical care practice to cover the uniqueness of each specialty and population. The basic information could be a part of each simulation for all nurses to participate and debrief as a means of gaining knowledge and skills common to specialty practice. The researchers may study outcomes of the programs that address some of the experiences of transition to real life practice such as culture shock and collaboration.

The key contribution of the study is the prominence of the challenges experienced as nurses transitioned to real life critical care practice. Issues related to harming patients, and culture shock has been well documented. Acquisition of critical care competencies requires new approaches in orientation. New nurse orientation can take on an integrated approach as pilots in whom the study themes are integrated within the simulations and the practice setting. An integrated approach can also begin in schools of nursing. Hence, a recommendation is to establish academic-practice partnerships in which the themes can be addressed together in both the simulated student experience and integration within hospital settings. One area is increased rotation in critical care aligned with simulated instruction. These types of partnerships could offer new insight while taking into consideration the intense and rapid changes in nursing and healthcare practice, technology, and the work setting.

HFPS as a learning technique has immense potential in the education of newly licensed registered nurses. The need for additional research to determine outcomes related to patient
safety and transition to practice is abundant. Although the use of HFPS in healthcare is in its infancy, it is a promising tool to assist in gaining skills and knowledge to provide safe care without harming patients. Patients deserve no less. This study acknowledges the obligation and need for continued efforts directed toward creative and innovative methods such as HFPS for both patient’s safety and development of nursing practice and expertise.
APPENDICES

APPENDIX A

Nursing Education Simulation Framework

My name is Patricia Span, RNC, MSN, CPHQ, principal investigator for this study. I am a Strategy and Learning Specialist at YNHH in the Center for Professional Practice Excellence. I am currently studying at the City University of New York in the Doctor of Philosophy in Nursing Program. This study is conducted in partial fulfillment of my course work.

**Purpose:**
To explore how critical care nurses apply learning from high fidelity patient simulation orientation into their practice.

**Subjects:**
You may be eligible to participate if you:
- Are newly licensed as an RN (within the last 12 months)
- Are a new nurse in the critical care practice setting
- Have completed adult or pediatric critical care orientation that used high fidelity patient simulation within the past 12 months

**Data Collection Procedures:**
- Set-up date, time, and place for interview with principal investigator
- Provide written informed consent
- Complete a 5-item Demographic Information Form
- Participate in a face-to-face audio-taped interview about your experience with high fidelity patient simulation
- Interviews will not be conducted during work time
- Information will be kept strictly confidential as defined by Federal Law and the Yale University Human Subjects Protection Program

To volunteer for this study or for more information please contact
Patricia Span, Principal Investigator at (203) 688-2827 or email patricia.span@ynhh.org
CONSENT FOR PARTICIPATION IN A RESEARCH PROJECT
YALE UNIVERSITY SCHOOL OF MEDICINE – YALE-NEW HAVEN HOSPITAL

Study Title: Content Analysis of Applied Learning from High Fidelity Patient Simulation for Orientation to Critical Care
Principal Investigator: Patricia Span, RNC, MSN, CPHQ
Yale New Haven Hospital, 20 York Street, 300 George St, 4th floor, New Haven, CT 06473
Funding Source: City University of New York, Doctoral Student Research Grant

Invitation to Participate and Description of Project

You are invited to participate in a research study designed to understand the experiences of advanced beginner critical care nurses regarding application of knowledge and skills gained from high fidelity patient simulation (HFPS) to actual clinical practice. You have been asked to participate in this study because you are a newly licensed registered nurses hired to work in a critical care unit at Yale-New Haven Hospital (YNHH), the setting for this study. For the purpose of this study, advanced beginner nurses are newly licensed RNs who have worked for six months or less after completing orientation.

In order to decide whether or not you wish to be a part of this research study you should know enough about its risks and benefits to make an informed decision. This consent form gives you detailed information about the research study that includes: its purpose, the procedures that will be performed, and any risks of the procedures, possible benefits and possible alternative treatment. Once you understand the study, you will be asked if you wish to participate; if so, you will be asked to sign this form.

Description of Procedures

After the consent forms are signed I will ask you to complete a demographic form that contains information about your age, gender, race/ethnicity, type of practice setting, and your educational preparation. I will also ask you to provide me with your contact information (home, work, and cell phone numbers) and best time to reach you. This information is needed to schedule your
The interview will be conducted in a private office, conference room or mutually agreed upon location at a time that is convenient for you. Interviews will be conducted during off-duty time. The interview will be audiotaped for which you will sign an additional consent form. After the audiotapes are transcribed and reviewed, I may be contacting you to review the transcripts to clarify any questions that I may have about the interview.

I will use an interview guide composed of several questions or statements about your critical care nursing orientation experience. For example, I will be asking you to talk about actual clinical situations that you feel describes application of knowledge and skills gained during the high fidelity patient simulation component of orientation. I anticipate that the interview will take about 60 minutes.

**Risks and Inconveniences**

There are no foreseeable risks associated with this study. The 5 minutes to complete the demographic form and 60 minutes that it will take to complete the interview may be perceived as inconvenient. To minimize any inconveniences associated with participation, interviews will be conducted away from your clinical units in a setting and time that is most convenient for you.

There are no direct benefits to you from participating in this study. However, you may experience professional satisfaction knowing that the results of this study may help inform the development of critical care nursing orientation curriculum using high fidelity patient simulation in the future.

**Economic Considerations**

There are no costs associated with participation in the study. You will be compensated in the form of a $25 gift card for your time and participation after work hours.

**Confidentiality**

Any identifiable information that is obtained in connection with this study will remain confidential and will be disclosed only with your permission or as required by U.S. or State law.

Any information that can identify you will remain confidential. Confidentiality will be maintained by the use of a master list of nurses’ names, contact information and their assigned study number as well as all paper data collection forms will be kept in a locked file cabinet in the principal investigator’s office. Transcripts will be de-identified by using the participant’s study code number. Access to these data will be limited to the Principal Investigator and research advisors.

All digital data will be stored on the Yale-New Haven Hospital’s password protected server. At the end of the study, approximately 24 months from now, all identifying data will be destroyed or deleted from
the computer by the Principal Investigator and all data will become anonymous. The data will be kept in this anonymous form indefinitely.

When the results of the research are published or discussed in conferences, no information will be included that would reveal your identity unless your specific consent for this activity is obtained.

Representatives from the Yale Human Investigation Committee (the committee that reviews, approves, and monitors research on human subjects) may inspect study records during internal auditing procedures. However, these individuals are required to keep all information confidential.

You do not give up any legal rights by signing this form.

**Voluntary Participation and Withdrawal**

You are free to choose not to take part in this study and if you do become a participant you are free to withdraw from the study at any time during its course.

If you signed this authorization, you may change your mind at any time, but the researcher may continue to use information collected before you change your mind to complete the research. To withdraw, you can tell the principal investigator Patricia Span that you no longer wish to participate. This will cancel any future appointments. You must also follow up your conversation by sending a written notice to revoke this authorization to Pat Span.

If you choose not to participate or if you withdraw it will not harm your relationship with your manager, nurse educator or other unit staff.

You do not give up your legal rights by signing this form.

**Questions**

We have used some technical terms in this form. Please feel free to ask about anything you don't understand and to consider this research and the consent form carefully – as long as you feel is necessary – before you make a decision.
Authorization

I have read this form and have decided to participate in the project described above. Its general purposes, the particulars of my involvement and possible hazards and inconveniences have been explained to my satisfaction. My signature also indicates that I have received a copy of this consent form.

Name of Participant:____________________________________

Signature:____________________________________

Relationship:____________________________________

Date:____________________________________

Signature of Principal Investigator Date

or

Signature of Person Obtaining Consent Date

If you have further questions about this project or if you have a research-related problem, you may contact the Principal Investigator Patricia Span at 203 688-2827.

If, after you have signed this form you have any questions about your privacy rights, please contact the Yale Privacy Officer at 203-432-5919. If you would like to talk with someone other than the researchers to discuss problems, concerns, and questions you may have concerning this research, or to discuss your rights as a research subject, you may contact the Yale Human Investigation Committee at (203) 785-4688.
APPENDIX D

HIC # 1308012566

CONSENT FOR PARTICIPATION IN A RESEARCH PROJECT
YALE UNIVERSITY SCHOOL OF MEDICINE – YALE-NEW HAVEN HOSPITAL

Study Title: Content Analysis of Applied Learning from High Fidelity Patient Simulation for Orientation to Critical Care

I am requesting your permission to audiotape you as part of this study. If you agree to the taping, we will use the tapes for transcribing the information verbatim. In addition, we would like your permission to keep the tapes until the study findings are summarized for questions which need clarification after the interview. You may choose to give permission for one or both uses of the tapes.

If you agree to participate, we will keep the tapes in a locked office of the principal investigator along with a master list with subject study codes and telephone numbers. To protect your confidentiality, we will collect data without identifiers. Subjects will be assigned a study code which will be written on the demographic and identified on the tape-recorded interviews. Tapes will be destroyed after the completion of the study and after results are summarized and final dissertation is approved.

I agree that audiotape may be taken of me as part of the study entitled: Content Analysis of Applied Learning from High Fidelity Patient Simulation Orientation to Critical Care

The audiotapes may be used for (Check all that apply)
   a. ________ any purpose relevant to research, medical evaluation, training
   b. ________ purposes of the study only

I understand that I may request at any time during the research that the audiotapes of me be destroyed and the research staff will honor my request promptly. My signature below indicates my consent for the use of these tapes.

__________________________           __________________
Signature of Subject       Date

__________________________           __________________
Relationship   Witnessed
APPENDIX E

Demographics Form

<table>
<thead>
<tr>
<th>Study Code: __________</th>
<th>Date: ____________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (in years): __________</td>
<td>Gender:</td>
</tr>
<tr>
<td></td>
<td>□ Male</td>
</tr>
<tr>
<td></td>
<td>□ Female</td>
</tr>
<tr>
<td>Race/Ethnicity:</td>
<td>Educational Preparation in Nursing:</td>
</tr>
<tr>
<td>□ White (Non-Hispanic)</td>
<td>□ Diploma</td>
</tr>
<tr>
<td>□ Black or African American (Non-Hispanic)</td>
<td>□ AD</td>
</tr>
<tr>
<td>□ Hispanic</td>
<td>□ BSN</td>
</tr>
<tr>
<td>□ Asian</td>
<td>□ MSN</td>
</tr>
<tr>
<td>□ American Indian or Alaskan Native</td>
<td>□ Other</td>
</tr>
<tr>
<td>□ Native Hawaiian or Other Pacific Islander</td>
<td></td>
</tr>
<tr>
<td>□ Mixed or other, specify:</td>
<td></td>
</tr>
</tbody>
</table>

Critical Care Unit

| □ Cardiac ICU |
| □ Cardiac ICU |
| □ Cardiothoracic ICU |
| □ Medical ICU |
| □ Neuro ICU |
| □ Pediatric ICU |
| □ Surgical ICU |
Looking back at your orientation with the use of high fidelity simulation, tell me about your experiences of applying knowledge and skills gained from the critical care orientation.

**Conceptual Component: Educational Practices**

A. **Active Learning:**
   1. What was it like for you as a newly licensed nurse to use simulation during your orientation?

B. **Feedback/Collaboration**
   2. Tell me what processes that were used during simulation that helped make you aware of how you were performing as a critical care nurses?

C. **Nurse Educator Interaction**
   3. What was it like working with the faculty during simulations?

D. **Diverse Learning Style**
   4. How did the simulation experience meet your learning style?

E. **High Expectations**
   5. How involved were you in planning personal learning objectives with the nurse educator?
   6. How did this learning experience help you meet your personal objectives?

F. **Time**
   7. Let’s talk about the length of time you had in simulation training. What was that like for you?

**Conceptual Component: Simulation Design Characteristics**

G. **Objectives**
   8. What were the learning objectives?

   9. Tell me about the simulated interventions

H. **Outcomes**
   10. Tell me how the simulation experiences prepared you for your practice setting.
11. Describe actual clinical experiences that you think illustrates learning from your orientation.

12. Think back to these actual clinical experiences and describe how you were feeling.

13. Describe how you were able to apply what you learned in HFPS to real world nursing practice.

14. Describe an example from actual clinical practice in which you feel that training with HFPS was helpful in responding to situations.

15. Describe an example in which you felt that training with simulation would have been helpful.
### APPENDIX G

**Dendrograms**

**Table 1: Theme 1 – Lose fear of harming**

| • Able to make mistakes and ask silly questions. so if you do make a mistake, it’s OK  |
| • Where I felt like I can be myself, and not be so scared to make a mistake  |
| • Because it wasn’t a real person, so you can make a lot of mistakes  |
| • take the time to make mistakes  |
| • you have the opportunity to do things and see the outcome without obviously being afraid that there’s going to be harm to the patient.  |
| • They really wanted us to make mistakes.  |
| • They wanted to see where mistakes would lead us, and if we could identify those mistakes.  |
| • In terms of, well, you know, especially for ones that are more emotionally difficult for nurses, or when mistakes are made, you know, just to talk about them, or where we could have gone differently, or more support for the nurses  |
| • Talk about what mistakes were made, what others would have done differently.  |
| • More comfortable and more bold in my interventions because I could see what would happen without there being any kind of repercussion  |
| • The whole lesson of the whole thing was to make sure that you really assess your patient and rule out easy things like, easy fixes that could potentially lead to dangerous things.  |
| • Mistakes lead to a conversation, and what was done and what could have been done differently.  |

- Time for mistakes
- Mistakes expected
- Not real person
- No repercussions
- See how things can be done differently
- Seeing where mistakes lead
- Support for nurses

**LOSE FEAR OF HARMING**
APPENDIX G

Dendrograms

<table>
<thead>
<tr>
<th>Theme 2 – Group collaboration</th>
</tr>
</thead>
<tbody>
<tr>
<td>• But just the process of kind of bouncing ideas off each other in a group setting was good</td>
</tr>
<tr>
<td>• Really helpful, because your peers could give you that, you know…Feedback. Both the instructors and your peers</td>
</tr>
<tr>
<td>• Also giving us positive feedback, too, a healthy balance</td>
</tr>
<tr>
<td>• One nurse from MICU, one from CTICU, one from SICU, like working together, rather than with your close colleagues</td>
</tr>
<tr>
<td>• Teamwork aspect of the simulation was good.</td>
</tr>
<tr>
<td>• Learning that teamwork and how you function in an intense situation, also under the context of having it be a SIM experience</td>
</tr>
<tr>
<td>• You decided that amongst yourselves, and I guess that was part of the teaching as well, is kind of like delegating, and deciding how you’re going to work in the room.</td>
</tr>
<tr>
<td>• Assign a nurse to be like a family member</td>
</tr>
<tr>
<td>• Always in groups in the simulation, and as a team you go into the room</td>
</tr>
<tr>
<td>• Taking a role, but still working together, and you’re doing your own assessment.</td>
</tr>
</tbody>
</table>

| Debriefing |
| Need for Communication |
| Differences in practice Adult / Pediatric |
| Teamwork in intense situation |
| Delegating and deciding how you are going to work |
| Feedback |
| Mistakes lead to conversation, healthy balance |
APPENDIX G

Dendrograms

Table 3: Theme 3 – Culture shock

<table>
<thead>
<tr>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Wasn’t so much of a culture shock/nice transition period</td>
</tr>
<tr>
<td>• The biggest culture shock, like I said, was going from classroom to hospital.</td>
</tr>
<tr>
<td>• You don’t get that intense feeling that you get when you’re in a real life situation. But it does really help</td>
</tr>
<tr>
<td>• Don’t think it will completely prepare you because at the times that you’re actually in one of those emergencies, you have way more adrenalin and you’re trying to figure out exactly what to do</td>
</tr>
<tr>
<td>• But still I still don’t feel comfortable with codes. I still don’t know what’s going on,</td>
</tr>
<tr>
<td>• Really bridged us into orientation and helped increase the confidence level before we were, you know, really expected to be hands-</td>
</tr>
<tr>
<td>• Really overwhelming to jump right from school to critical care where it’s just intense all the time</td>
</tr>
<tr>
<td>• New nurse working at an ICU, that can be very intense</td>
</tr>
<tr>
<td>• Makes me feel like I don’t belong there, but one thing I have to do is just accept the fact that even those people who are there, and who know a lot more than I do, they once started without knowing anything.</td>
</tr>
<tr>
<td>• Just a very nerve-wracking time. You wish that you had a little bit more practice or experience.</td>
</tr>
<tr>
<td>• Was going from classroom to hospital. Having that little gap of education, to still be in a classroom setting, touch patients that you can do this trial by error, was really helpful.</td>
</tr>
<tr>
<td>• It catapults very quickly.</td>
</tr>
</tbody>
</table>

CULTURE SHOCK

• Nerve wracking
• Bridge into orientation
• Everyone started – not knowing anything
• Class to hospital
• Intense but not like real life situation
• Uncertainty
• Unprepared in emergencies
APPENDIX G

Dendrograms

Table 4: Theme 4 – Feelings of competence/self-confidence

- Practice code situations
- Little intimidating at first, though to think that everybody was watching you, but by the end they would, you kind of went through what you did and it wasn’t very, it wasn’t like critiquing or anything. It was just kind of “this is what you did, this was good, and this is what we could’ve done differently.”
- Very pleasant and helpful, and there to learn and accommodating
- Didn’t make us feel any less
- Little intimidating at first, just being new, and not really knowing what to expect.
- One of the instructors who ran the simulation, she was actually a manager on my specific unit. Then there’s a respiratory therapist that worked with us. They didn’t judge us too harshly, I think, and they expected us to make the mistakes we did, and then we went over them afterwards,
- Was great because they have different perceptions on things.
- I think I was tense, but I think I handled it well, and I kind of just did – in the moment, I just did what had to be done.
- Being placed in that situation previously, it’s like, as a new grad you’ve never had any experience, but you’ve had experience with – if you’ve had experience with SIM Man then you can think back, “oh, I remember when this happened
- Thinking that I was about to realize how much I did not know
- Very intimidated to open my mouth
- I hope that I can remember all of this for the future, if I ever face this situation.”
- Just reiterating the fact of self-confidence; trusting your knowledge and your instinct; having that conversation with our peers
- Simulation helps you see a scenario like that before you get into practice, so you have a better understanding and you feel more comfortable because you know what to expect
## APPENDIX G

### Dendrograms

**Table 5: Theme 5 – Teacher as guide**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A lot of them are nurses on the ICU’s.</td>
<td>Very experienced, highly knowledgeable in their fields</td>
</tr>
<tr>
<td>Worked as a nurse student before</td>
<td>Also a technician in another ICU, so you have a lot more contact with the patients – you’re less intimidated to touch them</td>
</tr>
<tr>
<td>Worked as a nurse student before</td>
<td>It’s because there’s a lot of support, a lot of people around you who know a lot more about your fresh grad brain knows.</td>
</tr>
<tr>
<td>Worked as a nurse student before</td>
<td>I think they helped us and they answered questions when we needed them.</td>
</tr>
<tr>
<td>Worked as a nurse student before</td>
<td>All felt very similar, we could bounce our ideas off of each other, and we had someone supervising</td>
</tr>
<tr>
<td>Brain is overloaded.</td>
<td>It would have been nice to come in on a, like a separate class and just focus on just doing simulations for four hours, or two hours.</td>
</tr>
<tr>
<td>Brain is overloaded.</td>
<td>Could have been a few more simulations for our orientation.</td>
</tr>
<tr>
<td>Brain is overloaded.</td>
<td>Some of the simulations only lasted five minutes</td>
</tr>
<tr>
<td>Brain is overloaded.</td>
<td>Sometimes we would go, say in Jan. we then go back until March.</td>
</tr>
<tr>
<td>Brain is overloaded.</td>
<td>We only participated in a couple of scenarios.</td>
</tr>
<tr>
<td>Brain is overloaded.</td>
<td>I guess you got something out of each one, even though you weren’t participating in each one, you only participated in one, maybe two</td>
</tr>
<tr>
<td>Brain is overloaded.</td>
<td>Simulations every month or every couple of months of different, like for Neuro, or cardiac would be helpful.</td>
</tr>
<tr>
<td>Brain is overloaded.</td>
<td>Structured appropriately for what we were learning</td>
</tr>
<tr>
<td>Brain is overloaded.</td>
<td>Each scenario picked out certain learning</td>
</tr>
<tr>
<td>Brain is overloaded.</td>
<td>Had a list of things after the simulation was over of things we were supposed to touch on, and then we’d go over which ones we reached and which ones we didn’t.</td>
</tr>
<tr>
<td>Brain is overloaded.</td>
<td>Learning how to critically think in a very complex, dynamic situation overall</td>
</tr>
<tr>
<td>Brain is overloaded.</td>
<td>Couldn’t really physically see it on them, but they were telling you what was wrong</td>
</tr>
<tr>
<td>Brain is overloaded.</td>
<td>Present us with obstacles of what a real RN would deal with</td>
</tr>
<tr>
<td>Brain is overloaded.</td>
<td>We understand what we had to do, but in time it’ll come.</td>
</tr>
<tr>
<td>Brain is overloaded.</td>
<td>Had to go back think about their adult knowledge rather than applying it to a pediatric patient.</td>
</tr>
</tbody>
</table>

**TEACHER AS GUIDE**

- Respect
- Modeling
- “Feeling part of”
- Role
- Support (& group)
- Previous experience
- Need to assess, anticipate and take actions
- Felling of being overloaded
- Limited simulations
- Critical thinking in complex situations
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Dendrograms

Table 6: Theme 6 – Inter-professional

• Respiratory therapist, we had nursing educators, we had nurses, and I’m not sure if a physician attended every time.
• Nobody checked to see the authority of the doctor
• Guess it’s like the little things I remember. It’s like the things we screwed up
• I always thought that people were ahead of me.
• It’s working with other people within the room and in a chaotic situation, and where you can’t really plan, you kind of just have to do it, and work together.
• Primarily nurses. Multidisciplinary in the sense that you would like page the doctor
• Nerve-wracking time. You wish that you had a little bit more practice or experience.
• Was kind of like getting your comfort level in the right position
• Main thing was calming my nerves and knowing, and realizing how fast things could change, and just being more comfortable with my assessment skills
• I think all the nervousness that I was feeling got in the way of my thinking, and that’s when the SIM – that’s what the SIM does not provide, is that real deal type of thing, so that first code I had, I was really all over the place
• Unsure at all points.
• I remember being very nervous but trying to figure out.
• I’m much more confident in my skills, but like I said, I think it would have been even better to reassess it at the end with a very complex, another simulation just to make sure
• I can do is I can take that whatever I learned, and watch out for those abnormality and see if I need to apply whatever learned there.
• The fast-paced and the really thinking and assessing your patient is the main, is really the most helpful part of the simulation, is assessing for change and knowing where to go from there.
• Having your own book of knowledge basically, and feeling comfortable with saying, “OK, this doesn’t look right to me
• Understanding the effects of if you go by what necessarily people are telling you that could lead to patient harm.
• You learn from the very beginning, in your clinical experience to always ask questions, and always double-check
• Getting to the point again where I feel like I know what we do, and I know when things aren’t right
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Dendrograms

Table 7: Theme 7 – Learning style

- See and do-never forget
- You’re not going to harm somebody, because it’s a simulator. So, that is the way I like to learn
- those key points that stick out, those key things that happen that you remember
- To really look at your patient, I guess, and really rule out things like that and don’t panic
- Liked that it was very fast-paced, very interactive, it didn’t feel fake
- You can think back on what you did in SIM and made the, the process of learning what we were learning easier
- I like to do things with my hands,. I learn better if I’m actually acting
- They let us do it and then they’re like, “think about what you did,” and “Did that make sense?”
- Like a stepping stone, it like, it got us comfortable just in asking questions in a situation, and being in a high stress situation.
- When you do simulations in groups, people see things in different ways, and perhaps things that I saw other people did not see, but then other people saw things before I did
- Nothing is like the practice setting
- Did say, I did think “I want to learn x, y
- Wanted to kind of work on my critical thinking skills. Because I wanted to, you know, have a situation and think, this is the information I’m given. This is what’s happening. “…figure it out.”
- Met my learning style because my learning style is practicing. Practice makes it not perfect, but good.
- Hands-on learner
- Kind of practice it in a simulation
- Visual
- Hearing it said to me and then I need to write it down
- Preference of learning is, is hands-on, but it also is very hands-on with like real situations.
- I need to see it and do it once, and then I’ll never forget it.
- Don’t know if they were totally tailored to individual, more as a group
- With every scenario, I honestly wanted to learn, “OK, what am I going to do when my patient crashes
- Felt more real than anything I had ever done before
Table 8.1: Theme 8 – Transition to real life

- Working with your peers in a setting that is pressure-free, and you understand that people are there to, if they critique you
- To have someone actively have the stroke in front of you, and where to kind of escalate from there now that all the stroke training and everything that we’re doing. It would be nice to incorporate that into simulation
- still feel like… hesitant
- I guess because I’m more experienced now that I want to know more things, and when you’re a new grad you’re kind of tunnel vision
- Good stepping stone between actually going onto the floor and jumping into critical care
- code simulations really help you
- When you actually see it in front of you and you, that patient has what you are supposed to do it makes it easier to understand.
- It’s not enough. I’d rather have more because it’s super stressful being a new grad
- All those things that come to sequence that as a new nurse you don’t necessarily know, but once you’ve experienced them through simulation you can act them out in your clinical experience.
- Treating real patients with real diseases/no longer a textbook very overwhelming as a new grad, especially when you’re in the ICU
- Few different simulations for like each system, things that might happen, and things that you might encounter an emergency situation.
- Always in the back of my mind, I think when there’s a procedure going on
- Hard, a lot of the critical care program wasn’t really focused for the pediatric population.
- I think it was absolutely necessary and essential
- The emergency situations that the adults see in the ICU is very different than what we see (Pediatrics).
- Lot of the neurological stuff are the same
- More unit-specific simulations
- Quickly divided up tasks and were able to kind of delegate to each other. Something during the simulation that definitely we use now.
- Culture on the unit was pretty intense.
### APPENDIX G

**Dendrograms**

**Table 8.2: Theme 8 – Transition to real life**

<table>
<thead>
<tr>
<th>Theme</th>
<th>SIM</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The main thing was on my mind was if my patient stops breathing,</td>
<td>• Pressure free in SIM</td>
</tr>
<tr>
<td>and if their heart rate stops, am I going to know what to do?</td>
<td>• Need more / stressful as new graduate</td>
</tr>
<tr>
<td>• Wanted to feel comfortable in recording, and passing meds, and</td>
<td>• Sequences – can act out in clinical</td>
</tr>
<tr>
<td>knowing when to escalate care.</td>
<td>• Divide tasks and delegate</td>
</tr>
<tr>
<td>• Get that baseline experience</td>
<td>• Will I know what to do?</td>
</tr>
<tr>
<td>• Debriefing and saying what went wrong, or what you could have</td>
<td>• Fast moving emergencies</td>
</tr>
<tr>
<td>done, just so you can think back and when you’re in your actual</td>
<td>• Escalation with chain of command</td>
</tr>
<tr>
<td>patient’s room, you can think back on your simulations and say,</td>
<td>• Taking charge</td>
</tr>
<tr>
<td>“oh, I remember they told me I should this instead of</td>
<td>• Need to assess, intervene</td>
</tr>
<tr>
<td>• Left the patient, I mean, with all the other people, all the other</td>
<td>• Recognizing changing patient status – take action</td>
</tr>
<tr>
<td>staff, the nurses and da-da-da, to get the cart, but that wasn’t</td>
<td>• Panic – but in control</td>
</tr>
<tr>
<td>something I should have done. It should have been somebody else,</td>
<td>• Follow-up after orientation</td>
</tr>
<tr>
<td>because that was my patient.</td>
<td>• Remembering debriefing</td>
</tr>
<tr>
<td>• So the next time I knew that I could just assign someone to go</td>
<td>• No longer textbook</td>
</tr>
<tr>
<td>get it, because I’m not leaving the patient</td>
<td>• Need for specialty</td>
</tr>
<tr>
<td>• The patient but the family members are important too</td>
<td>• Striving for comfort</td>
</tr>
<tr>
<td>• Like you’re saying it but you’re not actually doing it</td>
<td>• Bedside manner</td>
</tr>
<tr>
<td>• The skills that you actually have to do, we’re not actually doing.</td>
<td>• Preparation for real life</td>
</tr>
<tr>
<td>• I think now it’s – I’m like, “oh I’m glad I did that,” or “I’m</td>
<td>• Thirst for learning from tunnel vision</td>
</tr>
<tr>
<td>glad that they put me through that.</td>
<td>• Stepping stone</td>
</tr>
<tr>
<td>• Practice makes perfect, and the simulations really allow you to</td>
<td></td>
</tr>
<tr>
<td>practice these situations and know what steps you need to take in</td>
<td></td>
</tr>
<tr>
<td>order.</td>
<td></td>
</tr>
<tr>
<td>• Every day that I’m there, I probably use some piece of whatever I</td>
<td></td>
</tr>
<tr>
<td>learned.</td>
<td></td>
</tr>
<tr>
<td>• Find yourself in a setting where a patient is crashing</td>
<td></td>
</tr>
<tr>
<td>• Scared that your patient’s going to code, and you’re not going to</td>
<td></td>
</tr>
<tr>
<td>know what to do.</td>
<td></td>
</tr>
<tr>
<td>• I wish I had more specific things so I can learn more and be more –</td>
<td></td>
</tr>
<tr>
<td>think more critically</td>
<td></td>
</tr>
<tr>
<td>• In general, like the whole code aspect</td>
<td></td>
</tr>
<tr>
<td>• It’s not going to help me out to have a 50 year-old man having an</td>
<td></td>
</tr>
<tr>
<td>MI.</td>
<td></td>
</tr>
<tr>
<td>• Never did a stroke in simulation, and I don’t remember thinking</td>
<td></td>
</tr>
<tr>
<td>about simulations, but when I had my patient stroke for the first</td>
<td></td>
</tr>
<tr>
<td>time, I mean, it was – it’a a whole process</td>
<td></td>
</tr>
<tr>
<td>• It’s something that happened that was pretty high stress.</td>
<td></td>
</tr>
</tbody>
</table>
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Dendrograms

Table 8.3: Theme 8 – Transition to real life

| Reassess and maybe like have a follow-up class or something towards the end to do, you know, a couple more maybe that were more challenging, or you know, it would be nice to see like the growth and the change, and then at that point maybe assess how, or what else we haven’t covered that maybe we could benefit from. |
| Not the critical care that these simulations offered. |
| It started off and then something happened where you had to intervene, and then I remember you had to call a rapid response or a code or something like that. And it was like step-by-step. It wasn’t you just walked into a code or something. You just, you had to assess, intervene, and go on. |
| Needed to know what to have at the bedside |
| Try something out before you actually threw me into the real world |
| Hadn’t experienced an emergency, which is what all those simulations were -- they were all like fast-moving, something went wrong. |
| Try something out before you actually threw me into the real world. |
| Hadn’t experienced an emergency, which is what all those simulations were -- they were all like fast-moving, something went wrong. |
| A lot of them were code situations where your patient may have gone Asystolic, or it was like a PEA and interventions for that. |
| Often I was saying, “Oh, I learned this from simulation |
| Big part of it was assessing and using the simulator |
| Distinctly remember like communicating with the chain of command, and assessing critical vital signs, and what would you do, and how do you know that the, what they’re ordering, does that make sense; questioning their orders, all those kind of things. |
| To be alone and know how to act quickly and to ask for help and to kind of take charge of the situation. |
| Prepared me for emergency situations, even just my patient codes |
| Recognizing when something is going wrong, reaching out to the right people, and then taking the steps to modify that situation, |
| Patient is requiring, is becoming hypotensive, and needs to have fluid, is the first intervention. So you would reach out to the doctor and explain to him the situation, and I’d always think back to SIM Man |
| Learning how to do the SBAR |
| We’re doing this urgent care that if you didn’t manage the patient before they got to that point, things could go worse |
| Pressure free in SIM |
| Need more / stressful as new graduate |
| Sequences – can act out in clinical |
| Divide tasks and delegate |
| Will I know what to do? |
| Fast moving emergencies |
| Escalation with chain of command |
| Taking charge |
| Need to assess, intervene |
| Recognizing changing patient status – take action |
| Panic – but in control |
| Follow-up after orientation |
| Remembering debriefing |
| No longer textbook |
| Need for specialty |
| Striving for comfort |
| Bedside manner |
| Preparation for real life |
| Thirst for learning from tunnel vision |
| Stepping stone |
APPENDIX G

Dendrograms

Table 8.4: Theme 8 – Transition to real life

• Like if my patient becomes unresponsive – there were so many simulations of when your patient becomes unresponsive, what to do and how to.
• Any emergency situation, it always brings me back to simulation. It was mainly only emergency situations with simulation; it was never really anything else.
• Code cart
• Pulseless Electrical Activity/ so I knew how to react, what to do, I immediately called for help – which is what they teach you in SIM
• Patient who went into V-Tach
• Rapid A-fib situation,
• Knew exactly what meds to give, I knew everything about that med, everything that simulation taught me. I knew I needed to escalate care, I knew what to pay attention to in terms of blood pressure
• Panicked. But not panicked to the point where I froze and did nothing. I was just – I felt an adrenaline rush
• I knew exactly where I was going to put those medications; I knew that someone needed to do CPR…
• Like it’s something you do now that I forget that I learned at some point.
• Whole assessment thing. I feel like that’s something I forget I picked up on.
• Very chaotic
• I think I knew what I had to do and I, I did what I needed to do, and then I think that was, you know, I knew, I knew my patient
• I was very sure of myself at the time, but you could tell it was utter chaos
• Scared.
• Everything is a first time
• I feel like during a simulation you’re just focused on “something is going to happen, something wrong is going to happen,” and you’re going to have to fix it, more than just talking to the patient and trying to keep everything under control and calm.
• You know something’s going to happen, you’re just looking around waiting for it
• Only thing I can really apply from simulation is when something goes wrong, “I have to do this.”
• I’m sure that as – whatever decision I made somehow came from that knowledge, it’s just that I consciously did not think about it
• Pressure free in SIM
• Need more / stressful as new graduate
• Sequences – can act out in clinical
• Divide tasks and delegate
• Will I know what to do?
• Fast moving emergencies
• Escalation with chain of command
• Taking charge
• Need to assess, intervene
• Recognizing changing patient status – take action
• Panic – but in control
• Follow-up after orientation
• Remembering debriefing
• No longer textbook
• Need for specialty
• Striving for comfort
• Bedside manner
• Preparation for real life
• Thirst for learning from tunnel vision
• Stepping stone
# APPENDIX G

## Dendrograms

### Table 8.5: Theme 8 – Transition to real life

<table>
<thead>
<tr>
<th>Remember questioning doctors’ orders, too.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not always believing at face value what you’re told –</td>
</tr>
<tr>
<td>Always being that second pair of eyes, that last check</td>
</tr>
<tr>
<td>Another part of the simulation, is figuring out what caused these issues, you know, kind of trying to link them back to an issue.</td>
</tr>
<tr>
<td>You know when something’s wrong, you know when to get help, you know when to assess and when to intervene,</td>
</tr>
<tr>
<td>Like a time thing. I think the simulation is so fast that you probably will pick up on signs much faster than real life.</td>
</tr>
<tr>
<td>Hadn’t experienced an emergency, which is what all those simulations were -- they were all like fast-moving, something went wrong.</td>
</tr>
<tr>
<td>Second-guess myself a lot</td>
</tr>
<tr>
<td>Try something out before you actually threw me into the real world.</td>
</tr>
<tr>
<td>Hadn’t experienced an emergency, which is what all those simulations were -- they were all like fast-moving, something went wrong.</td>
</tr>
<tr>
<td>A lot of them were code situations where your patient may have gone Asystolic, or it was like a PEA and interventions for that.</td>
</tr>
<tr>
<td>Often I was saying, “Oh, I learned this from simulation</td>
</tr>
<tr>
<td>Big part of it was assessing and using the simulator</td>
</tr>
<tr>
<td>Distinctly remember like communicating with the chain of command, and assessing critical vital signs, and what would you do, and how do you know that the, what they’re ordering, does that make sense; questioning their orders, all those kind of things.</td>
</tr>
<tr>
<td>To be alone and know how to act quickly and to ask for help and to kind of take charge of the situation.</td>
</tr>
<tr>
<td>Definitely always know who’s privileged to do intubations</td>
</tr>
<tr>
<td>Prepared me for emergency situations, even just my patient codes</td>
</tr>
<tr>
<td>Recognizing when something is going wrong, reaching out to the right people, and then taking the steps to modify that situation,</td>
</tr>
<tr>
<td>Patient is requiring, is becoming hypotensive, and needs to have fluid, is the first intervention. So you would reach out to the doctor and explain to him the situation, and I’d always think back to SIM Man</td>
</tr>
<tr>
<td>Learning how to do the SBAR</td>
</tr>
<tr>
<td>We’re doing this urgent care that if you didn’t manage the patient before they got to that point, things could go worse</td>
</tr>
</tbody>
</table>

| Pressure free in SIM |
| Need more / stressful as new graduate |
| Sequences – can act out in clinical |
| Divide tasks and delegate |
| Will I know what to do? |
| Fast moving emergencies |
| Escalation with chain of command |
| Taking charge |
| Need to assess, intervene |
| Recognizing changing patient status – take action |
| Panic – but in control |
| Follow-up after orientation |
| Remembering debriefing |
| No longer textbook |
| Need for specialty |
| Striving for comfort |
| Bedside manner |
| Preparation for real life |
| Thirst for learning from tunnel vision |
| Stepping stone |
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